

INFRASTRUCTURE Intelligence

HS2 starts infrastructure revolution

page 6, 7, 8, 9 and 25



DESIGN

Sadie Morgan on the
new Design Principles
page 13



TECHNOLOGY

Rachel White talks
digital disruption
page 16-17

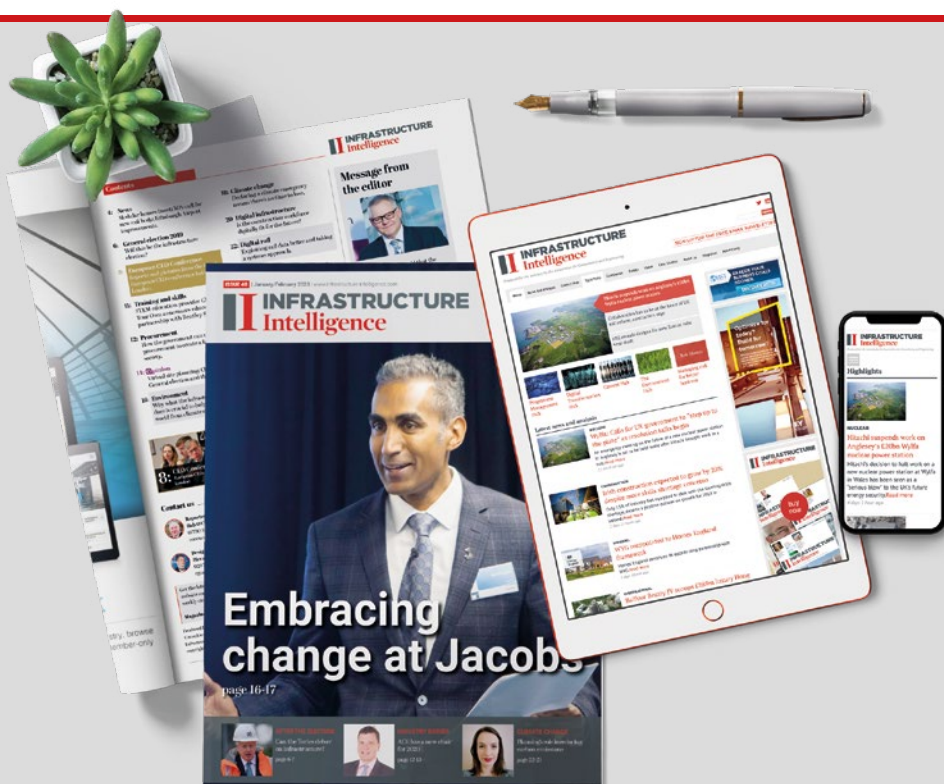


CONSULTANCY FOCUS

The specialist engineers
making a difference
page 22-23

INFRASTRUCTURE Intelligence

Produced for the industry by the Association for Consultancy and Engineering



Keep up to date with important industry news, views, features and comment.

Sign up for the free twice-weekly email newsletter

www.infrastructure-intelligence.com

Don't take risks with your transport responsibilities

You have the responsibility to make the right choice for your next transport provider.

Safety, efficiency and environmental protection are key considerations for any project requiring the use of commercial vehicles.

FORS – the Fleet Operator Recognition Scheme – is the go to transport industry accreditation scheme with over 5,000 members across the UK and Europe.

For a safer, smarter, greener future, get on board with FORS.



FORS
FLEET OPERATOR
RECOGNITION SCHEME

**SAFER
SMARTER
GREENER**

www.fors-online.org.uk

Call: 08448 09 09 44

@FORS_online

4: News

Northern Rail renationalised; Leeds Bradford Airport; PI insurance concerns.

6: HS2 go-ahead

A round-up of industry reaction to a landmark decision for construction.

10: Contractor focus

We speak to Wates's health and safety director about the firm's environmental plans.

12: Business ethics

Why tackling fraud and corruption is everyone's responsibility.

13: Design

Sadie Morgan on the first-ever Design Principles for National Infrastructure.

14: Opinion

Net zero opportunity; Young people and construction; Cities with a heart.

16: Technology

Talking digital with Rachel White, chief executive of newly launched Arcadis Gen.

18: Regions

The latest infrastructure developments in the north east of England.

20: Diversity

We profile a collaboration model set to transform the industry.

21: Wales

A payment revolution is underway in the Welsh construction sector.

22: Consultancy focus

Interview with Robert Bird Group – the specialist engineers making a difference.

24: Environment

A new industry net zero campaign is unveiled.

25: Transport

What does Boris Johnson's HS2 announcement mean for UK transport?

26: ACE news

New PII guidance; Scottish infrastructure plans; What next for Brexit? Future of Consultancy.

29: EIC news

Why the new environment secretary will have his work cut out.

30: Nuclear

Managing the dispute risks in nuclear power projects.

Message from the editor



At long last, the government has given the go-ahead to HS2 and the infrastructure sector is rightly rejoicing at the news. The project has the potential to transform the prospects of whole regions and the construction sector as firms queue up to do the required work. This is a good news story and not before time as the industry has had it tough of late.

As many in construction have pointed out though, the decision brings with it real responsibility on our industry to deliver this massive project on time and to budget. To say this will be a challenge is putting it mildly. But the industry now has a once-in-a-generation opportunity to step up to the plate and promote its skills and ingenuity on a national stage. It must deliver.

Also being delivered by the government it seems are a range of other transport projects that have the potential to usher in a bonanza of work for the construction sector. At long last the government is recognising what the industry has been saying for years – investment in quality and sustainable infrastructure is a sure-fire way to reap economic and social benefit.

So, while we should rightly celebrate the green light for HS2, as an industry we also need to keep the pressure up to ensure that the infrastructure that is delivered is done in a way that is truly sustainable. If that means that it might cost a little bit more in the short-term to reap long-term rewards, then we should not shy away from arguing for that extra investment.

Andy Walker,
Editor,
07791 997602
awalker@infrastructure-intelligence.com



6: HS2 go-ahead
A landmark decision for the construction industry.



16: Technology
Arcadis launches a digital disruptor.



30: Nuclear
Managing dispute risk on nuclear power projects.

Contact us



Reporter:
Rob O'Connor
07790 585396
roconnor@infrastructure-intelligence.com



Commercial Manager:
Ian Parker
07894 053961
iparker@acenet.co.uk



Design and production:
Riccardo Gualandi
020 7227 1891
rgualandi@acenet.co.uk



Events Manager:
Lise Kroeyer
07786 064835
lkroeyer@acenet.co.uk

Get the latest infrastructure news on our website and sign up to our **FREE twice** weekly email alerts.

Magazine subscription: £80 a year.



The views expressed in Infrastructure Intelligence are not necessarily those of the Association for Consultancy and Engineering (ACE).

✉ www.infrastructure-intelligence.com
📍 Infrastructure Intelligence
12 Caxton St, London SW1H 0QL
☎ T: 020 7222 6557
📧 @infra_intel

Produced for the industry by the Association for Consultancy and Engineering (ACE).
Infrastructure Intelligence and its content are copyright © 2020 Victoria Street Capital Limited.

Government renationalises Northern Rail

The government has acknowledged that the current model of rail privatisation across the country is “struggling to deliver” and that major infrastructure investment is required to tackle failing services, following the renationalisation of Northern Rail on 1 March 2020.

Operation of all Northern services has transferred from Arriva Rail North to Northern Trains Limited, a subsidiary of DfT OLR Holdings Limited (DOHL). All tickets, including season tickets, will still be valid, and all Arriva Rail North passengers, employees and suppliers can expect operations to continue during the transfer period.

The Northern franchise was awarded to Arriva in 2016 but plans to improve services have foundered on the back of delays to infrastructure and a long-running dispute with unions leading to widespread strikes. Punctuality and reliability collapsed around the introduction of the May 2018 timetable and have largely failed to recover, and potential renationalisation was announced as a serious option earlier this month.

Transport secretary Grant Shapps said: “The announcement will inevitably raise



Delays and timetabling fiascos have seen the government lose confidence in Northern Rail.

Read more online at
www.infrastructure-intelligence.com

questions about the future of rail privatisation. Over the past 20 years, privatisation has reversed over two decades of declining passenger numbers and passenger journeys have almost doubled to nearly two billion.

“However, it is clear that the current model is now struggling to deliver. Across the country a number of franchises are failing to provide the reliable services that passengers require. We know change is needed, and it is coming. The Williams Review is looking at reforms across the railway to ensure customers are at the heart of the system.”

Shapps added: “It’s no surprise that passengers have lost trust in the north’s rail network. The service provided by the rail network in the north has failed to meet the needs of passengers. People across the north deserve better, their communities deserve better and I am determined to achieve that.”

PI insurance a “major challenge” for contractors in 2020

Research by CECA has revealed the spiralling cost of professional indemnity insurance for contractors as the market has hardened.

The cost of professional indemnity (PI) insurance will be a major challenge for contractors in 2020, according to research published today by the Civil Engineering Contractors Association (CECA).

