

**HEATHROW
EXPANSION**

We speak to the airport's chief executive after MPs approve the project
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**YOUNG
PROFESSIONALS**

The 16 young voices shaping the future of UK infrastructure
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DIGITAL RAILWAY

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I INFRASTRUCTURE Intelligence

Produced for the industry by the Association for Consultancy and Engineering

Highlighting the industry's top talent

page 21-27



PLUS: ● New ACE CEO named ● CIO Conference round-up ● Midlands focus ● Roundtable report ● Green politics



INFRASTRUCTURE Intelligence

Produced for the industry by the Association
for Consultancy and Engineering

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MESSAGE FROM THE EDITOR

The infrastructure sector is rightly celebrating the welcome news that Heathrow expansion has been given the go-ahead by MPs. However, as ACE chief executive Nelson Ogunshakin points out in an article on page 20, it has to be pointed out that Heathrow's expansion has been nearly 30 years in the making and bulldozers are only expected to start work in 2021.

When it comes to major infrastructure projects, too often we see delay and dithering from decision makers and it's time that we had a rethink of how our infrastructure is commissioned. While in no way wishing to circumnavigate the political process, so important as citizens must have a democratic input into decisions affecting their lives, there must be a better way of making infrastructure investment decisions, especially where there is political consensus on what needs to be done.

We look at the Heathrow decision and its ramifications in this issue (p6-7, p11, p20) and also examine public-private sector collaboration on infrastructure delivery more widely (p16-17). Collaboration is key and no more so than in the digital sphere and we have a round up from the recent European CIO Conference (p4-5) and also take a look at how Network Rail is working in partnership with its supply chain on delivering the Digital Railway programme (p14-15).

Elsewhere, we celebrate the industry's top talent by profiling the winners of this year's Consultancy and Engineering Awards (p21-27) and also highlight the 16 young voices shaping the future of UK infrastructure as part of the National Infrastructure Commission's Young Professionals Panel (p30-31) - an essential initiative that is set to make a real difference.

So, another packed issue with, I hope, something to interest all our readers.



Andy Walker,
editor, Infrastructure Intelligence

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ACE appoints Hannah Vickers as new chief executive

ACE names ICE's current head of public affairs as its new chief executive to succeed Nelson Ogunshakin, who is due to depart for FIDIC in the autumn. *Andy Walker* reports.

Hannah Vickers has been appointed as the new chief executive of the Association for Consultancy and Engineering (ACE). She will replace Nelson Ogunshakin who is joining the International Federation of Consulting Engineers (FIDIC) in Geneva and will take up her new role at ACE on 11 September 2018.

A civil engineer by profession, Vickers joins ACE from the Institution of Civil Engineers where she led the policy and public affairs team. Prior to this she advised ministers at HM Treasury on infrastructure delivery policy, while also working as a consultant to senior stakeholders on a number of major projects including Crossrail 2, a geological disposal facility for higher-activity radioactive waste and the redevelopment of London's Olympic Park. She has also trained and advised the governments of Argentina, Indonesia, Egypt, Brazil and China in infrastructure planning and delivery.

"I am delighted to be taking over at ACE as we enter an exciting and evolutionary period for the consultancy and engineering industry with new opportunities across UK and international markets."



Vickers graduated from the University of the West of England in 2006. She worked for the Environment Agency from 2011 to 2015 before joining the Treasury for 18 months to work on infrastructure planning. She also advised foreign governments on their infrastructure programmes. In August 2017 she joined the Institution of Civil Engineers as head of policy and external affairs. After a year at the ICE, she is now moving to the ACE.

Her government and client facing experience is sure to be valuable in her new role at the helm of UK consultancy and engineering. Vickers is the first woman to be chief executive of ACE and is also the youngest person to lead the organisation. Announcing her appointment, current ACE chair and managing director, UK at Ramboll, Mathew Riley said: "Despite a strong shortlist, the board had no hesitations in offering Hannah the role as chief executive and we are delighted that she will lead ACE on behalf of its members."

Riley also referenced Vickers's infrastructure and governmental experience as being key in her securing the top job at ACE. "Her background as a civil engineer and as an advisor on some of the country's largest infrastructure projects, as well as extensive government experience, means she is the ideal person to take ACE forward and to help it continue to champion infrastructure at the highest levels," he said. "I'm sure that all ACE members will join the board in wishing Hannah the very best over the coming weeks and months and we look forward to working together soon," said Riley.

Commenting on her appointment, Vickers said: "I am delighted to be taking over at ACE as we enter an exciting and



evolutionary period for the consultancy and engineering industry with new opportunities across UK and international markets. I look forward to working with our talented staff and the full range of our members to build further success in the coming years."

Responding to the announcement, Nelson Ogunshakin, soon to be outgoing chief executive of ACE, said: "I'm looking forward to working closely with Hannah over the coming weeks to ensure as smooth a transition as possible. ACE members, staff and stakeholders will be reassured that the board have selected someone who understands the day-to-day of their businesses and who also has experience at the heart of government."

"I have had 1.4 wonderful years at ACE and I can leave safe in the knowledge that it will have a strong future under Hannah's leadership and will continue to serve its members and champion infrastructure to government and wider stakeholders, both in the UK and internationally."

Once Ogunshakin has handed over the reins of ACE to Vickers, he will depart to pastures new and FIDIC in Geneva where he will head up a federation of 102 member associations representing the consulting engineering industry globally. He will also join ACE's advisory board and no doubt be available, if needed, to provide friendly advice."

Technology professionals take centre stage

A second annual event for chief information officers and technology professionals explored the transformative opportunities of digital innovation for infrastructure delivery. *Andy Walker* and *Ryan Tute* report on June's European CIO Conference.

The second European CIO conference brought together the sector's IT leaders with experts from the world of technology in London in June to discuss the major issues facing the sector, including digitisation, big data, and their impact in changing business models.

The event unveiled the results of a CIO survey which showed that the role of the chief information officer is changing to become a key part of the strategic leadership of professional services firms, usually with a place on the board and often reporting to the chief executive. Increasingly the CIO is better engaged at all levels across a company as the role of IT changes and becomes ever more critical as more than 50% of firms expect a fundamental change in their business models in the future. The survey also revealed that 65% of firms have a digital workplace strategy and that the CIO is playing the leading role in developing this.

Delegates at the event, held at the Royal Academy of Engineering, also heard from leading client organisations, including Gatwick Airport's CIO Cathal Corcoran, who described how the airport has undergone a major digital transformation in a bid to improve the experience for its 45 million annual passengers.

Gatwick's CIO spoke about the challenges facing the major aviation hub as it continues to operate as the most efficient single-runway airport. As it runs close to capacity most of the time, it's essential those behind the digital agenda continue to embrace new opportunities to ensure the airport remains at the forefront of aviation.

With 950 movements a day and 55 every hour on the runway, the level of complexity in operating is not found anywhere else in the world, according to Corcoran. The technology which is implemented across the airport looks to



benefit more than 250 onsite businesses, 30,000 staff and 45 million annual passengers.

Also addressing delegates at the conference was Microsoft's chief architect of data and artificial intelligence, Eric Charran, who highlighted some of the innovative technologies powering digital transformation. "Digital transformation is your way of deciding how you are going to disrupt your industry," said Charran, who also spoke about the need for digital experiences to be smart, fast, helpful and inclusive in order to encourage wider uptake.

Delegates also heard from Peter Vale, engineering information manager of Thames Tideway. Working alongside Mott MacDonald, teams were tasked with providing leadership on a digital strategy within the planning and design stages on the largest water infrastructure project in the UK. Vale discussed how adopting a digital agenda and prioritising a collaborative working environment was essential for all parties.

Embracing technological advancements could also bring about tangible benefits by achieving significant time savings which Tideway earmarked from the outset, said Vale. Teams helped shave two years off the design programme by disregarding the usual exercise of producing 2D drawings because of the increased engagement in the model environment which ensured

the same level of information exchange and design assurance, he said.

Attendees at the event also heard from the man responsible for all things data at one of the UK's biggest water companies. Peter Jackson, chief data officer at Southern Water, said it was "absolutely crucial" that firms embracing a digital agenda get the right data and ensure it's timely and accessible if they are to exploit its richness for future decisions.

Jackson said there were five main reasons for creating a digital strategy which revolved around regulation, ensuring a competitive edge, customer satisfaction, operational efficiency and mainly because everyone else is so companies cannot afford to be left behind.

Another leading client speaking at the event was the man heading up HS2's building information modelling (BIM) division, Jon Kerbey, who revealed how the technology is allowing bosses to deliver vital financial savings. Kerbey outlined how crucial the technology was going to be going forward in ensuring the network was delivered efficiently and talked about the issues of shifting towards digital in a rail industry which is traditionally "incredibly risk averse" and how changing the way people work was an ongoing challenge.

The European CIO Conference is now an established fixture on the industry agenda and plans are already being made for next year's event.

Software providers are an integral part of the team

Greg Bentley, CEO of leading software solutions provider Bentley Systems, caught up with *Andy Walker* at the recent European CIO Conference in London for a chat about digital developments.



CEO
Conference

Bentley Systems' CEO Greg Bentley was in fine form when I spoke with him at the recent European CIO Conference in London. Maybe it was because his company had just announced a major acquisition that will extend digital workflows for infrastructure project delivery through 4D construction modelling or perhaps it was because he was at an event attended by many of his current and potential customers. Whatever the reason, Bentley was enthusiastic, engaged and always interesting.

Commenting on Bentley Systems acquisition of 4D construction modeling software company Synchro Software, Bentley says: "The opportunity to extend digital workflows from BIM to institutionalise 4D construction modelling across infrastructure project delivery, superseding disconnected planning and scheduling, is enormous and immediate.

"As we know in every actual project there are changes during construction. Those can go back and be incorporated in the BIM deliverables through our connected data environment. It's going to make the work of the consultant more valuable. Every constructor and every infrastructure project can gain from going digital through our 4D construction modelling," he says.

The need for firms to adopt new business models and change their approach with the increasing pace of technology advances was much discussed at the CIO Conference. I asked Bentley how he thought that was progressing and whether the pace of change was quick enough.