In recent months CECA members have reported spiralling costs for professional indemnity insurance as the market has hardened. To assess the scale of the issue CECA polled its members and in the last five years:

- 92% of contractors have experienced substantially increased premiums
- 85% have seen a reduction in PI insurance providers
- More than half have seen large increases in excesses



Fire is the biggest cause of financial loss in the engineering sector.

Leeds Bradford Airport plans new £150m terminal building

Leeds Bradford Airport (LBA) is submitting fresh plans to build a new £150m state-of-the-art terminal, aiming to deliver one of the UK's most environmentally efficient airport buildings and support greater economic prosperity for the Leeds city region, Yorkshire and the north.

The new plans, to be submitted in the spring, replace the recently consented scheme and the existing terminal building with what it describes as a “more efficient and sustainable development.”

The plans propose the construction of a three floor, 34,000sq metre terminal on an alternative site within the airport's boundary. If approved, this upgrade would create a modern airport terminal, classified as ‘excellent’ by the BREEAM sustainability standard, which is awarded only to the most environmentally efficient buildings internationally.

Completion of the terminal would also enable LBA to meet its target of net zero carbon emissions from airport operations by 2023, and the scheme would also deliver “significantly enhanced facilities,” helping LBA to meet its expected passenger demand of up to seven million passengers a year by 2030.

Features to enhance the passenger experience include better

surface access, with the site located nearer to the proposed rail link, clean and airy interiors, improved shopping, restaurants and bars and excellent access and comfort through from arrival to boarding.

Hywel Rees, chief executive of Leeds Bradford Airport, said: “This proposed development is hugely exciting for Leeds Bradford Airport and the north and replaces our previously approved plans. For more than 55 years, LBA has provided an international gateway to and from Yorkshire. Our vision is to serve our region as a truly outstanding airport and to profoundly change the perception and reality of customer experience for passengers. To do this we need a terminal that meets the needs of the future in passenger flow and energy efficiency.



Artist's image of the new Leeds Bradford Airport terminal building.



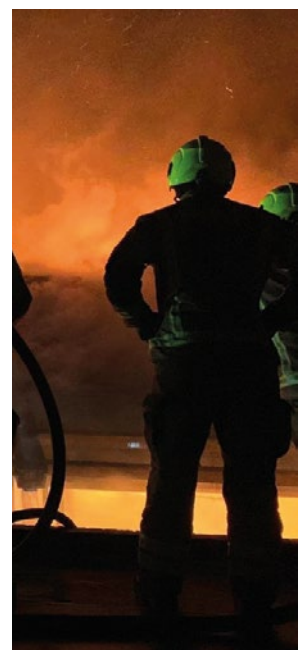
Special loss in insurance claims in PHOTO: London Fire Brigade.

- More than half have found it impossible to get cover on an each-and-every basis.
- More than 70% have seen their PI insurance costs rise at least 20% at their last renewal, with costs more than doubling for 22%.

Commenting, CECA chief executive Alasdair Reisner said: “There has been a substantial hardening of the insurance market accessible to contractors, which has meant there are fewer insurance providers, narrower cover, increasing premiums and higher policy excesses.

“We are advising our members as to the best steps they can take to mitigate these challenges, and are recommending that they access information on forthcoming renewal of policies as early as possible, meet directly with their insurers and identify the appropriate risk management procedures to deploy across their businesses.

“We now hope to work with government, our members, and the insurance companies themselves, to identify steps that will improve the availability and affordability of insurance in the infrastructure sector.”



HS2 reaction:

“Now, let’s go and build the thing!”

After much debate and discussion, the government has finally given the go-ahead to build HS2. Industry reaction is clear and unanimous – “It’s about time; now let’s go and build it!” *Andy Walker* reports on a landmark decision for construction and the country.

The construction sector has reacted with undisguised glee to the government’s announcement on 11 February that HS2 is to be built and in full, subject to a further review of costs of the line in the north. In what has been hailed as a landmark moment for the sector, many in the industry see the decision as one which could open up a new “golden age” for infrastructure.

ACE chief executive, Hannah Vickers, said: “This is great news for people across the Midlands and the north who will benefit from an economic boost by being better connected. Thanks to capacity being opened up across the network, projects like Midlands Rail and Northern Powerhouse Rail can become a reality. There has been enough discussion and delay. HS2 was first announced nearly a decade ago. We need to stop talking and get on with building the future.”

Civil Engineering Contractors



Hannah Vickers, chief executive, Association for Consultancy and Engineering.

“Thanks to capacity being opened up across the network, projects like Midlands Rail and Northern Powerhouse Rail can become a reality.”

said HS2 would be “one of the most transformational projects ever undertaken in the UK, giving the industry the certainty it needs to focus on delivery”. She also urged the government to “move ahead with purpose to ensure that Phase 2 isn’t compromised, recognising that HS2’s true benefits hinge on extra capacity for cities and regions beyond Birmingham.”

The Construction Leadership Council said that the size of the programme meant that the industry has been given a once in a generation opportunity to invest long term in the development of skills, capabilities and technology. CLC co-chair Andy Mitchell said: “The construction sector now has a golden opportunity to demonstrate how far we have come in developing new skills and innovative techniques to deliver a high-performing high-speed railway.”

David Barwell, chief executive, UK&I at AECOM, said:

“Delivering a transport network fit for the future needs of our society, HS2 will create a legacy for generations to come. Boosting productivity in the city regions of the north and Midlands and releasing capacity to benefit the towns, villages and communities that surround them.”

Commenting on the government’s plan to review Phase 2 of the project, Midlands Connect chairman



Marie-Claude Hemming, director of external affairs, Civil Engineering Contractors Association.

“The decision to go ahead with HS2 heralds a new dawn for the UK’s infrastructure sector.”



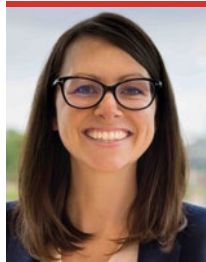
Coming to a new station near you at some point soon - an HS2 train.

Sir John Peace said: “A review must also commit to constructing Phase 2b from the West Midlands to the East Midlands first and must not consider downgrading lines north of Birmingham to cut costs. The Midlands must not be short-changed with a two-tier HS2 network.”

Darren Caplan, chief executive of the Railway Industry Association, looked forward to a new “golden age of rail” and hailed the job creation potential of the project. “HS2 already employs 10,000 people, will support 15,000 by the end of the year, and 30,000 at peak construction. And beyond the project itself, will act as a catalyst for some 500,000 jobs and 90,000 homes,” he said.

Trade unions and business organisations also welcomed the news. Jude Brimble, GMB national secretary, said: “The reality is that HS2 is happening and the government should get on with it. Thousands of skilled jobs depend on the project in construction and the supply chain.” The CBI said simply: “The time for debate over HS2 is over and the time for delivery is now.”

Mark Cowlard, UK CEO at Arcadis, said: “Arcadis is pleased that the independent review by Douglas Oakervee and the government have come to the same conclusions - that the benefits of HS2 vastly outweigh the concerns, and those concerns can be rightly addressed



Lizi Stewart,
transportation
managing director,
Atkins.

“HS2 would be one of the most transformational projects ever undertaken in the UK, giving the industry the certainty it needs to focus on delivery.”

through the planning and development process. Our sector can now move forward with confidence and deliver a railway that benefits all and showcases the best of British engineering and innovation.”

From the north, Roger Marsh, chair of the NP11 Board, the business-led voice that brings together the 11 local enterprise partnerships from across the north of England, said: “We welcome the commitment to delivering the eastern leg, which is critical

to ensuring the full benefits of the scheme are felt across the north.”

Henri Murison, director of Northern Powerhouse Partnership, said: “This is a once-in-a-generation opportunity; to create a truly balanced Britain that works for everyone. Integrating HS2 and Northern Powerhouse Rail is the first step - a bold, decisive, forward-looking step that I am heartened the government has finally chosen to take as politicians across both major parties here in the north have campaigned with us for.”

Bill McElroy, head of industry strategy programme advisory at Turner & Townsend said that the building HS2 was a real opportunity for the industry to shine. “HS2 also presents an opportunity for the UK infrastructure industry to reinvent itself and shine at its brightest. This is a state-of-the-art infrastructure programme that will provide a means for high speed, low carbon travel and support the UK’s transition to a net-zero carbon economy. To deliver this the industry needs to organise itself and step up to the mark.”

Read more online at
www.infrastructure-intelligence.com



The right project, but wrong pitch to the public

Misunderstood and misinterpreted from the start, the communications and business case for HS2 has not kept pace with the project's development, argues ACE vice-chair *David Beddell*.



The communications message on high-speed rail has been found wanting.



Artist's impression of how the new HS2 station at London Euston

HS2 will become a case study in the importance of having your corporate communications in order. Since the beginning, protestors have successfully framed the project as only being about shaving ten minutes between Birmingham and London and this narrative has cut through to the mainstream media and with members of the public.

While this is, of course, a key consideration for the project, it is not its only purpose. As well as faster services between our major cities, it's about the regeneration of urban centres along the route and the rebalancing of the national economy. But to my mind, this project has always predominantly been about releasing capacity across our rail network and, crucially, rebalancing wealth by improving links between the south east and the north.

Through the untangling and removal of express services on the West Coast Main Line (Euston to the West Midlands and north west), Midland Main Line (St Pancras to East Midlands and Sheffield) and East Coast Main Line (Kings Cross to Leeds, Newcastle and beyond), HS2 will both ensure more commuter and local



on could look.

trains are run on existing routes and allow them to be bunched together for a more frequent service. Essentially creating more 'metro-like' services such as Thameslink or the London Overground across the country.

Indeed, it is for these reasons that those city leaders who are arguing for investment in Northern Powerhouse Rail are not arguing that it should come at the expense of HS2. In fact, it cannot happen without HS2 and the two projects are symbiotic.

New services aside, the fact remains that much of our existing rail network is already at saturation point during rush hour. The National Infrastructure Commission's own forecasts suggest passenger numbers could increase by between 12% and 43% between now and 2030. We need solutions to overcrowding across our rail system and HS2 is just that.

Obviously, that's all far more complicated to discuss, and from a journalist's perspective to report on, than the 'ten minutes' argument which lingered and was repeated over and over in interviews and by campaigners on social media like a tired political slogan.

Criticism also centred around the cost of the project. But again, this is too simplistic an approach. HS2's benefits in redistributing growth more evenly across the country and in providing an economic boost to stagnant regional cities are often forgotten. Infrastructure tends to deliver at least a 2:1 return on investment and in many instances, such as the Jubilee line extension to London's tube network, has delivered benefits which far outweigh what was initially expected. We should instead be focusing on value.

Now that the decision has been made to go ahead with HS2, there is a great opportunity to reassess the project to ensure that

the benefits are better understood and articulated. Going forward, the big return on investment should be the key figure that politicians and the media focus on, rather than the overall budget.

Protestors were quick to fantasise spending the billions allocated to HS2 on other priorities, but the reality is that these funds aren't taken from existing budgets and if the scheme had been cancelled would simply disappear. They also fail to acknowledge the historically low interest rates on government borrowing for infrastructure projects.

Alongside economic arguments, the project has also riled environmentalists who suggest that the loss of 100 ancient woodlands is simply unacceptable. Once again, poor engagement on the issue and the lingering argument over a 'ten-minute' time saving, has skewed the discussion which needs to be balanced against a range of benefits.

As well as the economic benefits outlined above, HS2 will be crucial to taking more people and freight off roads and reducing internal flights. This has to happen if we are to meet society's net zero ambitions. Perhaps this is one of the first major projects to balance negative local impacts for wider environmental benefits. A tricky act, but one made even more difficult because of the poor initial engagement.

It must be said that economic and environmental arguments will always be at the fore with a major project of such scale and magnitude. It is clear to my mind that the communications and business case hasn't kept pace with the project's development.

One only needs to examine how support from the northern MPs and metro mayors has evolved over time. Many were initially wary of the price-tag, then backed it in lukewarm terms, but now fully understand the project's direct and indirect transformative effects of the communities they serve. Now, they have become vocal champions of the project across the media.

They have reached the same conclusions as I have. That HS2 is the only common-sense solution to increasing capacity across our rail network, unlocking the potential for new lines and services, and creating the environment to rebalance our national economy, bringing increased prosperity to towns and cities along the route.

If HS2 had been cancelled, you'd only have to invent a very similar project in a few years' time, delaying the returns for the country and on the investment. Fortunately, for our industry and indeed the country, that now won't be necessary.



Dave Beddell
is a director at AECOM
and a vice-chair of ACE.

Wates to go waste and carbon free by 2025



Investing in long-term sustainability is essential, both for the industry and the planet itself, as *Rob O'Connor* discovered when speaking with Wates group health, safety, environment and quality director, *John Dunne*.

The Wates Group made the industry sit up and take notice in January, when it announced its commitment to eliminating waste and carbon from its operations by 2025.

The company has committed to three bold targets to help ensure it does “zero harm” to the environment. This means zero waste from operations by 2025, zero carbon from operations and operational vehicles by 2025 and a positive impact on nature from all operations.

Wates says it will take actions including switching to an all-electric commercial vehicle fleet, eliminating single use plastic from its operations and supply chain, investing in sustainable building techniques, organising sustainability placements for graduate and apprenticeship staff, planting 5,000 trees annually and ensuring that all sites or frameworks deliver at least one nature enhancement project.

These environmental targets now challenge the company, its workforce and the industry, to use a similar behavioural change approach to set new standards in how it manages waste, carbon emissions and its impact on the natural environment.

John Dunne, Wates group health, safety, environment



John Dunne,
environment and
quality director, Wates.

and quality director, said “It’s no secret that we work in one of the least environmentally sustainable industries in the world. According to the Construction Climate Challenge, our sector is responsible for up to 50% of climate change, 40% of energy usage and 50% of landfill waste.

“We know that this cannot continue and, as a business, our purpose is about inspiring better ways of creating the places, communities and businesses of tomorrow. We believe we have got a chance to turn this around. We have got a chance to make a difference and it’s incumbent on responsible businesses to take that stance. That’s why we decided to go public with our net zero targets.”

A key part of achieving zero harm to the environment, says Dunne, will be working collaboratively with customers, supply chain and joint venture partners, to find ways to reduce waste and energy consumption and to enhance the natural environment.

“We work with a diverse range of public and private sector partners and businesses of all sizes are part of our supply chain,” said Dunne. “We certainly can’t do this on our own. We have to work collaboratively. It’s about bringing people



"Customers are rightly going to demand more sustainable buildings," says John Dunne of Wates.

together really. Since we announced our target in January we've had an overwhelmingly positive response from our supply chain and our customers.

"One of the things we've set out is what we're going to try and achieve as a business. I don't believe we can force things onto the supply chain until we've got our own house in order. We're already talking to suppliers about reducing waste, energy, materials and packaging and we're also talking to the design community about how we can build more sustainably.

"We also have our own waste sustainability technology. We search the supply chain for new and innovative ways and products that can reduce energy, save water and make buildings more efficient in their future lives."

Given that the marketplace is still in the early stages of recovery and margins are still as tight as ever, Dunne is confident that a combination of efficiency and modern methods of construction will help the industry to achieve a much more sustainable future.

"Efficiency is the key," said Dunne. "By reducing the amount of energy and materials we use, the actual payback is going to be far greater over time. Off-site

manufacturing is also a major focus. I don't think the industry, the government or our customers will meet our respective net zero targets unless we change the way we build. And a big part of that is modular construction. The whole process is much more efficient, reducing waste and using less energy at the same time."

With Brexit and political uncertainty having dogged the industry since the 2016 EU referendum, reflected in the consistently bleak PMI figures throughout 2019, Dunne is cautiously optimistic about a construction upturn for the coming years ahead. "We've seen some really positive signs of improvement since the outcome of last December's general election, so we'll just have to keep monitoring it to see if the improvement is sustained throughout the rest of the year," he said.

Looking to the future, Dunne highlighted the future workforce, embracing new technology, and sustainability as three key challenges currently facing the industry. "We've got a huge challenge in terms of what the future workforce looks like," said Dunne. "How do we move towards a much more diverse and inclusive workforce, and how do we attract more of the younger generation into thinking about careers in the industry?"

"Another challenge is embracing new technology. We're often quite slow as an industry to adapt and react to new technology, so we have to embrace it much more quickly. Sustainability is also key. We're going to be asked more and more about how we build. Customers are rightly going to demand more sustainable buildings," says Dunne.

Ending on a confident note, Dunne said: "Investing in long-term sustainability is essential, both for the industry and the planet itself - and will more than pay for itself in the long-run."

Read more online at
www.infrastructure-intelligence.com



Tackling fraud and corruption



When it comes to eradicating fraud and corruption in the infrastructure industry, it's an issue that is too important to just leave to the auditors and accountants, says *Anil Iyer*.

The cost of fraud and corruption in our industry represents around 10% of a company's revenue, according to the Chartered Institute of Loss Adjustors. This is clearly not an insignificant figure and if you look closely, there is no shortage of examples.

We have seen the collapse of a major organisation that has been attributed to aggressive accounting. We are seeing high-profile infrastructure projects with ever-escalating costs - it would be naïve to think they are all free of fraud. I am aware of medium-sized projects where costs have gone way over capital expenditure and the project team was too scared to inform management, so they cut corners and compromised on quality.

But are we reacting appropriately to such cases? Of course, investigations and audits are undertaken. Most companies have clear anti-fraud statements written into their business plans or values statements, supplemented with on-line modules. Professional institutions and business associations have codes of conduct which are monitored. So externally, we appear fine because we have compliance measures in place.

All these measures are very creditable and should continue. But if you ask an early career or middle management professional



Anil Iyer is director of consultancy Kranial Solutions and a founder of B4 Investigate.

the question: "who should be detecting and dealing with fraud and corruption?", a typical response is "we have accountants and lawyers who deal with that sort of thing".