"Here in the UK it's the owners asking for that; that's what's different," he said. "I was also encouraged by the results of the CIO survey where half of those questioned think that in three years their consultancy's business model will be considerably changed. The reason why I am not sceptical or cynical about that is that the software industry changed its business model. At one time we only sold perpetual licenses and then it was good luck to those who bought them, they were on their own with the risk of obsolescence and fit for purpose. Now we work on a software as a service basis where we get paid for the value our software creates over time," explains Bentley.

So, what did that mean for tech companies' business processes in taking that leap? "It changed software companies in general from being selling and marketing companies to needing to worry about customer success," said Bentley. "We bear the risk of continued use and that business model change is just as important as the delivery model change which is now using

cloud services and somebody else's computing. The business model change made us better companies by having to care about customer success. Come to think of it that is analogous to consultants who otherwise only had to deliver a design and not be accountable for its performance over time," Bentley says.

Bentley Systems works with many organisations that are well down the road of digitisation but what advice would Bentley give

to firms contemplating the first steps? "I remember when China for instance was the slowest adopter of technology and that's changed dramatically over five or six years," he says. "Even those firms that haven't progressed much yet in digital maturity, when they hire new people they are going to be hiring those who have been digital natives and already expect technology to be serving them in their consumer lives," said Bentley.

Bentley believes the pace of change in the tech sector shows no sign of easing up, bringing with it real challenges for professional services firms. "The pace of change will continue to speed up as organisations innovate," says Bentley. "Ultimately if the engineering firms are open to partnering with contractors and data capture firms they can catch up and get ahead. We believe in this so much that we'd like to be partners also. We want to have our own people virtually embedded because with everything done as a cloud service you can see what people are doing and see what help they need and make suggestions," he says.

Bentley believes that software solutions providers need to go beyond supplying a product and work in true partnership with their customers. "For those of us that provide software tools, we have to realise that our deliverables and work product aren't just the tools themselves it should be the software for the learning - the adaptive learning and the machine learning. We're an integral part of the team," Bentley says.

"The pace of change will continue to speed up."

Greg Bentley, Bentley Systems' CEO



Following MPs' approval for a third runway at Heathrow, *Ryan Tute* speaks to the airport's boss on legal challenges, environmental concerns and delivering the project on time and on budget.



MPs' vote to expand Heathrow shows Britain is open for business

The date of 25 June 2018 will long be remembered as an historic date in the history of UK aviation, after MPs cleared the way for the £1.4bn expansion of Heathrow airport after years of wrangling. Despite environmental concerns and conflicts with neighbouring residents at an all-time high, Heathrow's boss remains adamant that a third runway will be "transformational for the UK".

The chief executive of Heathrow, John Holland-Kaye, has spoken of an "exciting time" for the country and says expansion at the UK's biggest airport is "absolutely vital" following parliament approval when the government-backed scheme passed the Commons by 415 votes to 119 - a majority of 296.

The government has pledged that the airport will be built at no cost to the taxpayer, create up to 100,000 new jobs and benefit the entire country through guaranteed internal flights to the rest of the UK. Holland-Kaye has hailed the support of the £1.4bn infrastructure needed to be built by 2026.

But with hundreds of families in surrounding villages facing the prospect of having their homes demolished and growing concerns surrounding air pollution and noise, airport bosses are prepared for legal challenges. A judicial review is set to be launched by four councils that include Wandsworth, Richmond, Hillingdon, Hammersmith and Fulham, along with environmental campaigners Greenpeace and London mayor Sadiq Khan.

However, the Heathrow chief executive

has quashed the impact any challenge can have and has insisted the new planning process does not wait on judicial reviews and the reason why the government has taken so long to get to this point is because they are very mindful of all views and have followed due process.



Heathrow chief executive, John Holland-Kaye.

Speaking to *Infrastructure Intelligence*, Holland-Kaye said: "The judicial reviews are going to run in parallel with the planning process so we will crack on with preparations. If you think about HS2, I think they had maybe four or five reviews and it didn't hold up the progress of the rail network and the same will happen with Heathrow. But I think it's important they happen as we have got to give confidence to local people so they know where they stand, but equally we are making a massive investment in our supply chain both locally and nationally so we need to get on and create the pipeline of jobs needed to build the runway."

Despite the green light from MPs, the Heathrow boss is under no illusion the job is done and has conceded those behind the bid still have work to do in communicating the benefits of expansion and ensuring

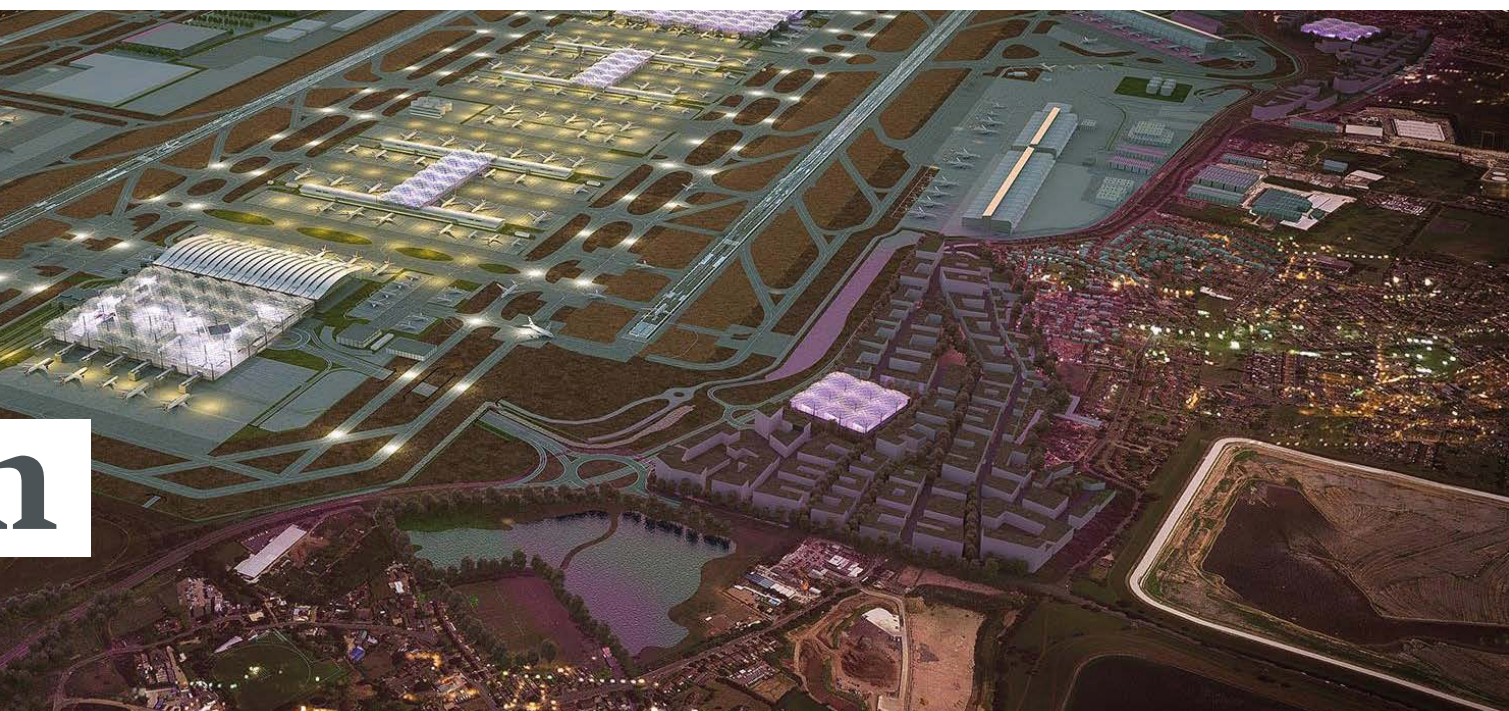
local communities understand the measures being put in place to mitigate upheaval and extra noise.

"Just because we have had such an overwhelming vote from MPs and backing from the National Policy Statement it does not mean our job is over,"

Holland-Kaye added. "We will be consulting very widely with our local communities right the way through the planning process and afterwards. We are an integral part of our local communities and by a long way the single largest employer and rate payer in Hillingdon, we are central to the local community and that presents a massive opportunity to work closely with them so they understand our plans and we understand their concerns."

According to the government, residents affected by the scheme will get compensation worth 125% of their value, along with legal fees and stamp duty included - with £2.2bn worth of compensation on offer. A further £700m will also be available to pay for noise insulation for people who remain in the homes.

Despite the planned strategies and compensation packages, environmental campaign groups have predictably reacted strongly to the government's approval. Oliver Hayes, climate campaigner at Friends of the Earth, said: "The evidence on the accelerating climate crisis, which is already hitting the world's most vulnerable people, is overwhelming - and expanding Heathrow will only intensify the misery. The aviation industry has been promising



cleaner planes forever and a day, with little progress or investment. With no government plan to mitigate Heathrow's carbon emissions, or to address its already illegal levels of local air pollution, it's astounding that this scheme has been given the go-ahead."

Responding to environmental concerns, the Heathrow boss said embracing new technology and innovative ideas was key to allaying concerns. "We have set ourselves some big goals for our sustainability such as carbon neutral growth and we have made an open invitation for businesses to come forward with ideas on how you can build and operate a global hub airport in a carbon neutral way and that's really exciting. New technology will be a core part of the way we build and operate an expanded airport. We need to build an airport fit for the 21st century with a vision to the 2030s and 2040s."

The man in charge at Heathrow has also refuted claims the major project could not be delivered on budget. He discussed how the airport was "backed by some of the biggest infrastructure investors in the world" and how it has already demonstrated an ability to reduce costs by more than £2bn.

Holland-Kaye said: "We have a good track record in this. Over the last couple of years we have reduced the estimated cost of expansion by £2.5bn. This never happens on big infrastructure projects and we have done that by working with our customers. The vote shows Britain is open for business and that we are going to be taking control of our trading routes. By

expanding Heathrow, we are giving people the opportunity to visit all corners of the world. Had we chosen not to do that we would be depending on flights through Paris, Amsterdam and Frankfurt to get to global markets. Our rivals in Europe would be controlling our supply chain and that would be unacceptable."