Ask the same question about quality management, health and safety, sustainability, diversity and inclusivity, digital transformation or mentoring - all subjects which are integral to our day-to-day business - and the answer will probably be "all of us".

And there lies the crux of the issue. We tend to treat fraud and corruption as an area that only experts can handle. But are we fulfilling the requirements of our employment contract or code of conduct by simply referring the situation to a specialist team in our company or an external specialist? Or worse still, leaving it to a whistle-blower or letting the media pick up the story?

Anti-fraud experts acknowledge that most fraud and corruption is discovered by someone within an organisation who is not an accountant or auditor - and in most cases it will be their very first experience.

The majority of us wish to work in an ethically healthy workplace and don't want to lose 10% of our company's revenue. Consequently, as infrastructure professionals, we need to step up to the plate, take responsibility for our own projects and not leave it to the accountants and auditors to sort, after the event.

We should give fraud prevention the same prominence as health and safety, sustainability, and other non-technical issues for which we so proficiently take ownership. We should be self-policing, because in reality, anyone with the proper training can be a fraud detective.

Anil Iyer is a director of consultancy Kranial Solutions and a founder of new organisation B4 Investigate, which provides knowledge and tools to those who want to fight fraud and corruption.

Why infrastructure design matters

The newly launched Design Principles for National Infrastructure filter through every element of major projects and should be front and centre in the planning and delivery process, says *Sadie Morgan*.

Few construction projects impact the landscape on the scale of major infrastructure. Whether it's Roman roads or Victorian railways, these systems tell the story of Britain's past and form the foundations of our modern success. They speak to our national identity and say something about who we are and what we're good at.

This means that for those of us involved in the next generation of nationally significant projects, we share a responsibility to get it right. At the National Infrastructure Commission, we want excellent design to be at the heart of planning and delivery from day one to ensure the inheritance we leave is a proud one. That's why we established an expert Design Group bringing together leaders in engineering, architecture, landscape and transport, which I'm delighted to chair.

In February, we launched the UK's first ever Design Principles for National Infrastructure - climate, people, places and value. We want to inspire everyone involved in creating and maintaining our nation's infrastructure to embrace each of these considerations and think about what constitutes effective design - from the CEO to the technician.

At its core, this is about ensuring projects support flourishing communities and an enriched environment. First, we believe infrastructure must help set the trajectory for the UK to achieve net zero greenhouse gas emissions by 2050 or

sooner - as well as being capable of adapting to climate change.

Second, projects should be built on a human scale, be instinctive to use and seek opportunities to improve the quality of life for people who live and work nearby. Similarly, schemes should provide a sense of local identity, supporting the natural and built environment, promoting biodiversity and enhancing ecosystems.

Finally, infrastructure should add value beyond its headline purpose, seeking to solve multiple problems and make the best possible use of public money. These principles should be applied to all economic infrastructure - digital communications, energy, transport, flood management, water and waste. They matter for all projects, whether visible or hidden, imposing or unobtrusive.

The publication comes at a timely moment at the start of a seminal decade in which a series of high-profile schemes are being undertaken - and ahead of the government's National Infrastructure Strategy, which is expected next month. The Design Principles filter through every element of our infrastructure and should be front and centre in the strategy.

While we want ministers to show leadership and formally enshrine this approach in the governance processes for major projects, anyone in the sector can start incorporating the principles into their work today. Ultimately, the best design doesn't just come from designers, it relies on a combination of talents. I hope our industry is ready to accept this design challenge and I encourage everyone to adopt our guide to think about the part they can play in facilitating great design.



“Infrastructure should add value beyond its headline purpose, seeking to solve multiple problems and make the best possible use of public money.”

Sadie Morgan is the chair of the National Infrastructure Design Group.



Climate, people, places and value - the Design Principles for National Infrastructure.

The greatest opportunity for engineers ever!



Craig Beresford is chief operating officer of property at Waterman Group Plc.

The challenge for creativity and ingenuity in engineering and construction has never been greater if we are to collectively achieve the mission of zero carbon construction set by the government.

No longer is sustainability about filling in a report or ticking a box or finding ways to offset carbon via paying a levy or 'buying' some credit from elsewhere. The real mission is to drive a tangible saving in CO2 emissions across all aspects of raw materials extraction, manufacturing of components, design and construction and buildings operational performance.

We have ten to 30 years to effect great changes in the construction industry and the UK Green Building Council adding into the mix the embodied carbon in manufacturing and transportation makes this more than a design challenge.

We have to apply ourselves urgently as this is the greatest opportunity for industry-wide collaboration in the UK involving clients, funders, engineers, architects, industrialists, manufacturers and government; the like of which we have not seen since this problem began with the industrial revolution.



If we promote cross-industry engagement and draw on government for investment, we can make a huge impact on the UK's carbon problem. But, can we ever achieve absolute zero?

Industry is global and we as a country rely on trade as we know we will be negotiating trade agreements in the coming years that will shape our country's future.

The net-zero carbon target does something unique - it offers the government the one-time opportunity to invest in British manufacturing with the huge socio-economic benefits this brings as well as making a substantial contribution to reducing the carbon cost of components and materials.

How can the prime minister not act? It fulfils his promises of employment and wealth creation to the north and Midlands at a stroke.

"The net-zero carbon target does something unique - it offers the government the one-time opportunity to invest in British manufacturing with the huge socio-economic benefits this brings as well as making a substantial contribution to reducing the carbon cost of components and materials."



Karen Jones
is the HR director at
Redrow.

More to do to attract young people into construction

The challenge of attracting a new generation of talent is a topic all too familiar to the construction industry. This is fuelled by uncertainty around access to skilled labour from the EU following Brexit and the difficulties of replacing an ageing workforce. Against this backdrop, building in Britain is set to ramp up.

Boris Johnson's majority government has earmarked tens of billions of pounds for infrastructure spending over the next five years - including at least one million new homes, roadbuilding and improvements and major rail projects. However, none of this will be possible without the manpower to deliver.

Despite a wealth of initiatives in place to destigmatise construction careers, they are not yet seen as desirable enough by young people and their parents, which is then exacerbated by the careers advice often received in schools.

While it is fantastic to see there is now vast appetite for apprenticeship roles, we still have a job to do to encourage young people into construction roles. Changing perceptions and educating both children and parents plays a major role in shifting the status quo. It requires a more joined-up approach which engages with young people across the country, to promote accurate perceptions of what careers in construction involve and their benefits.

At Redrow, we're aware that the graduates and apprentices of today could go on to become the business leaders of the

future and we believe that there is a real opportunity to innovate in the way apprenticeships are being delivered. Therefore, we have made three pragmatic recommendations on how the system can be improved.

1. A more collaborative approach between schools, government and parents
2. Introduce an apprenticeship living wage
3. Revise assessment of maths and English skills to an applied assessment



Rajkumar Suresh
is a senior urban
designer at Atkins.

Designing cities with a heart

Every day brings more change to our cities - electric vehicle charging points, augmented reality, mobile phone walking lanes, flexible working hubs, autonomous vehicles, the list is getting increasingly longer.

This less than gradual creep of technology has given rise to the concept of the 'intelligent city'. We in the building industry have jumped on the bandwagon, outlining visions of a technology-driven, hyper-connected city of the future.

But there is one thing that we do know. Cities are for people. That priority shouldn't change; it's been that way for centuries. People will always want places to interact, to express themselves and to make personal and real connections.

So, amidst the ongoing drive to create an increasingly digital world, I want to bring us back to basics, to a people-centric approach that prioritises social, economic and environmental benefits above all. I want our 'future city' vision to be centred around people and a better understanding of what they want and need. Only then can we deliver the city that people deserve.

To build a true picture (or as close as we can get to it) of a future city we need to look first at people, asking: How do the next generation want to live and work? We then need to build scenarios, putting ourselves in people's shoes 20 years from now and thinking outside the box.

In the future, would there be a need to commute? Would permanent and fixed layouts be a thing of the past? How do you design for a renting rather than ownership economy? Do we need to create more spaces where people can connect and build communities outside the virtual world? By putting people at the centre of the narrative we're more likely to create a consistent story of where we're headed, one that we can all aspire to, one that's grounded in and closer to reality.

Let's shift the conversation from simply intelligent cities to cities that have a heart - cities that are designed around people first and foremost.





Arcadis Gen is leading and managing a project providing a single platform to manage all of Transport for London's infrastructure assets.

A digital disruptor for infrastructure delivery

Arcadis's new global digital business, Arcadis Gen, aims to focus on rapid development of data-driven solutions and foster next generation thinking. *Andy Walker* spoke to its chief executive *Rachel White*.

Many consultancy firms in the industry are paying much greater attention to digital given the massive changes taking place as a result of the implementation and application of technology. Arcadis have taken the bold step of launching Arcadis Gen, the Dutch-based consultancy's latest move towards becoming a fully digitally enabled business. "We're doing something the industry hasn't seen before," says White.

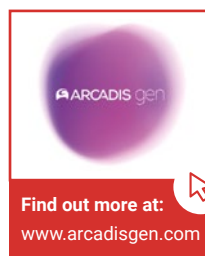
"We're launching a tech company that brings together some of Arcadis's brightest digital minds in an environment for thinking differently. The thinking behind it is quite customer and market driven. That's a very important thing for the industry," said Clarke.

"A lot of our customers have very big asset portfolios and how they optimise and plan those, improve performance, maintain them and optimise investment decision making is becoming very important. That combined with the fact that whilst a lot of industries have been disrupted with technology, the engineering and construction industry is probably the last industry to really be positively disrupted by technology. If you bring together those two components – customer demand and the opportunity in the

market – we felt that now was a good time to bring our capabilities together and launch a global, digital business," White says.

The new business will accommodate a range of tech know-how and experience that is different from those usually found in a major engineering consultancy firm, while still leveraging the link with the wider Arcadis company.

"Technology skills and capabilities are quite different and if you try to have them in a large corporate entity that does other activities it can be quite difficult to maximise them," says White. "This business is a much more agile operation, with quite different skills and capabilities and different types of people, so it's quite important that it can create a culture and an entity to apply that agility in a thoughtful way to our customers. What's also important is that we don't lose the connectivity through the Arcadis clients with the deep asset knowledge we have of our customers and their challenges. So, it was about better serving our clients and to incubate and develop talent and also to





bring together a core of capability,” White explains.

As well as employing digital experts, Arcadis Gen will also enable current Arcadis staff to retrain and develop their tech skills and to change as the industry changes around them. “We have software developers and user experience designers, which are different skill sets to the normal engineering portfolio, but we are also using this as an opportunity for our workforce of the future, so some of our existing engineers can transition into more analytical and digital roles because I think it’s really important for the industry that we continue to refresh skills and capabilities and give people opportunities to grow with new industry challenges,” said White.

While White recognises that Arcadis Gen will have some still competition in the shape of some of the large technology companies, she is undaunted by the challenge. “What they don’t bring is the deep knowledge of the assets that our customers have, so that gives us a different perspective because we are better able to develop and implement solutions for our clients that are more related to the asset type and to the specifics of that particular sector or industry,” says White.

Given that the new organisation will be focused on rapid development of scalable digital products and solutions, I asked White how will it do that coming from a sector that has not been noted for its agility while the digital sector is known for very quick and innovative thinking?

“We are intending to bring all that



Rachel White, chief executive, Arcadis Gen.

“We’re launching a tech company that brings together some of Arcadis’s brightest digital minds in an environment for thinking differently.”

core asset management systems, where a lot of them are not very user friendly, they aren’t necessarily able to be used on a mobile platform out in the field where customers and clients need to be collecting data. What we think we have an opportunity to do is to help quickly solve some of those challenges by working closely with our customers,” said White.

Arcadis Gen will have a significant footprint in the UK market and work with a range of clients across the infrastructure, utilities and built environment sectors. Last year, Arcadis announced its biggest ever digital contract win from Transport for London (TfL) and Arcadis Gen will lead and manage the project providing a single platform to manage all of TfL’s infrastructure assets with the aim of improving reliability and performance on the London Underground and London tram networks.

With someone like White at the helm of Arcadis Gen, you can’t help thinking that we’ll be hearing a lot more about the new venture. Her history in the industry is one of innovation and doing things differently, qualities which will stand her in good stead in her new role. “We are looking forward to working with large organisations like IBM, where we are a technology partner, and also with smaller, start-up organisations that are bringing fresh thinking into the sector.

“This is about helping to be a disrupter in the industry and a positive force for change in the way we deliver infrastructure,” said White.

good practice from the technology sector where they run 12-week product sprints to develop solutions,” she said. “We will also be a lot more focused on co-creation and with agile teams we can divert resource. There is a huge opportunity for this sector. If you look at much of the technology that we’re using, whether it’s the

North by n



Mayors across the north east are proving the case for devolution with a series of ambitious plans to improve all forms of transport across the region.

Leaders across the north want the government to make further regional devolution a top priority for the year ahead and are determined that the north east in particular is given the long-term funds and decision-making powers it needs to ensure the region thrives. *Rob O'Connor* reports.

The Northern Powerhouse Partnership may have a growing profile, but leading north east politicians and business groups have reminded everyone that the north extends way beyond major cities including Manchester and Leeds.

The recent State of the North conference in Newcastle, led by influential think-tank IPPR, saw unanimous calls that 2020 must be the year when power is returned to the north and all English regions, towns and cities - especially those in the north east.

The conference followed a hard-hitting IPPR report, *State of the North 2019*, that found the UK is more

regionally divided than any comparable advanced economy, that centralised governance is a major cause of economic problems in all regions and that more devolution could help the north thrive and support the whole country's future prosperity.

Jamie Driscoll, mayor of the North of Tyne Combined Authority, said: "George Osborne's Northern Powerhouse brought together the cities of Liverpool, Manchester, Leeds and Sheffield. They forgot about Newcastle, the Tees Valley, County Durham, Northumberland and Cumbria. There's a lot of us up here!"

Last December's general election result gave the new government a huge mandate for change, with a large number of newly elected north east Conservative MPs crashing through Labour's so-called red-wall, all adding to the pressure for government to devolve real and long-term powers to the north and other regions of the country.

The north's four metro mayors elected in 2017 and 2018 were joined by a fifth last year, when Jamie Driscoll was elected as mayor of the North of Tyne Combined Authority last May. Driscoll was an engineer before being elected and these five mayors now govern almost half of the north's population.

Less than three years into their terms, the ambitious and energetic mayors are all proving the case for devolution with, for example, Tees Valley mayor Ben Houchen leading a £257.7m strategy to improve all forms of transport across the Tees Valley, whether it be on roads, the railways, in the air or on buses.

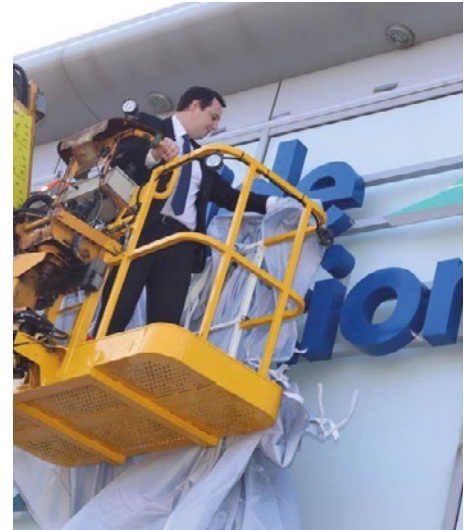
This includes £25m for the redevelopment of Darlington railway station, £20m to upgrade Middlesbrough railway station and, last year, Teesside International Airport was brought back into public ownership and saved from closure. However, early indications show the Darlington station masterplan will cost



For further information on the IPPR State of the North report, visit www.ippr.org/north



north east!



around £100m to complete. And, under the current system, that decision of further investment still rests with the Department of Transport.

Ben Houchen, Tees Valley mayor, said: “Thanks to our devolution deal we have the ability to invest in our priorities. We’re investing in our airport and we’ve kickstarted the redevelopment of Middlesbrough railway station and the upgrade of Darlington station. And we’re improving the region’s road networks so that people from Teesside, Darlington and Hartlepool can get around the region quickly and easily.”

But the north east is continuing to press for greater powers, with the IPPR claiming it is unsustainable that the north still depends on a highly centralised model of devolution, with key decisions being made in or imposed by a government hundreds of miles away.

Driscoll called for stable long-term devolution, saying: “Too much government in this country is short-term. If you’re going to start planning major social and physical infrastructure projects and strategies, you have to be looking at the long-term. Keeping the majority of money, power and control in London simply means that Westminster can turn the taps

“Thanks to our devolution deal we have the ability to invest in our priorities. We’re investing in our airport and we’ve kickstarted the redevelopment of Middlesbrough railway station and the upgrade of Darlington station.”

Ben Houchen, Tees Valley mayor

on and off when it likes. There is no point having figurehead mayors when the main decisions are still made in London.

“Mayors need the authority to make a difference and we want real devolution with the powers to help transform the lives of the millions of people we serve, making key decisions on both social and physical infrastructure, the environment, transport and future investment based on what our regions actually need to thrive.

“It’s not a radical concept - the CBI, the local business communities and the trade unions are all on board - so let’s make the case for a progressive future and make a real push for devolution.”

Hannah Richmond from the CBI said: “Business is optimistic about the year ahead, and we have a government with a strong mandate for change in the north. We need improved locally based decision making and the willingness to put power back into the hands of the regions. We believe in devolution rather than delegation, delivering real power to the regions.”

Luke Raikes, IPPR senior research fellow and report co-author, said: “There are strengths in every part of the north, and the north east is absolutely an integral part of that. It’s sometimes left out, but really it shouldn’t be. It’s really at the heart of the north. 2020 is a time for real change. We have a new decade, with a new government making big promises. We need to see power transferred in a way that can’t be reversed. We also need to see spades in the ground in terms of infrastructure,” said Raikes.

Welsh construction payment revolution

Feedback from firms that have experienced project bank accounts has been “amazing” according to contractors’ leaders in Wales.