Following MPs' decision last month, responses from the business community have overwhelmingly been supportive. A long-time backer of a third runway, the CBI said it was "a truly historic decision that will open the doors to a new era in the UK's global trading relationships".

Chairman of the National Infrastructure Commission Sir John Armitt said "action was long overdue" and the infrastructure was necessary to provide easier between the UK and global markets. Armitt added: "The decision has been years in the making and so I hope ministers now move quickly to maintain the momentum now that this crucial hurdle has been cleared."

ACE chief executive Nelson Ogunshakin said that the decision would be welcomed by the entire industry and would give send a strong signal that UK was able to plan and deliver major infrastructure projects. "It is excellent news that parliament has backed this major project and a real signal of intent that the UK has the vision to plan and deliver significant infrastructure projects," he said.

It is now the job of the government and airport bosses to keep demonstrating the case for expansion, as those behind the scheme aim for a 2026 completion date.

Government's five-point pledge for Heathrow:

1 No cost to taxpayers - the new runway scheme will be privately funded.

2 Massive economic boost to the country - new international routes, more than 100,000 new jobs, doubled freight capacity and benefits of up to £74bn to passengers and the wider economy.

3 Commitment to about 15% of new slots for domestic routes, new rail links, and new global opportunities for regional business.

4 Environmental protection built-in - expansion to be delivered within existing climate change and air quality obligations and a new ban on scheduled night flights.

5 Cast iron legal protection on commitments - Heathrow's pledges to be legally enforceable, with punishment of unlimited fines or grounded planes if promises are broken.



Reflections on putting the north on the political map



After nearly nine years as director of IPPR North, *Ed Cox* left the organisation in May for pastures new. In conversation with *Ryan Tute*, Cox reflected on his time at the helm, which saw the advent of the Northern Powerhouse and a new devolved Transport for the North.

How would you describe the commitment to infrastructure spending in the north and how far forward do you believe it has changed since you became director almost nine years ago?

It's fair to say that nine years ago there was very little spending on infrastructure in the north. The coalition government came in under the banner of austerity and immediately brought an axe to the capital spending budget and that had an impact on infrastructure spending across the board.

Regarding spending in the north of England, the disparities in infrastructure spending in 2010 are very similar to today and we have not seen much change at all in overall terms. But what has changed particularly, especially in the last four years, is the narrative and understanding of the importance of infrastructure spending in the north. The current government has started to turn on the taps a little bit but by no means are we where we need to be as a nation in terms of the levels of infrastructure spending that will sustain a developed economy.

Transport for the North is another encouraging step to hopefully bring about change, but do you worry that government funding may not match northern ambitions?

Transport for the North (TfN) has done a fantastic job very quickly in getting the north up to speed so that the in the next 12 to 18 months we

should have a series of significant appraised transport projects which the government and others can invest in. The jury is still out on whether the government commitment to northern infrastructure is for real. In developing strategic plans, TfN has removed one of the major obstacles to investment. Through excellent leadership we now see the north speak with one voice on infrastructure needs and that puts the onus on the government to respond to their demands.

But in such a centralised nation, we are going to need the government at some level to grant more freedoms and flexibilities to Transport for London, so can't borrow to invest and can't raise funds through the private sector in the same way, so to that extent the north is still shackled and that's where government needs to let us free.

Is the Northern Powerhouse the biggest change in your time in terms of the shift to looking more to the north and how would you reflect of its progress and its effectiveness?

I have always felt that the Northern Powerhouse is actually the sum total of our £300bn economy, 15 million people and one million businesses, not a government programme. The success of it lies in the hands of its businesses, its people and the way in which we choose to shape our economy in the years ahead.

I think the commitment by central government to the Northern Powerhouse has diminished over the

last two years but the amount of drive and momentum from the bottom-up is significant and in some respects, we no longer need that top-down approach. If the Northern Powerhouse brand has galvanised the process, then George Osborne's initiative has been a positive one but as I've already said, the drive behind it in the last two years has fallen.



What change is still needed in your opinion to ensure areas in the north get the same fair shake as London and the south-east in general?

There are three things I'd like to see. First of all, we need to see the north speaking with one voice on its economy, not just transport but several aspects of the economy and for that reason we need a Council of the North which can exercise proper leadership, specifically in terms of Brexit and various significant decisions that are going to be taken about items like the shared prosperity fund and trade arrangements.

“In such a centralised nation, we are going to need the government to grant more freedoms and flexibilities to the north if we are going to be able to take the future into our own hands.”



Secondly, there needs to be very significant fiscal devolution. It can't be the case that we remain alongside countries like Romania and Bulgaria in the way in which the central state allocates funding. It's vital that the north can raise and spend its own tax revenues in the same way it has benefitted the home nations.

Thirdly, any new fiscal settlement like that will need greater democratic accountability. We have long argued for a Northern Citizens Assembly that will hold a Council for the North to account and bring the north of the England into the vanguard of modern 21st century democracies.



What was behind your decision to leave IPPR North and did frustrations with Westminster to properly commit to northern devolution play any role?

The North of England is full of people with fantastic ideas and initiatives

that would be really beneficial to the economic opportunities that exist and my sense is that after nearly nine years in the job, it is a good and healthy thing for the north's leading think tank to have fresh leadership and new ideas.

From a personal point of view, I am very proud of the achievements over the past nine years and the way we have led the debate on the type of northern economy that we want to create. However, there has been times in the past 12 months when I feel the Northern Powerhouse debate has become too preoccupied with rather narrow drivers of economic growth such as transport or skills when in fact what we need is a much broader vision of the way in which society and the economy can be regenerated.

What are some of your proudest moments in terms of work that IPPR North has undertaken?

The Northern Economic Futures Commission that we facilitated and reported in 2012 still represents the most comprehensive and coherent regional industrial strategy that exists for the region and it has driven the Northern Powerhouse agenda in a way that I never imagined it might when we first set out to do it. I think that the blueprint for TfN was two years ahead of its time and I am delighted by the way in which it has genuinely provided for something which is such an important part of the Northern Powerhouse agenda.

Most recently, I am incredibly excited by the Northern Energy Strategy we published last year because I think that

represents a genuinely collaborative approach to maximising one of the most important assets for the future of the northern economy and environment.



You have announced that your new role will be with the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA), so what does the future entail for yourself?

Everyone familiar with RSA will know its wide-ranging and provocative ideas and I am looking forward to engaging with them and the new challenges ahead. But I am still passionate about the north of England and I am hoping to work with the RSA to ensure its creativity and thinking can be applied across the north to drive that more radical change that I believe is so desperately needed. The RSA offers a wonderful opportunity for me to explore some of these more profound challenges in a new and dynamic context.

Going digital to build smarter, more resilient roads



A data-led approach to highways asset management is helping East Sussex County Council plan for the future. FM Conway's *Jak Edwards* explains how.

The infrastructure industry has long been striving towards a more holistic approach to asset management. Today, there are both new opportunities and challenges that are adding impetus to these efforts.

The demands placed on our highways infrastructure are changing. We are grappling with the effects of evolving user behaviour, from the rise of autonomous vehicles to the growth of the logistics sector, putting pressure on our roads through more HGVs and LGVs. Meanwhile, we face a major resource challenge as we struggle to preserve finite materials reserves. Climate change is only exacerbating these concerns, as wetter winters and warmer summers shorten the lifespan of our highways, calling for earlier interventions to ensure safe, comfortable and reliable journeys.

Understanding how our roads will perform over their lifetime is vital to meeting these challenges and preparing for the future. We need to anticipate not only when repairs or renewals will be needed, but also ensure we use the right materials for the job. At FM Conway, we've been working with East Sussex County Council and joint venture partners Costain/Jacobs to trial new technologies to help us to do just this.

Building understanding

FM Conway provides planned highway maintenance services across East Sussex's road network as part of a £56m partnership with the council and Costain/Jacobs. Together, we are trialling a new telematics system to build data on the network, so that we can predict when future repairs will be needed and thereby manage long-term performance and costs.

The system records what materials are being used on East Sussex's roads and the conditions under which these materials are laid. In principle, the approach is not new but traditional methods are more disjointed. Materials suppliers should in theory provide



detailed product information, while on-site technicians gather information about the laying process. Since late 2017, we have used the HDS system to automatically log this data - removing the risk of human error or omission.

The immediate benefit is that all the information is stored digitally in one place, making it easier to analyse. In East Sussex, this is supported by FM Conway and Costain/Jacobs having oversight across all parts of the process - from manufacturing materials, to laying them on the network.

The data logging starts when a mix is loaded at one of FM Conway's asphalt manufacturing plants. Sensors on our vehicles track vital statistics about each load like mix composition, time of loading and temperature at loading. Once on site, sensors on our pavers record the temperature at rolling, the density of the mix as it goes down, the number of passes performed by the roller, weather conditions like humidity, wind speed and temperature, and the exact GPS location. The data is then shared with East Sussex and stored, so that the material's performance can be evaluated against this information.

The aspiration is to build up a bank of data about performance and laying conditions so that the team can start to identify patterns. We may find that materials laid in wet conditions typically have a shorter lifespan than materials laid in the dry, enabling us to tailor future programmes accordingly.

Simple changes, big rewards

The approach may sound simple but the practical benefits are significant. The insight that can be gleaned from better data is vital to helping operators like East Sussex adapt their maintenance planning and anticipate surface renewal requirements in the future. By enabling a more proactive approach, in place of costly reactive works, the model should help to reduce both costs for the council and disruption for the travelling public.

It can also support the sector's efforts to become more resource efficient. With an accurate log of what's been laid, when and where, teams can more easily identify which road materials are suitable for recycling. There's benefits for delivery teams too. The system is boosting productivity for FM Conway, freeing up technicians to concentrate on more challenging work. With the skills gap continuing to present a major challenge for our sector, the value of gaining this additional person should not be overlooked.

In our quest for better asset management we need to remember that sometimes the most straightforward changes are the most rewarding. In East Sussex, this has meant taking a digital approach to traditional processes and working with partners to build holistic knowledge of the network that will help us to build smarter, more resilient roads.

Jak Edwards is a senior contracts manager at FM Conway.

In the latest *Infrastructure Intelligence* Think Tank article, *David Whysall*, managing director of UK infrastructure at Turner & Townsend, says the industry needs to show it can rise to the challenge of Heathrow expansion and ensure the project is a success story.

Industry must respond to historic Heathrow decision

The vote in parliament in favour of the expansion of Heathrow Airport looks set to be an historic moment. It represents a vital step in unlocking new airport capacity for passengers and cargo, creating jobs and business opportunities nationwide, building new commercial and cultural links around the world, and channelling fresh private investment into economic outcomes across the UK.

For those of us working in infrastructure and construction, the decision is not only an opportunity to build an expanded Heathrow, but a lasting legacy for our industry. We should take this vote as a mandate to shake off the inertia of the past and embrace the new ideas we have to transform the delivery of major infrastructure projects.

Rising to the challenge

We all know that our industry's performance has fallen short in the past. Structural issues have led to unsustainable low margins causing high-profile casualties, while major projects have failed to complete on time, on budget and to the standards we expect.

Heathrow expansion presents an opportunity to positively disrupt and shift the industry model. There is now, more than ever, a collective recognition of these challenges and the need for change – a view shared across government, clients and the supply chain. As a result, there's a growing body of new ideas which Heathrow can and is drawing upon.

Last year, the Department for Transport's Transport Infrastructure Efficiency Strategy (TIES) was backed by all of the UK's major public infrastructure delivery organisations, including Crossrail, Highways England, Network Rail, HS2 and TfL. The strategy sets out seven crucial steps to improve performance, ranging from how we make



investment decisions, to how we use data to benchmark performance and how we can exploit digital technology.

This strategy showed that government is thinking differently. It is working closely with the Construction Leadership Council with the direct goal of increasing productivity within the sector. There's clear recognition that efficiency isn't simply achieved by slashing costs and screwing down supplier margins, but by working together to achieve better performance across the whole life of assets, through planning, delivery and operation.

Embracing new models

Heathrow is thinking differently too. For its expansion programme, as well as adopting the recommendations of the DfT's work into its delivery model, the airport is also a participant in Project 13, a cross-industry initiative to define a new sustainable model for delivering infrastructure. Project 13 proposes an enterprise model, in which the relationships between the asset owner, investor, integrators, advisors and suppliers are no longer transactional and disconnected, with rewards determined by time and cost.

Instead, all parties work collectively as a single enterprise, incentivised based on the real outcomes of projects. In

this sense, both TIES and Project 13 ask clients to make fundamental changes to their relationship with the marketplace, seeking long-term partners who can align not only commercial rewards, but working culture, investments and mindset.

This change must be embedded at the very outset and we need to pay particular attention to the way that our major programmes are initiated. As set out in the Infrastructure and Project Authority's project initiation route map, we need to meaningfully assess and develop our industry's capabilities and capacity to respond to the specific challenges we face and outcomes we want to achieve.

The Heathrow opportunity

A lot of good theoretical work has been done and we now need to put it into practice. It is extremely promising that Heathrow has conceived a delivery model that places these ideas at the heart of this nationally critical programme. It will provide the platform for expansion to be delivered more quickly, more safely, more productively, and to a standard that other major aviation projects haven't yet achieved globally.

There is no easy solution to the challenges we face. But backed by political support, Heathrow can now start the long-awaited transformation of our sector.



Alison Waterworth, senior project manager at AECOM

Women in engineering - let's raise the bar together

It's been three years since my last article for Infrastructure Intelligence, where I ventured that the task to fix the gender imbalance in the industry is one of "titanic proportions". Since then, it's been refreshing to see a clear and concerted shift in the energies of companies to hire more women, and hone their efforts to retain those that they already have. But is it enough?

Focus seems to be on removing "unconscious bias" with hiring managers, which is then hoped to filter down through to the rest of the workforce. Unconscious bias, however, is a difficult area to tackle as it relates to those 'known-unknown' factors and is often the result of an individual's experiences. Providing training to leaders to make them aware of the biased traits we automatically and unconsciously look for in our staff, and arming them with the steps to alter their preconceptions should be the aim of all companies in the industry, with the bigger firms leading this.

The gender pay gap is another focus area for companies to work on. Since 4 April 2018, companies and public bodies with more than 250 employees are now legally obliged to publish their gender pay gap. Reassuringly, in the weeks leading up to the deadline, many of the big companies did indeed start reporting their gender pay gaps, but it made for some uncomfortable discussions in the office, particularly when it became apparent that the construction industry was highlighted as the worst UK industry for this.

What is even more scandalous is that many of the big names in the industry;

those that should be - and claim to be - working at encouraging more women into the industry, have come out as top offenders.

According to the BBC, the overall figures show that 78% of UK companies pay men more than women on average. How do you explain that to your daughter who is currently sitting her GCSEs, hoping to make something of herself one day? How do you explain that to your partner who has juggled the family and ever-increasing responsibility at work for many years? How do you tell your mother and grandmother that although they brought you up to aim high and expect equality, this isn't the case when it comes down to paycheques? It just shouldn't be the case!

So, what can you do to help? This year's theme for International Women in Engineering Day in June was 'Raising the Bar' so let's pool our skills and enthusiasm and help smash through those glass ceilings and gender pay gaps, making the industry a more welcoming place for women.

Visit your local schools and speak to kids and teachers about the exciting careers you can have in engineering, lobby your company to get their Diversity & Inclusion policies to be more inclusive, make it your goal to help and encourage others around you to achieve their goals, speak out about equal pay and don't settle for anything less.

According to the BBC, the overall figures show that 78% of UK companies pay men more than women on average. How do you explain that to your daughter who is currently sitting her GCSEs, hoping to make something of herself one day?



Johnathan Bulmer, managing director of Cleveland Containers

Four ways to help solve the housing crisis

With house prices rising by 3.2% every year and the latest news revealing that one third of millennials will never be homeowners, it's clear there is still a housing crisis in this country. However, are we making a bigger deal out of this than we need to? Here are four ways in which the UK's housing crisis could be solved.

Build affordable homes

Whilst new houses are being built, if they're too expensive, then they won't help to solve the current housing crisis. Instead, the government should focus on building more affordable, modest homes that the first-time buyer can realistically save a deposit for - think two or three-bedroom terrace houses or semi-detached.

By building affordable houses, millennials are provided with a glimmer of hope that getting a foot on the property ladder is on the horizon, making it a step in the right direction to solving the housing crisis.

Reduce investor power

One city where the housing crisis is becoming increasingly apparent is Manchester. In 2016, 50,000 people lived in Manchester city centre, and it's expected to reach 80,000 by 2024. When you see the skyline constantly changing with an increase in high-rise flats, you'd assume that the city is catering to the demand. Yet, if you look closer, you'll soon realise that for the first-time buyer, these flats are out of reach.

Much of the accommodation in Manchester city centre bars first-time buyers, clearly stating "investors only". When you consider the fact that the

average rent of a two-bed city centre flat is £1,100 a month (before bills), for many millennials it would make sense to house share or live with their parents to save a deposit. . . except even when they have the money, it's deemed "not good enough".

One way to help solve the housing crisis in major UK cities is to stop many new developments from being bought by investment only. Instead, a mix of buy-to-let and first-time buyers makes much more sense, in order to cope with demand.

Alternative housing options

Some people who can't afford to get their foot on the traditional property ladder due to the housing crisis, are looking at alternative means. Boats, shipping containers and sheds are just a few of the options for affordable accommodation.

However, for this to be viable in the future, we need to get rid of the stigma attached - especially when it comes to containers and sheds, as 70% of people identify them as modular homes and 41% of people assume they are less durable than traditional builds. So, what is actually a low-cost solution to the housing problem is currently being overlooked due to untrue assumptions.

In fact, they can also help partway with the homelessness crisis this country faces. In Bristol, containers are being converted into liveable homes, for homeless people to move into. It's a similar story in London too, with one project taking 290 people off the streets, giving them a safe place to stay.

Reconsider green belt land

Whilst there should definitely be areas protected from new developments being built, when you consider the fact that more of Surrey is covered in golf courses than houses and Greater London's green belt land could cover 1.6 million houses, then there is an issue at hand.

To solve the housing crisis, demand needs to be met and that means identifying suitable areas where new - and affordable - housing can be built.



Brian Wong, director in the transport sector group at independent UK law firm Burges Salmon

Emerging transport technology and intelligent mobility

Embedded into the government's industrial strategy and key to its implementation are four 'grand challenges' - artificial intelligence and data, ageing society, clean growth and the future of mobility. These reflect seismic global trends and meeting these challenges is crucial to putting the UK at the forefront of the industries of the future.

In each case, the government has developed specific missions aimed at addressing aspects of these challenges but, across the board, they will require a true partnership between public and private sectors to tackle effectively.

This strong partnership approach is already being demonstrated in particular in the area of emerging transport technology and intelligent mobility. Here the private sector is working closely with academia and the public sector on innovative research projects under schemes established under the Industrial Strategy Challenge Fund or Innovate UK.

Developments in these areas are promising to deliver cleaner, safer, more integrated and more efficient transport. In doing so, transport and intelligent mobility can deliver the innovation, efficiency and productivity increases needed to drive the industrial strategy and cement the UK's reputation for technology innovation.

They also promise to contribute much overall and individually to meeting the 'grand challenges'. Ground-breaking work is being done on artificial intelligence and data on connected and automated vehicles and intelligent transport systems. Driverless cars, more responsive and integrated micro-transit services and better

and faster connectivity will contribute to meeting the social and economic needs of an ageing society (both in work and out of work).

Electric vehicle deployment and research is accelerating developments in battery technology, smart grid management and hydrogen fuel cells promising cleaner air and reduced reliance on fossil fuels. And together they reflect a transformative vision of future mobility with new modes of travel, more intelligent transport systems, new ways of paying for and 'consuming' transport and a 'mobility-as-a-service' mindset.

With a strong background in the transport sector as well as complementary sectors such as energy, data and telecommunications, infrastructure and planning, Burges Salmon is proud to play an active and leading role in bringing new transport technology and intelligent mobility to market. Legislation and regulation has a key enabling role supporting public acceptance and bringing new technologies and models to fruition.