Last year’s collapse of Welsh-based company Dawnus Construction has hastened progress towards protecting SME payments in Welsh construction.

In December 2017 Mark Drakeford, when cabinet minister for finance, launched a new project bank account policy “to support ethical business practices in government funded construction”. All government funded projects in Wales above a £2m threshold are required to have a project bank account (PBA).

A PBA enables all firms in the supply chain to be paid from one ‘pot’ without payments having to cascade through the different layers of the supply chain. The monies are ring-fenced so that

if there is an insolvency upstream small firms in the supply chain don’t lose out – in the Dawnus collapse almost £40m was left owing to Dawnus’s supply chain.

At a recent event hosted by SEWSCAP, the largest value framework in Wales, councils and contractors came together to determine how best to implement the policy on PBAs. Those who had already used PBAs indicated that they helped to ensure that payments to SMEs in the supply chain were discharged well within 30 days as well as being made secure.

Speaking on behalf of SEWSCAP Kevin Shackson said he was delighted with the progress being made on using PBAs. “It’s such a commonsensical thing to do,” he said. “Most of construction in Wales is actually delivered by small firms. They deserve proper payment protection since they provide a range of community benefits including local jobs and training.”



Cat Griffith-Williams,
national executive
officer, Specialist
Engineering Contractors
Group Wales.

“Feedback from firms which have experienced PBAs has been amazing.”

Speaking at the event Luke Owen, managing quantity surveyor at Morgan Sindall’s Cardiff office, said: “As a large tier 1 contractor we fully support PBAs. Contrary to various adverse reports the costs and administration involved in setting up and operating them is minimal. On the positive side we find that they help to improve the performance of our supply chain.”

Matt Curtis from Vale of Glamorgan Council urged all councils to use PBAs. “The Vale of Glamorgan Council is an early adopter of PBAs as part of our 21st Century Schools Programme,” he said. “We were surprised to find the processes involved were very straightforward and have assisted with streamlining our overall payment process. The key is working in partnership with the contractor from the outset,” Curtis claimed.

Cat Griffith-Williams, national executive officer for the Specialist Engineering Contractors, (SEC) Group Wales, which represents engineering SMEs in Welsh construction, said that PBAs had made a big difference to their members. “Feedback from firms which have experienced PBAs has been amazing,” she said. They don’t have to wait months to get paid and they can commit to their work in the knowledge that their monies are secure,” said Griffith-Williams.



The collapse last year of Dawnus Construction has led to action being taken to improve payment in the Welsh construction sector.

Specialist engineers making a difference

Consultancy firm, the Robert Bird Group, have a keen appreciation of the component parts of the construction team and the specialist skills that make it up. *Andy Walker* visited their London office to find out more about their approach.

Global consulting engineers, Robert Bird Group, started out as a contractor's engineer and despite diversifying into all sectors and working with clients on projects worldwide, as the firm's director John Ward tells me: "We'd like to think that approach of having one foot in the clouds and one foot in the mud has served us well". Ward says they have an understanding of what it takes to deliver a project and engage with architects and planners at the very earliest stages to come with the best design, while always being aware "that some poor bloke with a hammer is going to be standing there in the rain and mud at four in the morning to build the thing".

This appreciation of all elements of the construction team and the specialist skills that make it up are the hallmark of the Robert Bird approach. Established in 1982, the firm has more than 700 staff across eleven offices in Australia, New Zealand, the UK and Asia. Now part of the Surbana Jurong Group the specialist structural, civil and geotechnical engineering firm is able to leverage on the influence of the Singaporean government-owned entity.

"We are specialists rather than generalists, seek to be excellent within our specialisation and work with specialists from outside the group to bring us the skills that we need on a particular project," says Ward. We think that approach can add real value to a client because we can look at a project and make sure we



"We'd like to think that approach of having one foot in the clouds and one foot in the mud has served us well."

John Ward, director of Robert Bird Group



The Meygen tidal energy project is the first utility scale, grid-co

assemble a team with the right skills, which are most appropriate to that project."

Associate director Phil Hallinan highlights the firm's work on the Bank underground station upgrade as an example of its collaborative approach. "At Bank, Dragados were the lead designer as well as principal contractor and that enabled them to go to the market and procure who they saw as the best in class specialists for each of the design disciplines," he explained. "We fitted into that model as the specialist, structural designer and the approach is a little bit different to what is normally done on a project of that nature where there'll be a large, multidisciplinary consultancy involved providing all the services," said Hallinan.

Ward said that the specialist-centred approach was one that the firm had deployed a number of times globally that was increasingly finding traction within the UK infrastructure space. "The Meygen project, a tidal energy farm in the north of Scotland which is the first utility



connected turbine farm delivered anywhere in the world.

scale grid-connected turbine farm delivered anywhere in the world, required cutting edge specialisation and cutting-edge engineering capability,” said Ward. “The client valued the engineering above all else and they worked with us to assemble teams of specialists who were able to deliver the skills needed. We acted as structural engineers, provided advice on infrastructure and then worked with Lockheed Martin as systems integrator, the turbine supplier and a number of other different organisations to manage the associated risks,” he explained.

Ward said that the firm’s deep understanding of what it really takes to make a project become a reality was crucial on Meygen. “We have very powerful analytical capabilities and very good engineers with a scientific mind that we can bring to the project to make it successful. What we brought that I feel nobody else did was the awareness that as well as having the technical firepower to do the engineering, we recognised that someone is going to be out there on a boat trying to install this,” said Ward.

Ward said that the firm was keen to work more in a way where collaboration was central and where clients wanted to buy into new ways of working that promoted this approach. He decried the fragmentation of the industry that he said had led to “a corrosive culture of blame and risk shedding”. “The clients we are seeking to build relationships with recognise that we can’t go on like that,” he said. “The industry is reaching a tipping point, as we’ve seen with Carillion, where you simply cannot continue that way because you won’t have a business if you do,” said Ward.

So, given the sort of projects that Robert Bird has been working on, how does Ward get across that better way of working? Does the firm feel any responsibility to communicate that approach so that people want to work with them?

“Yes, we do,” said Ward. Whilst recognising that there were



Phil Hallinan, associate director, Robert Bird Group.

many clients who didn’t want to work in a more enlightened way, Ward said they were “deliberately and intentionally seeking to build relationships with farsighted organisations”. That meant working with clients “who understand value and what drives value within their own business and are prepared to work collaboratively with others to drive that value,” he said.

The firm is currently developing the concept of engineering-led master planning. “For highly constrained brownfield sites - where a lot of future major development is going to happen - the engineering constraints can bring huge costs to a project to a point where the project might need to be questioned,” Ward said. “A piece of work we’ve done for a number of clients is looking at the site at the early stages and asking what are the engineering constraints, the engineering solutions and the cost associated with those, which will need to be considered in order to recognise value and then using that to perform the master planning process.

“We are looking to take that approach out to a wider range of clients - clients who recognise value, respond appropriately to it and who are collaborative and open enough to share their value drivers,” Ward said.

New industry **net zero** campaign launched

A new campaign with a striking identity has been launched by two major industry groups to help promote the net zero message across the infrastructure sector and beyond.



A new industry net zero campaign has a striking and effective identity which should help to raise its profile.

Business leaders from the Association for Consultancy and Engineering (ACE) and the Environmental Industries Commission (EIC) have joined forces for a new campaign to analyse how best UK infrastructure can be redesigned to enable net zero emissions by 2050.

Chaired by Sarah Prichard of ACE member BuroHappold, a joint net zero taskforce will bring together experts and leaders from ACE and EIC member companies.

The taskforce's initial activity will culminate in two reports to be launched during COP 26 in Glasgow in November. The first report will showcase the role the respective business members will have to play if society is to meet net zero targets, while another is aimed at helping SMEs to adapt to this new working environment.

Paul Reilly, ACE chair, said: "How we work in a net zero future will be at the forefront of all industry leaders' minds, but with ACE members' day-to-day focus and the huge expectations on carbon free infrastructure, buildings and construction, we will have to work collaboratively. It will only be by pooling talent, resources and ideas that we will be able to solve the

biggest challenge that society has faced in recent times."

Sarah Prichard, chair of the net zero taskforce and UK managing director at BuroHappold, said: "I am delighted to be chairing the taskforce which harness the extensive expertise, experience and knowledge of our two membership bases. Our industries are renowned for their approach to problem solving and this will be crucial in deconstructing the complex processes that guide infrastructure delivery and rebuilding them carbon free."

Matthew Farrow, EIC executive director, added: "With COP26 taking place in Glasgow later this year, the UK has a huge opportunity to demonstrate leadership on a global scale. Our campaign will input into the debate and show that both our membership bases are vital if we are to find the solutions that society is demanding."

The UK government has made a legally binding commitment to achieving net zero emissions by 2050. It will host COP26, also known as the UN Climate Change Conference, in Glasgow this November.

The new campaign also has a striking identity. Designed by ACE's senior graphic and web designer, Riccardo Gualandi, the campaign logo not only embraces the joint campaign between ACE and EIC but makes a strong statement in itself.