Our involvement includes our active partnership in four driverless vehicle projects (VENTURER, FLOURISH, Capri and Robopilot) as well as leading electric vehicle and battery solutions projects. Seeing these technologies in action and up close only reinforces the view of their central role in meeting the grand challenges of the future.

Electric vehicle deployment and research is accelerating developments in battery technology, smart grid management and hydrogen fuel cells promising cleaner air and reduced reliance on fossil fuels.



Keeping digital change on track

Network Rail's managing director, group digital railway, *David Waboso*, explains why changing the relationship between Network Rail and its supply chain partners is crucial to transforming the network.

You could be forgiven for thinking that the recently published Digital Railway strategy is solely about deploying new forms of signalling and train control on the network. Naturally enough the media headlines that followed focused on the potential passenger benefits of replacing the old trackside 'traffic light' signals with train control technology

Nothing wrong in that and it's certainly true that introducing modern signalling systems is the key to unlock the much-needed additional capacity across the network and improve the performance of our railway, which is full

to bursting on many of our busiest routes. And I am pleased to say we are making great strides to bring this about.

We've come a long way in addressing all the major risks and there have been three important strategic developments: first, we have begun the process of fitting the entire fleet of go anywhere freight trains with the technology to enable them to operate on a digital infrastructure; second, working closely with our colleagues in the Department of Transport, we are using the franchise process to ensure that new passenger rolling stock is manufactured as digital or at a minimum 'digital ready, allowing

for full conversion simply and cheaply in future; and third, Network Rail has announced - with the active endorsement of the Transport Secretary - that from CP6 onwards all signalling renewals of life expired analogue systems will be digital.

These are important building blocks that will underpin the Digital Railway. But they are only half the story.

Digital Railway is more than just technology improvement. It's about delivering a change in approach to the way we do business with our supply chain partners. The feedback from the supply chain is that the scale of the

challenge facing Network Rail and the wider rail industry will require radical changes to the way we interact. No change is not an option.

Introducing disruptive technology is challenging and clients must accept we don't have all the answers. We need to work collaboratively with our supply chain partners and also encourage new entrants to harness their expertise and help develop solutions to deliver the best results for passengers.

When I joined the Digital Railway programme I established the Early Contractor Involvement programme to find new ways of working with the supply chain and also to encourage disruptors to help us find solutions to difficult challenges.

Working collaboratively in this way with the supply chain has been very successful in formatting our plan and approach and is continuing as we enter the delivery phase of Digital Railway. Our partners are involved with the programme's joint design group which brings together a community of suppliers, with a wide range of skills and capabilities. This will allow us to draw

upon a diversity of ideas and experience as we tackle a variety of challenges in renewing complex signalling systems.

We face a bow-wave of signalling renewals with more than half of our major signalling assets needing to be replaced within the next 15 years. Achieving this level of signalling is unaffordable at the current pricing levels - and the level of access required is also probably unsustainable.



The supply chain recognises this and is committed to working with us to drive down the cost and level of disruption

This will require innovative procurement based on whole of asset life and outcome based contracts. It will mean Network Rail becoming smarter

at designing contracts, focusing on in-service performance and achieving outputs. Procurement that is too prescriptive reduces innovation and discourages new ways of working.

An early example of this new approach to working with industry is the deployment of Resonate's "Luminate" digital train management system on our Paddington to Bristol route. This isn't just about the technology, but a novel form of contracting arrangement. It needs only a small upfront investment and is based a shared benefits agreement whereby the supplier will be rewarded if the new system delivers performance improvements and a corresponding reduction in delay compensation payments.

This is just the beginning and we will see more of that kind of approach as our plans emerge in the months ahead. These are exciting times to be working in the rail industry and we have a once in a generation opportunity to change the network for the benefit of passengers and other users. But we will only succeed if everybody comes together to make change happen.



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Public-private collaboration to deliver industrial

The private and public sectors need to work together more efficiently to deliver on the UK's infrastructure targets. *Andy Walker* looks at the conclusions of a new report.

The government's Modern Industrial Strategy, unveiled with great fanfare last year, highlights upgrading the UK's infrastructure as a central part of its list of priorities. The strategy's recognition that investment in infrastructure is a vital catalyst for economic success is to be welcomed as is its commitment to increase investment in research and innovation, skills, green energy and clean growth.

Building on last year's successful *Perspectives on Infrastructure* report, which focused on the private sector, Burges Salmon has once again partnered with Infrastructure Intelligence to publish a second report to present the public sector's views on the challenges in delivering UK infrastructure and highlight how the private and public sectors will collaborate to help deliver the government's industrial strategy.

The report argues that the government needs to encourage greater collaboration between the public and private sectors if it is to deliver on its industrial strategy. It presents the challenges faced by the public sector in delivering UK infrastructure projects and also highlights the necessity for the private and public sectors to work together more efficiently in to achieve the objectives of the National Infrastructure Delivery Plan.

The report comprises three elements; an online survey of more than 100 decision makers working in the infrastructure industry, a YouGov survey of 1,600 members of the UK public and 12 in-depth interviews with key leaders involved in infrastructure in the public sector space. Interviewees include Stephen Hammond MP, chairman of the APPG for infrastructure, Lord Andrew Adonis, Mark Thurston chief executive from HS2 and Alex Williams director of city planning at Transport for London.

Responses from both surveys reveal that the government has a key role to play in the funding and delivery of UK infrastructure projects. The public survey found that 60% believe that national government should drive infrastructure in the UK. However, only 28% think it should be responsible for the progress of projects. The survey results and interviews also highlighted concerns about how private and public sectors work together saying that more collaboration is needed.

On the issue of funding for infrastructure, the overall majority for both industry and public feel that the public sector needs to invest more in infrastructure than the private sector.

Liz Dunn, a partner in the infrastructure team at Burges Salmon, believes that a better balance needs to be struck when deciding which projects are publicly or privately funded. "Currently, the more innovative and risky projects have to get private funding and the more bankable projects with a guaranteed return are funded publicly. Maybe the government should be taking a slightly more risky approach with its funding as this would help in attracting funding from bodies like pensions funds, which have to make a return when investing."

More industry leaders think the public sector needs to invest more in infrastructure (76%) than the private sector (50%), while 48% of the public

"Maybe the government should be taking a slightly more risky approach with its funding."

Liz Dunn, Burges Salmon



Perspectives on Infrastructure: Delivering the industrial strategy can be downloaded from <https://bit.ly/2MD66D8>

thought the public sector needs to invest more and 35% private sector – a clear view that the public sector should be the main sector that needs to invest more. Most of the public sector leaders we spoke to think the government - nationally and via the regions - had a vital role to play in infrastructure funding but this would not always be by investing in new infrastructure. Sweating existing assets was highlighted as a more cost-effective approach which could realise big returns.

The National Infrastructure Commission (NIC) was widely praised for its work by respondents to our survey and by the public sector leaders we spoke to, many of whom raised the NIC and its work unprompted. There was a strong view from some of those we spoke to that the commission should get more involved in making recommendations on the financing of projects and also in areas not currently covered by its remit such as housing. In fact, housing was mentioned as a key part of the nation's

Cooperation essential Industrial strategy



Burges Salmon partners John Houlden and Liz Dunn pictured at the parliamentary launch of their report with Infrastructure Intelligence editor, Andy Walker.

industry professionals who were also keen to see government incentives to persuade businesses to reduce their carbon footprint. According to a number of those we spoke to, government and the financial sector also had a role to play in creating more attractive opportunities for investment in clean tech and renewables.

"It's good to see that there is still a healthy appetite for investment in green and renewables projects," said Liz Dunn of Burges Salmon. "The challenge will be to ensure that there is a sufficient pipeline of projects coming forward to attract that new investment. Particularly in the clean tech space and in new technologies there needs to be a recognition that those projects can take quite a lot of funding to enable them to be rolled out to the wider market," said Dunn.

While not as prominent as it appears to be in the national political discourse, Brexit was raised as a concern by some we spoke to in the context of it taking the government's eye off its infrastructure

"We were keen to continue the momentum with our third report which looks at how the government can best deliver its ambitious industrial strategy."



Will Guard, Burges Salmon

priorities and by it having a negative effect on the skills gap. As the UK's negotiations with the EU continue these concerns could deepen and it is worth keeping an eye on how political events unfold.

Public concern over diversity should not be overlooked either, with 61% of people in our YouGov survey saying that it was important for the industrial strategy to include diversity and inclusion in the workplace. "There is still a skills shortage and there is a lot that a diverse workforce, both in terms of gender and ethnic diversity, can bring in ensuring that the best skills and talent are attracted to the infrastructure industry," said Burges Salmon's Liz Dunn.

Will Gard, chair of the infrastructure group at Burges Salmon, said: "Building on the success of last year's Perspectives on Infrastructure report, which focused on the private sector, and our most recent report Perspectives on Infrastructure: Housing, we were keen to continue the momentum with a third, which looks at how the government can best deliver its ambitious industrial strategy."

Overall, it is clear that the government will only be able to successfully deliver its Modern Industrial Strategy through the public and private sectors working together. The infrastructure sector has the ability, skills and resources to deliver what the public sector needs and by collaborating towards common aims and working in partnership then the government's ambitious aims can be achieved.

social infrastructure that needed to be given much greater prominence in the government's strategy going forward.

Much of that strategy will inevitably be delivered in the regions of the UK and in that light the views we received on devolution were very interesting. Only 12% of the public thought that local government should drive UK infrastructure delivery, perhaps indicating some concerns about the way that devolution is shaping up. However, 80% of those working in infrastructure thought that the allocation of regional funds would improve decision making for local infrastructure projects, so perhaps it's more a question of getting the funding into projects in the right place?

A key issue raised in many of our face-to-face interviews, and also by the survey, was the need to encourage investment in green projects and technologies. A very healthy 64% of the public want to see more investment in clean and renewable energy, a view reflected by

Midlands prepares for decade of transformational change

With the Midlands on the verge of an unprecedented time for infrastructure delivery, *Ryan Tute* spoke to ACE Midlands chair Ruth Jeffs on the challenges ahead.

With the arrival of HS2 and the Commonwealth Games, together with large-scale investment programmes into local rail networks and housing, the Midlands is on the cusp of a never seen before delivery programme, but how well prepared is the region to make the next decade a success?