"Hopefully this doesn't need explaining, but we've cleverly created a visual pun - which can be read either as "net zero emissions" and "no emissions" - which allows us to be both informative and make a strong statement," said Gualandi.

"I am delighted to be chairing the taskforce which harness the extensive expertise, experience and knowledge of our two membership bases."

Sarah Prichard, chair of the net zero taskforce and UK managing director at BuroHappold.

A revolution in public transport?

Apart from the go-ahead for one of the biggest infrastructure projects the UK has ever seen, what have we learnt from the prime minister's announcement on HS2? *Michael Lunn* looks at the clues we can glean.

In a speech loaded with references to the infrastructure achievements of the Victorians, there were also plenty of clues from Boris Johnson as to future government policy on how infrastructure can unlock regional productivity while putting the country on a path to a net zero society.

Saying that he didn't want to "steal the chancellor's thunder, he did precisely that by announcing a slew of new investments for bikes, buses, and roads, as well as confirming investments in a number of railway projects. Johnson's theme was regional connectivity and, along with previous announcements on broadband, it paints a picture of a government looking to unlock productivity at a local level.

On buses, the PM announced a £5bn investment over five years which would translate into 4,000 "zero carbon, British-built" buses to increase the frequency of services, turning many more into a turn-up-and-go service. In addition, he announced that 250 miles of segregated bike lanes would create hundreds of "mini-Hollands" across the country.

He also announced several road improvements - Cornwall, the A1, Salisbury, Cheadle and many more with a hint that the chancellor would provide more details.

On rail, Johnson confirmed investment for the reopening of the Fleetwood line in Lancashire and Ashington to Blyth in the

North East, with further improvements at stations in Middlesbrough and Harrogate, as well as at Bristol East Junction. And then he turned to HS2. Acknowledging the poor management to date, the PM highlighted that this did not detract from the arguments for high-speed rail, notably the hundreds of thousands of extra seats, faster journeys, and not only linking Midlands to London but to the Northern Powerhouse too. He also announced new arrangements for the management of the project.

At a political level, a minister will be responsible for the project and there will be a ministerial oversight group. At an operational level, the project will see Phase 1 and 2a bunched together (London to Crewe) with new arrangements put in place for Phase 2B which will become known as High Speed North and integrated into Northern Powerhouse Rail project.

On that, the prime minister was adamant that it is not an either/or question as far as Northern Powerhouse Rail and HS2 are concerned. "Both are needed and both will be built as quickly and cost-effectively as possible," he said.

With a loosening of governmental purse strings, a focus on the Midlands and the north and the acknowledgment that infrastructure is crucial to this, the next few weeks and months will be interesting for the construction sector, especially in the run up to the budget on 11 March.

The industry can expect to see more detail on the above announcements in the form of a complementary transport infrastructure strategy. Only then will we be able to judge whether it is indeed a "revolution in this nation's public transport provision," as Boris Johnson has previously promised.



Michael Lunn
is head of public affairs
at the Association
for Consultancy and
Engineering (ACE).



To subscribe to the magazine visit
www.infrastructure-intelligence.com



An artist's impression of how an improved Middlesbrough station might look.

New PII guidance released

New advice issues by brokers Griffiths & Armour helps ACE members navigate the professional indemnity insurance renewal process.

With many ACE members reporting unprecedented increases in their professional indemnity insurance (PII) premiums, ACE affiliate Griffiths & Armour has shared new, up-to-date guidance.

The document, which can be exclusively downloaded by ACE members on its website, outlines the tangible steps which need to be taken to reduce annual premiums.

ACE director of membership, Darrell Matthews, said: "There are many factors



Darrell Matthews,
director of
membership, ACE.

To find out
more visit

[www.acenet.co.uk/
news?tag=PII](http://www.acenet.co.uk/news?tag=PII)



Now is the right time to review insurance requirements and new advice will help firms do just that.

that have contributed to the recent rise in premiums - uncertainty on the economy, the impact of Brexit, failings in the sector, possible new legislation on the horizon and an end to the 'soft market' that existed in insurance for decades. Now is the right time to review your insurance requirements and this advice will help you to do so."

In related activity, ACE will soon be announcing a series of PII roadshows and gathering evidence and case studies for an approach to government, whilst engaging with insurance trade bodies on this issue to make them aware of the current pressures on consulting and engineering businesses.

Infrastructure's Blueprint for Scotland

A briefing note summarising the findings of the first report of the Infrastructure Commission for Scotland has been produced.

Following a year of evidence gathering, the Infrastructure Commission for Scotland has published its first report, *A Blueprint for Scotland*, which aims to provide the Scottish government with independent advice on a 30-year strategy for the delivery of the country's economic and social infrastructure.

The report's key areas focus on inclusive economic growth and achieving net zero targets. The wide-ranging recommendations include issues such as leadership, place, making the most of existing assets, heat and transportation, regulation, digital and technology, role of the public, and independent long-term advice.

ACE has produced a briefing note for members summarising the lengthy report findings which is available on its website.



Infrastructure Commission for Scotland chair Ian Russell presents cabinet secretary for infrastructure and transport Michael Matheson with the report.

To find out
more visit

[www.acenet.co.uk/
groups/Scotland](http://www.acenet.co.uk/groups/Scotland)

In related news, Sam Ibbott (ACE Scotland manager) and Gareth Lonie (ACE policy executive), as well as Mark Arthur (chair, ACE Scotland and Hurley Palmer Flatt) and Simon Innes (vice chair, ACE and Goodsons Associates) met Michael Matheson MSP, cabinet secretary for transport, infrastructure and connectivity in Scotland this week to discuss the new report and what it means for members.

Brexit – what comes next?

As the UK formally left the EU on 31 January 2020, ACE's director of external affairs *Julian Francis* looks at what's next for Brexit.

While the political classes have argued over celebrations in Westminster, commemorative coins and stamps marking our new-found independence from Europe, the reality is that Brexit has now come and gone with barely a whimper. But what does all of this really mean? The short answer is - not that much - in 2020, at least.

The transition agreement that forms part of our withdrawal from the EU will ensure that the UK continues to access the benefits of membership until 31 December 2020. This means that we have the same access to EU markets as before, the same freedom of movement, and the same rules around importing goods from the EU.

In the long term, it is a little more tricky.

The transition period was agreed to by former prime minister Theresa May and was initially set to last around two years. However, because of successive delays since the original negotiation, the transition period will now only last 11 months. This date isn't set in stone and can be extended once by up to two years, if the UK and EU jointly decide to do so, before 1 July 2020.

However, publicly Boris Johnson has been adamant he will not consider extending the transitional period.

But what is it for? The transition period is designed to allow the UK and EU to work out their new trading relationship and this will be where we focus our attention in the next few months. Issues up for



The future relationship between the EU and the UK will be shaped by discussions over the next 11 months.

discussion will include technical standards, market access, security and movement. The future relationship between the EU and the UK will be shaped by the discussions over these crucial 11 months. Johnson has indicated he would prefer a relatively loose free trade agreement that would see the UK leave the single market and customs union and end jurisdiction of the European Court of Justice.

The prime minister has argued that as the UK is currently completely aligned to EU rules, this negotiation should be straightforward. But critics have pointed out that the UK wishes to have the freedom to diverge from EU rules in the future so it can strike trade deals with other countries. This will make things more complex.

It's not just a trade deal that needs to be agreed. The UK must decide on how it is going to co-operate with the EU on security and law enforcement. The UK is set to leave the European arrest warrant scheme and will have to agree a replacement system. It must also agree deals in a number of other areas where co-operation is needed.

If a deal is not reached in time, then the UK would resort back to international conventions for security and trade on WTO terms, effectively very similar to a 'no-deal Brexit'. Northern Ireland, however, would be the exception owing to the trading relationship with the EU covered by the provisions in the Northern Ireland protocol.

So, plenty for the government and the EU to discuss and fall out over in the coming weeks and months - and businesses are still largely unsure as to our future trading relationship with Europe.

Access exclusive
member-only advice:
[www.acenet.co.uk/
news?tag=Brexit](http://www.acenet.co.uk/news?tag=Brexit)

Why we need the Consultancy Sector Futures Institute

A new industry institute will turn research into action and create a best-in-class engineering consultancy ecosystem fit for the fourth industrial revolution, says *Hannah Vickers*.

Many will have read about our letter signed by over 20 industry leaders to the construction minister arguing for the creation of a jointly funded Consultancy Sector Futures Institute.

Modelled on the Aerospace Technology Institute, or the various 'Catapults' found across our manufacturing sectors, the £225m five-year programme will commercialise world-leading science for business. It will underpin a capability development programme to grow and sustain a best-in-class engineering consultancy ecosystem fit for the fourth industrial revolution, through innovation, skills and productivity improvements derived from applying different business models.

Through live demonstrator projects, the institute will collaborate with clients supported by academia to showcase our industry's talents - whether that's looking at cities as systems or delivering integrated transport projects.

The next logical step of the Future of Consultancy campaign, the institute will turn research into action and will be delivered by ACE with a number of academic partners, including the University of Salford and Loughborough University. It is currently proposed that the funding for the £45m a year programme will be split three-ways between the industry, BEIS and Innovate UK.