To provide an insight into the challenges and expectations within the Midlands, Infrastructure Intelligence spoke to regional director of engineering consulting group Waterman, Ruth Jeffs, who also chairs ACE Midlands.

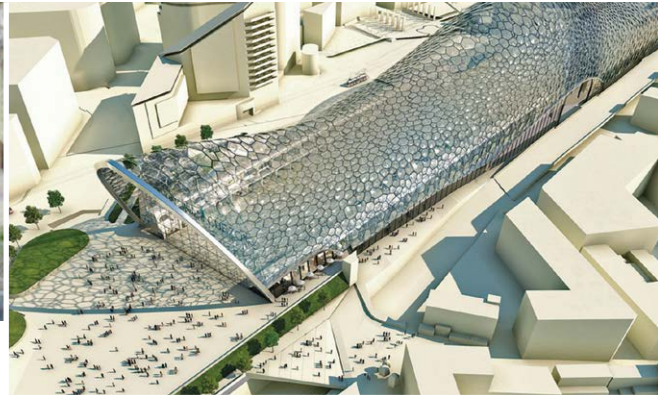
Jeffs believes it's an exciting time for the region and is hoping local authorities and stakeholders can come together to ensure projects are delivered on time and on budget. She is also full of praise for the role West Midlands metro mayor Andy Street has played since being elected.

"He has brought a lot of influence on a national stage which we haven't had before in the Midlands," she said. "It's something we have lacked in the past and that is partly to do with politics and due to the fact he has been elected on a Conservative ticket at a time when there is a Conservative central government. It means his influence has enabled opening up more investment to the region but I believe there is potentially more in terms of devolution that could happen locally and it's up to Andy to prove he can deliver and provide ministers with further confidence to relinquish more control," says Jeffs.

Jeffs also believes that attracting major infrastructure projects like HS2,



ACE Midlands chair, Ruth Jeffs.



international sporting events like the Commonwealth Games and titles like the UK's City of Culture, which Coventry will receive in 2021, are vital in pushing the region forward with key deadlines to strive for.

"The Midlands is on the edge of such a large delivery programme, the likes of which we have never seen before," the Jeffs added. "I believe there is beginning to be an understanding of the amount of work that needs to be done to maximise those opportunities. These events provide deadlines that can't be missed and the Commonwealth Games in particular is a showcase event where the world will be watching so the pressure is on to ensure it's a success," she said.

While Jeffs believes that the introduction of HS2 will be "transformational" for the area and will improve the region via investments like the HS2 Connectivity Package, she would have liked to have seen the high-speed rail network pass through Birmingham's central station.

"I still regret the fact that HS2 comes into Curzon Street and terminates there," she said. "You don't actually pass through Birmingham city centre itself, it splits at UK Central which is just outside Birmingham. So, I think it's not yet known what that area will look like in the future but it will change beyond

recognition. Overall, HS2 will be hugely important with upgrades to the local rail network and in terms of making the city centre more vibrant and improving business links between other areas of the country," Jeffs says.

While there are many exciting developments on the horizon for the region, ACE's regional chair for the Midlands would like to see more joined up thinking between everyone who has a part to play in the delivery of infrastructure moving forward, from chief executive level to the road safety officer.

"Institutionalised approaches to delivery are not going to work with the programme we have at the moment," Jeffs added. "This involves where I see their approach to technical approvals being very process-driven and long-winded and just not right for today's commercial world, so there are differences that need to be looked at.

"It comes back to something that ACE has been talking about as a whole, which is not moving the deadlines. I think one area where we will need to get more involved is with how we can actually meet delivery programmes when we inevitably hit issues. Everybody needs to have that transparent, open approach so it's supportive and enabling rather than destructive," said Jeffs.

The rise and rise of green politics



Environmental issues are rarely out of the news these days as the green agenda moves ever higher up the agenda of the public and politicians, writes *Matthew Farrow*.

Nearly 20 years ago, in the 1989 European elections, the Green Party won 14% of the vote. At the time many felt that this heralded the start of the environment becoming a permanent fixture in British politics, but in fact it was something of a high watermark for the green movement, as the economic downturn of the early 90s during the Major government pushed green concerns down the agenda.

The next upsurge came during the mid-2000s (like the late 80s, the tail end of a long period of economic growth overseen by a government with a strong majority), when climate change became a priority across the political spectrum (only five MPs voted against the Climate Change Act). But just as in the early 90s, the 2008 crash and the austerity that followed saw interest wane and environmental policies (such as the CRC energy efficiency scheme for large corporates) scaled back or scrapped.

So, the extent to which the environment has been seen as politically important has always been cyclical, but there is no doubt that we are in something of an upswing at the moment, with Michael Gove the most active and powerful environment secretary since David Miliband in the mid-2000s. But I think there is something unusual about this upswing, which is the sheer range of environmental issues that are 'live'.

In the late 1980s, climate change was the main issue, and this was also true in

the mid-2000s, although household recycling levels were also rising and seen as an important issue. Today though, it is hard to think of an environmental issue that is not getting significant media and political attention.

Air quality concerns are a fixture of the national media and of high-profile legal defeats of the government. Plastic pollution is seen as a moral issue and barely a day goes past without a major corporate announcing measures to cut plastic waste out of their business models. Natural capital is the new buzzword and the prime minister has announced that all infrastructure projects will be judged against their ability to "enhance not degrade" the country's natural capital.

Meanwhile, the Committee on Climate Change, in its 2018 report to Parliament published at the end of June, warned that the success in phasing out coal and boosting renewables (power sector emissions have fallen 50% in the last five years) is masking failure to decarbonise in other parts of the economy (transport emissions are rising, while those from agriculture and buildings have barely changed since 2012).

The committee's message is that urgent action is needed across all sectors otherwise the UK will fail to meet its

legislated carbon budgets during the 2020s. This has prompted Theresa May to set a target of halving the energy use from new buildings by 2030.

There are a number of factors behind the unprecedented number of environmental issues that are all high profile at once. Brexit and some



effective work by green NGOs has pushed the government to come up with some longer-term ambitions on the environment and Michael Gove is a minister who wants to back up words with action. I'd also like to think that there is a slow but steady rise in the awareness of the public at large that environmental issues matter and take time to solve.

My one concern to set against this welcome environmental focus is whether the UK has the institutional capacity to design, implement and enforce the range of new green policies being talked about. For decades we have relied on the EU to do most of the policy thinking and analysis for new green initiatives and between 2006 and 2016 the Defra headcount was cut from 4,000 to under 2,000. At the same time the Environment Agency and local authorities have also had to manage resource cuts in their enforcement systems.

Staying in the European Environment Agency (perfectly possible as non-EU member state) would help us stay connected to European expertise, but I also think government will need help from ACE and EIC members to shape an environmental policy framework that can deliver the clean, sustainable economic growth we all want to see.

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



Infrastructure planning needs more independence



Recent decisions on Heathrow and Swansea Bay highlight the need for a reappraisal of how our infrastructure is commissioned, writes *Nelson Ogunshakin*.



The decision to expand Heathrow is good news for our industry. The £1.4bn project will mean a new runway for Europe's busiest international airport and new passenger facilities. There will be new rail spurs to the south and west and extensive work on tunnelling the M25.

On a wider level, Heathrow will generate 180,000 jobs, including 5,000 apprenticeships, and up to £187bn in economic benefits across the UK by 2050. Passengers will be able to fly to more destinations and London will be better connected to the world. This will increase in-bound tourism and reinforce London's position centre for business and finance - crucial for continued economic success in a post-Brexit world.

On the very same day the Commons voted on Heathrow, the government quashed plans for the £1.3bn Swansea Bay tidal lagoon project (pictured above) which sought to harness the power of tides and turn it into electricity. The project had the backing of the Welsh Assembly and local MPs and was expected to generate enough energy for 155,000 homes, as well as 1,000 jobs and ongoing opportunities for the tourism and leisure sectors.

The government made the decisions on cost grounds, arguing the electricity generated wouldn't compare favourably to other sources, notably a mix of wind and nuclear. However, critics of the decision claim the longer lifetime of

the lagoon, with electricity potentially generated for 120 years, wasn't considered.

While meaningful engagement with stakeholders is an integral part of good infrastructure delivery, Heathrow's expansion has been nearly 30 years in the making and bulldozers are only expected to start work in 2021. In that time, we've seen the continental hub airports invest in new runways (Amsterdam now has six, Paris and Frankfurt four). It may already be too late for Heathrow to maintain its position as Europe's number one international airport in the longer-term.

Contrast the Swansea project, which has been discussed and now delayed - perhaps indefinitely - to the, admittedly less ambitious, Normandie Hydro project across the Channel. With the full backing of the French government, EDF Energy will soon have seven turbines testing the viability of the technology and providing power to 13,000 homes by 2020. Other tidal projects in Russia, South Korea and Canada are progressing. We may have already lost the initiative to foreign competitors.

These decisions reveal issues with the concentration of political power and finance in the UK. Infrastructure should be apolitical and rise above party bickering and horse-trading. Would the tidal bay project have gone ahead with a Conservative government in Wales? We

may never know. Should the devolved nations have more input in this area? Yes. Should the National Infrastructure Commission be given more power to influence long-term planning? Most definitely.

Should we be identifying larger projects which are "apolitical" to help speed the process up? Again, yes. For example, London's transport network simply cannot afford a 30-year delay on Crossrail 2, which would also mean losing the expertise and knowledge gained during the construction of Crossrail.

Money is another area for concern. While Heathrow is expected to be funded from private sources, too much political uncertainty will ultimately mean more expensive finance. Furthermore, how will we fare post-Brexit when we potentially no longer have access to the European Investment Bank as a source of investment? In the current Brexit debates, the issue has been largely pushed aside, but it is one that needs to be discussed sooner rather than later.

I believe that the long-term solution lies in the creation of an equivalent to Germany's KfW bank to independently make infrastructure investment decisions, working in close partnership with a beefed-up National Infrastructure Commission. Along with a greater say for regional authorities and the devolved nations, we could see the emergence of more clarity when it comes to long-term infrastructure planning and projects which truly address structural needs across the country.