Our letter highlighted the solutions that the institute will offer - for society, government and industry.



Hannah Vickers
is chief executive
of the Association
for Consultancy and
Engineering.

By taking a new technology-enabled approach and considering cities as interconnected systems, we can boost the productivity of the 30% of the economy that relies on the built environment to function, through our ability to shape new ways of planning, designing, building, integrating and operating infrastructure.

We can also help drive society towards net zero. With around 30% of global energy use from buildings, it is vital we get this right. We are not proposing a tactical, project-by-project approach, but a strategic view which will also solve some of the underlying factors contributing to complex social deprivation and low regional productivity.

Finally, we can meet the ambitions of the industrial strategy by building future-ready capacity in our businesses which, in turn, protects and creates high-value jobs. By evolving business models to incentivise investment in innovation and capitalising on our world leading reputation to create centres of excellence within global firms, we will attract inward investment into the UK and help the government meet its 2.4% research and development target.

The benefits will also be felt by members. It will mean better access to skills and retraining opportunities - from apprenticeships all the way to PhDs, support and advice for adapting to new business models, and a better return on research and innovation. It will establish new routes to market for technology-supported services and provide a level playing field for SMEs. It will encourage business models to become more sustainable, while rewarding those who add value and invest in innovate. It will support the growth of more than 400 SMEs and help them transition to a post-fourth industrial revolution world.

This is only the beginning of this exciting journey, and there is still plenty of work, but this next step for the Future of Consultancy is one that the whole industry should welcome.



ACE's Future of Consultancy campaign is making a real impact on the construction industry.

Big challenges ahead for new environment secretary

A newly appointed secretary of state for the environment well regarded in the environmental community is good news, but George Eustice will face some sizeable challenges in his first cabinet role, says *Matthew Farrow*.

To absolutely no-one's surprise, Theresa Villiers did not make the cut at the cabinet reshuffle, bringing the number of environment secretaries in the last ten years to eight (Benn, Spelman, Paterson, Truss, Leadsom, Gove, Villiers and now George Eustice, since you ask).

George Eustice is well known to us at EIC. With a short break he has been a junior minister at Defra for seven years (mostly with the farming brief) and spoke at our parliamentary reception last year - one of our team also worked with him at Conservative Central Office. The new secretary of state is well regarded in the environmental community and unlike his predecessor is no rookie when it comes to environmental matters. Nonetheless, in his first cabinet role he faces some sizeable challenges.

For a start, given the way EU rules have dominated our farming and environmental sectors in the last 40 years, Defra has one of the biggest departmental workloads in terms of unravelling domestic policy from EU law. Eustice will be very familiar with the planned agriculture bill, which will replace the infamous CAP system with a new payments system, but much less so with the environment bill.

The latter is the biggest piece of environmental legislation for a generation, creating a new target-setting framework and the Office of Environmental Protection (the so-called 'green watchdog'), as well as

mandating biodiversity net gain and new powers for waste and resources policy. Among its many provisions the bill requires the environment secretary to set long-term targets across the main environmental areas, so Eustice will have some big decisions to make as he decides how ambitious these targets should be.

Alongside Brexit, he will face a spending review this year led by new chancellor Rishi Sunak. While government spending rules are being relaxed overall, he is still likely to be faced with Treasury demands for cuts (or at least flatlining) for the Defra budget, just as the department needs the resources to implement the environment and agriculture bills. There are suggestions that this circle may be squared by looking at the cost and structures of Defra's arms-length bodies such as the Environment Agency, Natural England and the Marine Management Organisation. One to watch.

And then there is the more existential question for Defra. Created in 2001 from the ashes of John Prescott's vanity project, the Department for the Environment, Transport and the Regions, by 2006 newly appointed environment secretary David Miliband was asking officials "what is Defra for?". Part regulator, part champion of the farming industry, part manager of the countryside, the answer has never been entirely clear and the department was further weakened in 2007 by losing responsibility for climate change mitigation. Since David Miliband, only Michael Gove since has given the department any real heft in the government machine.

My own view is that Defra needs to see itself as an economic department, being a champion for the green economy and environmental innovation rather than just a regulator. That is a conversation I hope to be having with George Eustice very soon.



Matthew Farrow is director of the Environmental Industries Commission, the leading trade body for environmental firms.



Managing dispute risks in nuclear power projects

The nuclear industry is no stranger to risk and disputes are common. Here, a group of partners at law firm White & Case look at the importance of managing dispute risks in nuclear power projects.

The nuclear industry has proven to be a fertile ground for commercial disputes, giving rise to some of the most high-profile arbitration cases in recent years. Few industry sectors face sterner regulatory oversight or deal with greater technical complexity.

Nuclear power is a highly sophisticated industry whose projects are prone to cost overruns and delays. Of the 449 nuclear power reactors currently in operation around the world, only two were completed on budget and on time. When it comes to building a nuclear power plant (NPP), it's almost a case of when - not if - a dispute will arise.

Understanding dispute risks inherent in new NPP projects goes a long way in helping all involved to manage these disputes when they arise.

Why disputes occur

There is intense scrutiny of all aspects of nuclear plant construction from both a safety and security perspective. Reactor suppliers, contractors and day-to-day operations will be under watch by the nuclear regulator in a fashion that is unrivaled in other construction projects and the tension between the regulator, the owner and the supplier is always there.

But even projects that face no obstacles can take the best part of a decade from conception to operation, historically averaging at least eight years to complete.

Overruns are often the norm and with this come disputes



Work is well under way on the Hinkley Point C nuclear power s

about who is responsible and for how much. Given the nature of the nuclear industry and the costs involved, these disputes - which are costly affairs themselves - tend to be played out in a very public way and often take a very long time to resolve.

Licensing risks

With conventional large-scale construction projects, time, cost and quality are the key considerations. However, when it comes to nuclear, a completely new layer of safety constraints is imposed over the top of these traditional concerns.

Licensing risk is one of the critical areas for new nuclear projects and this often generates headlines across the public forum due to their politically sensitive nature. Through the process, an initial license to develop a new plant may be required, followed by a construction license, followed by licenses to permit the transportation of nuclear fuel, and finally an operational license to run the plant. And every one of these steps presents an environment for delays and cost overruns.

Lost expertise and knowledge gap

During the nuclear industry's heyday, from the 1960s to the 1980s, countries such as the US, France and the UK developed deep and institutional expertise in the field of nuclear planning and construction.



station in Somerset, but will the project be dispute free?

Much of that skill base has subsequently been lost, with many equipment and service suppliers exiting the nuclear industry. By the early 2000s, only a relatively limited supply chain to support renewed interest in NPP construction remained, with many leading experts long past retirement age.

This left many countries with established expertise in operating and decommissioning nuclear plants, but a real shortage of know-how in the planning and construction phase – adding significant risk. This skills gap extends to the wider support industries, including essential legal support and financing expertise.

Size can be underestimated

Given the technical expertise required and the regulatory frameworks that must be worked within, the sheer volume of documentation involved is unmatched in the construction industry. Just managing, storing and accessing documentation that is generated in the planning, licensing, construction and commissioning stages of the project requires incredible organization and expertise.

As one nuclear power plant owner explained: “Understanding the size of the project at the beginning is crucial, because any changes made to the design once the project has started can bring unwanted surprises in later years.”

One of the most important stages of any NPP project is during the design and planning phase. The more detailed and prescriptive the documentation is at this stage, the more precise the contract, the greater the chance of avoiding delays and disruptions during construction. This also gives an opportunity to clarify each party’s obligations and ensure that any slip in the schedule can be identified and remedied quickly.

International regulatory coordination

Throughout the construction of any nuclear plant, there are likely to be alterations or variations at the request of the regulator.

These requirements differ greatly from country to country, and since there is no choice but to follow these variations, it is essential that detailed documentation is in place to determine who carries the burden for cost or schedule impacts. A proper system can help mitigate the impact these demands can have on the project.

Nuclear power is here to stay

Nuclear power - while still a small proportion of global electricity production - will remain a key source of energy for decades to come. Given the significant risks inherent in any new NPP project, mitigating these risk factors from the outset should be one of the key considerations for all involved.

The greater the understanding of issues that could arise and the earlier these issues are understood, the less likely these risks are to evolve into disputes - or at least the better prepared those involved will be to manage those disputes. This foresight could go a long way to reducing the significant cost increases and extended construction schedules that currently challenge the industry.

This article was written jointly by Andrew McDougall, Daniel Garton, Richard Hill, Kirsten Odynski and Dipen Sabharwal QC, who are all partners at global law firm White & Case.

Read more online at
www.infrastructure-intelligence.com



🐦 #CandEAwards2020

Consultancy & Engineering AWARDS 2020

Join us as we celebrate the best the industry has to offer at the **Royal Lancaster Hotel** in **London on Thursday 4 June 2020**. Celebrate the best people, initiatives and businesses from across the engineering and consultancy world.

Tickets on sale now!

www.acenet.co.uk/events

Organised by



Media partner