In the absence of any such system, we run the risk of projects in the national pipeline drifting until the political and economic climate is right. With so much uncertainty in today's politics, we can simply no longer afford to wait.

Dr Nelson Ogunshakin OBE is the chief executive of the Association for Consultancy and Engineering.

Top talent rewarded as award winners revealed



The consultancy and engineering industry's brightest and best are unveiled at annual awards event.

Leading professionals from across the infrastructure sector gathered at the Marriott Grosvenor Square in London on Wednesday 6 June 2018 to see the winners of the 2018 Consultancy and Engineering Awards unveiled.

Organised by the Association for Consultancy and Engineering (ACE), the annual event celebrates the best that the industry has to offer, recognising remarkable companies, industry projects and initiatives, as well as exceptional individuals and the next generation of sector leaders.

The judging panel, made up of eminent individuals from across the industry and chaired by Sir Terry Morgan, chairman of Crossrail, had the difficult task of choosing the winners.

In addition to the main awards categories, the Diamond Award celebrated the "best of the best" on the night, and two honorary Ambassador Awards were bestowed to former vice-chancellor of Aston University Baroness Brown of

Cambridge and Mike Brown, commissioner of Transport for London.

Charlotte Jones of AECOM won the Apprentice of the Year Award and was also announced as the Diamond Award winner. In the winner's citation, the judges said: "Charlotte is a classic example of the benefits of apprenticeships in the construction sector. She is a real inspiration. We need more Charlottes."

The Best UK Business Performance Award for large firms went to Turner & Townsend, while Curtins won the award for midsize firm. The award for Best UK Business Performance for SME firms went to Dougal Baillie Associates. IMC Worldwide won the Social Impact Champion Award and Ramboll took the prize for Technology Champion.

The winner of the Emerging Professional of the Year Award went to Rhys Coombs of Stantec, who impressed the judges with his cutting-edge innovation in his field of dams and flooding.

Speaking at the awards, ACE chief



executive, Nelson Ogunshakin said: "Once again it was a huge pleasure to welcome the industry for our gala event and awards ceremony. As in previous years, the winners were of exceptional quality - truly the best of the best. I am proud to have shared the stage with them and delighted that the awards continue to highlight what makes our industry great."

The awards were presented by BBC Breakfast presenter Louise Minchin (pictured above), continuing the long-established tradition of TV and radio news journalists who have hosted the awards.

The full list of winners of the Consultancy and Engineering Awards 2018 appears below and is covered in more detail over the following pages.

The winners

Best UK Business Performance - SME

Winner: Dougal Baillie Associates
Highly commended: Geo-Environmental Services

Best UK Business Performance - Mid-size

Winner: Curtins

Best UK Business Performance - Large Firm

Winner: Turner & Townsend

Emerging Professional of the Year

Winner: Rhys Coombs, Stantec
Highly commended: Najwa Jawahar, WSP

Apprentice of the Year

Winner: Charlotte Jones, AECOM
Highly commended: Amelia Flood, Arup

Learning and Development Initiative of the Year

Winner: Curtins

Diversity and Inclusion Champion of the Year

Winner: Arup

Highly commended: Arcadis

Social Impact Champion of the Year

Winner: IMC Worldwide

Technology Champion of the Year

Winner: Ramboll
Highly commended: Crofton

Ambassador Award

Baroness Brown of Cambridge
Commissioner Mike Brown MVO, Transport for London

Diamond Award (Winner of Winners)

Charlotte Jones, AECOM

Best UK Business Performance – SME

Winner: Dougall Baillie Associates

Dougall Baillie Associates won the prize for Best UK Business Performance – SME, after being described by the judges as “being the best of the bunch” in this category.

One of the largest independent engineering consultancy firms in Scotland, the multidisciplinary SME has been operational since 1985. The firm has a clear vision for the future focusing on its staff, the respect it has for its clients and the continual development of its offering.

The judges said it was a well-run business and has had solid growth over the last three years. Profitability has increased from 13% to 18% and the firm is targeting a 20% profitability level. The period under review has seen fee per staff member increasing from £67,000 to £90,000.

The firm referred to the importance of cash and debt in its entry, which

the judges thought was important and refreshing and not always mentioned in awards submissions. The staff’s support and enthusiasm for the business is strong and shines through, said the judges making Dougall Baillie Associates a very worthy winner in this category.

Highly Commended: Geo-Environmental Services

Business performance was good with solid achievement over three years and the judges were impressed with the firm’s commitment to a flexible working approach and the interest they show in their people.



Best UK Business Performance – Mid-size Firm

Winner: Curtins

This year’s winner of the Best UK Business Performance – Mid-size Firm award was Curtins. The firm has seen steady profit growth year on year and shows the right development match with revenue increase.

2017 saw yet another successful year for Curtins, where turnover increased by 10% and the firm increased its profit margin to 7%. The company maintained its inclusion in the Sunday Times Top 100 firms to work for list for the third year running and also attained BIM level II accreditation. Curtins also opened its 14th office, located in Cambridge in 2017 and relocated its head office in Liverpool and increased permanent staff numbers to 403.

Curtins has an interesting and wide-ranging list of achievements over the last few years and for an organisation of 400 people its list of staff benefits and incentives is impressive, said the judges. The judges also said that it



was a pleasure to read a concise and relatively unambiguous entry. Most of the important business numbers are heading in the right direction but through sustainable growth.

The judges’ citation concluded: “The overall impression is that 2017 was a better than ordinary year and in some respects, it was clearly a very special year. A clear winner in this category.”

Best UK Business Performance – Large Firm

Winner: Turner & Townsend

This year's winner of the Best UK Business Performance - Large Firm Award was Turner & Townsend who impressed the judges by delivering exceptional growth both in their global and UK businesses despite volatile market conditions.

2017 marked the firm's seventh year of successive global growth and UK turnover climbed to £212.5m, an increase of 18.3% compared to the previous year and set against an industry average of 10.3%.

Turner & Townsend is pursuing a strategy based on a diversified business model across 44 global markets and over the last three years they have extended the firm's geographical reach by opening 14 new offices, to now give them 104 offices.

The firm's partnership model ensures that they have the flexibility to make independent decisions in their clients' best interests and are able to take a long-

term view on investment, supporting both their sustainability as a business and enabling the firm to create a positive legacy.

"Overall business performance was very good," said the judges, "with steady organic growth over three years not

dependent on acquisitions and clearly in line with their strategy, which is to the credit of their board". Over and above Turner & Townsend's steady, organic growth, the judges were also particularly impressed by the firm's engagement with schoolchildren.



Ambassador Award

Winner: Baroness Brown of Cambridge Mike Brown, Transport for London

This award is presented to an individual who has made an outstanding contribution to the industry. Previous recipients have included Terry Morgan, Sir John Armitt and Sir Michael Latham and this year, two Ambassador Awards winners were announced.

The first winner, Baroness Brown, an engineer, is a strong supporter of the sector, has supported ACE's advocacy in the heart of parliament and worked tirelessly with the World Economic Forum on environmental issues and carbon reduction.

She was also a member of the government's airport review and a previous vice-chancellor of Aston University. Speaking at the Consultancy and Engineering Awards dinner, ACE chief executive Nelson Ogunshakin said she was "a fantastic role model for the industry".

The second winner was Transport for London commissioner Mike Brown. Brown joined London Underground in 1989 and became chief operating officer in 2003. He left to run Heathrow Airport during a massive transformation and passenger improvement programme.

Returning to London Underground as managing director, he was responsible for

operating services with more than one billion journeys every year and for leading the largest line upgrade and investment programme the Underground has ever seen. As London's transport commissioner, he is ultimately responsible for a multi-million-pound investment programme and the delivery of transport services for more than 13 million passenger journeys every day.



Apprentice of the Year

Winner: Charlotte Jones from AECOM

The Apprentice of the Year Award recognises an apprentice who has demonstrated outstanding progress and commitment within a recognised learning scheme. The award also recognises an apprentice that has made a positive difference to their company and the judges were unanimous that this year's winner should be Charlotte Jones from AECOM.

The judges were simply bowled over by Jones and she impressed everyone with her approach. All the judges found her to be very personable, self-motivated and passionate, accessible and welcoming. "She has a personality that really draws you in," said the judges who were also impressed by Moore's modest amenable and humble demeanour.

Moore also impressed by overcoming a number of personal and professional challenges throughout her career to date, but her actions and achievements will be of huge inspirations to others looking

to join the industry, said the judges. "People in a similar position will be able to recognise themselves, thinking 'if she can do it than so can I'" they said. "She is a real inspiration and we need more Charlottes!" they agreed.

Charlotte's is a story of triumphing through adversity, one that many can relate to and is especially relevant in 2018, the Year of the Engineer. As the winner

Highly Commended: Amelia Flood from Arup

A highly technically competent individual who chose the apprenticeship route, despite pressure to go to university, as she was passionate about working on site.

of this award, Charlotte will also become a member of the ACE Business Academy group.



Emerging Professional of the Year

Winner: Rhys Coombs from Stantec

This award recognises a talented young professional who has played a significant role in the design, delivery, maintenance or management of a project or projects throughout the year and who demonstrates real commitment to being an industry leader of the future. This year's winner was Rhys Coombs from Stantec.

Coombs impressed the judges with his cutting-edge innovation in his field of dams and flooding. An all-rounder, he has also developed a board game for year 7s and has done a lot of STEM engagement.

"Clear and confident, Rhys epitomises the spit of the engineer," said the judges. "His whole world is engineering. He doesn't just accept things, he challenges them and there is real energy behind the interest. Really passionate and articulate, he sees outreach as an integral part of his job not something separate," they said.

Highly proficient in the digital arena and data use, the judges said that Coombs had already accomplished a lot for someone who is only seven years post-graduation and he was a worthy winner of this year's Emerging Professional of the Year Award.

Highly Commended: Najwa Jawahar from WSP

A keen role model who has invested her time in teaching and bringing on younger engineers and applying her undoubted talents to improving the learning experience for others.



Learning and Development Initiative of the Year

Winner: Curtins

The Learning and Development Initiative of the Year Award recognises an organisation investing in learning and development initiatives and the continuous development of their workforce, demonstrating a positive impact for staff and also clients.

This year, Curtins took the award and impressed the judges with their Curtins Academy, a transformational four-year programme where graduates learn and apply principles across technical, professional and commercial aspects of the business. The core objective of the programme is for participants to improve professional and managerial knowledge, skills and ability in a collaborative and supported environment through business and industry expert engagement.

“Curtins’ investment in its impressive academy programme certainly seems to be paying off reputationally in terms of attracting new recruits and this level of



commitment is clearly benefiting the company’s employees enormously,” said the judges who were also pleased to see evidence of skill sets being evaluated and used appropriately in team construction.

The judges were also particularly pleased to see an academy programme

that looks to the future as well as the past, by honouring the firm’s founder Bill Curtin’s approach and values. “Curtins has invested in this scheme and it has paid off. Client satisfaction is on the up as is graduate recruitment and retention,” the judges said.

Diversity and Inclusion Champion of the Year

Winner: Arup

The Diversity and Inclusion Champion of the Year Award recognises companies that go beyond the norm in this space, that deliver tangible actions, and take a strategic approach to challenging and changing company culture.

This year’s clear winner was Arup, who have consistently good figures on gender balance and are undoubtedly leaders in this area. It is clearly a firm that people are proud to work for and somewhere they feel comfortable in their own skin.

The judges were very impressed with Arup’s work with the Social Mobility Foundation to encourage more young people from a wide variety of backgrounds to join the firm. Also impressive was the fact that Arup has gone beyond their own boundaries and is striving to change things externally too, with an impressive outreach component to their work.

Arup has not resting on its laurels, looking beyond the industry, taking

a lead and making a real difference which the judges thought worthy of note. “Arup’s figures around gender are exceptional and they are clearly a leader in the field of diversity and inclusion and thoroughly deserve to win this award,” said the judges.

Highly Commended: Arcadis

The firm is determined to ‘get it right’ in this area and are not chasing awards, preferring to get their own house in order first and foremost. The judges were impressed by this self-effacing approach.



Social Impact Champion of the Year

Winner: IMC Worldwide

The Social Impact Champion of the Year Award recognises companies that deliver environmental and social sustainability in their own business practices and on the projects they work on. Through close collaboration with industry partners, customers and other stakeholders, they will have added value for their clients, as well as benefiting the wider community.

This year's winners, IMC Worldwide, impressed the judges with their values as well as the impact of their work on people, which is profound and significant. This work touches and changes people's lives around the globe. Because of what they do, rural communities now have access to essential health and sanitation products, farmers have steadier incomes, women are empowered and have become community leaders.



IMC has rehabilitated 450+ schools in Pakistan's provinces of Punjab and Khyber Pakhtunkhwa. They have built safe, female-friendly classrooms and facilities including libraries, science and IT laboratories, toilets to increase attendance and retention rates among girls and ramps for disabled access, to benefit 1 million children by 2020.

The company has a strong and deep commitment to the environment and reducing its carbon footprint on projects, despite working in challenging regions of the world. "They are delivering real social impact in a sustainable way and are worthy recipients of the Social Impact Champion of the Year Award," said the judges.

Technology Champion of the Year

Winner: Ramboll

The Technology Champion of the Year Award recognises an organisation that has accomplished exceptional advancements and new developments, leveraging technology and big data to bring success and the winner this year was Ramboll.

Ramboll should be congratulated, the judges said, for taking a systematic approach to the implementation of new technologies and to embedding this approach throughout its business. "They have been quietly innovating and delivering tech solutions to solve clients' real-life challenges," said the judges. Digital design has transformed Ramboll's way of working and it is now integral to every project they run, allowing the company to make better decisions faster and earlier.

Through focused recruitment and harnessing the digital creativity of its people, Ramboll has changed its culture to one of continuous digital innovation



to create programmes that deliver better designs earlier in the process and deliver improved outcomes for clients, end-users and society alike.

"Their use of technology on early stage offsite construction, dynamic masterplanning and gantry design is genuinely transformative. Ramboll are digital adoption industry leaders with a culture of continuous digital innovation," the judges said.

Highly Commended: Crofton

The firm's Cloud Chamber has the potential to change the way the construction sector works, through placing the power of a laser scanner into the hands of every operative in the property and construction supply chain.

Diamond Award (Winner of Winners)

Winner: Charlotte Jones from AECOM

**DIAMOND
AWARD**

Each year, as the awards judges receive the entries and undertake the judging process, there are key projects, individuals or companies that stand out beyond just winning in a single category. These entries are the winner of winners.

This year, among the standout entries, there was one which simply blew the judges socks off, so impressed were they by an individual who they said was “a classic example of the benefits of apprenticeships in the construction sector”. This year’s winner of the Diamond Award and the winner of the 2018 Apprentice of the Year Award, Charlotte Jones of AECOM, was “an inspiration” said the judges, who will in turn inspire others to join the industry.

According to the judges, what was particularly impressive about Jones and what set her apart as the winner of this year’s Diamond Award was that she is clearly someone who has overcome barriers and challenges to learning and study and despite this she has single-handedly brought colleagues together in her workplace to demonstrate the advantages of new ways of working using software to deliver for clients.

This is clearly someone who has gone above and beyond and through the quality of her work Jones has received excellent feedback from colleagues and clients and has been encouraged to mentor others as a result. Jones has also helped to identify ways to improve what AECOM does, even delivering in-house training on the latest traffic modelling software which the team now use.

Jones has been an apprentice within AECOM’s transportation team for four years, working her way through the company’s training scheme as a member of the Institution of Civil Engineers and developing a wide range



Charlotte Jones (right) receiving her award from Louise Minchin.

of skills including microsimulation modelling, traffic signal design and road safety auditing. AECOM is currently supporting her through part-time study for an accredited undergraduate degree in civil engineering, after she achieved distinctions in her entry level BTEC, NVQ and HNC qualifications.

Jones’s managers consider Jones to be one of AECOM’s top performing apprentices and a role model to others in terms of both performance and behaviours. Evidenced through the firm’s annual assessment process, Jones has been consistently rewarded with a high performance rating, often achieving her goals by the mid-year review and exceeding them by the end-of-year assessment.

“This is one very impressive individual who will inspire others by her actions and her achievements,” the judges said.

“Charlotte’s story of triumphing through adversity is one that many can relate to and is especially relevant in 2018, the Year of the Engineer and we have absolutely no hesitation in giving her this year’s Diamond Award,” said the judges.

Reacting to receiving her award, Jones said: “I’m absolutely shocked as I didn’t expect to win either of the awards I won. I started literally from the bottom with GCSEs and I hope my success shows that people can do that and still become an engineer. Apprenticeships are recognised and are worthwhile. I love seeing the results of my work and it makes a difference to people’s lives. My message to people in a similar situation to me is to give engineering a try and you will be recognised for your efforts.”



Working smarter together to make change happen

Industry leaders gathered once again at Claridge's in May to discuss UK infrastructure investment and the rise of digital at the latest executive roundtable event organised by *Infrastructure Intelligence* and supported by BST Global. *Andy Walker* reports.

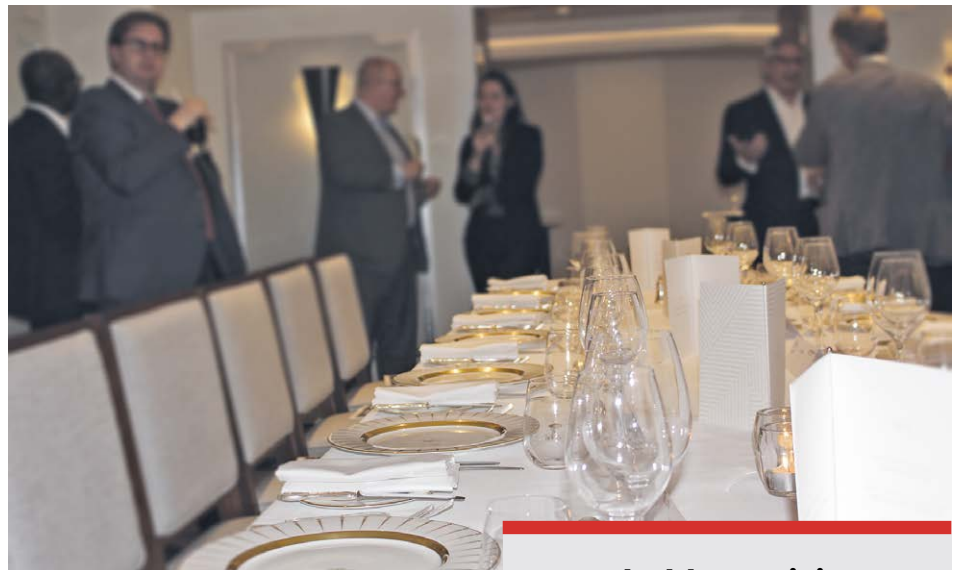
The latest BST roundtable event looked at the future direction of infrastructure investment in the UK and also the challenges facing professional services firms arising from digital transformation.

With infrastructure currently a hot topic in the media and amongst politicians of all parties, it was an opportune time to be discussing its future direction. So, where did people think that infrastructure is going in the short term and what are the key challenges?

"There is a lot of talk but is there any real substance? Is there money there or is the Treasury controlling the agenda?" asked Philip Hudson from Price & Myers. Chris Young of Tony Gee & Partners thought that major projects were taking a long time to get going despite people recognising the need for them to take place. "The timescales for projects often span more than one political cycle so it's stop-start as politicians' priorities change," said Young.

Nick Blake of SLCE Architects lamented the fact that infrastructure was bundled in with the general daily spend of government and that was part of the problem. "Technically the government is balancing their books if they take out infrastructure and maybe it would help if they put that in a separate pot," said Blake. A shift to a different way of political thinking could mean more support for long-term infrastructure planning as different governments come and go, he said.

Marion Baeli of PDP London thought that the current focus on Brexit made infrastructure investment even more important. "If the UK hasn't sorted its infrastructure it will be less attractive than other countries that have better infrastructure. Post-Brexit the UK will need a strong differential and infrastructure is key to making the country more attractive for business," Baeli said.



"I've always wondered why it takes us such a long time to do the things that we know are important," said HTA Design's John Nsiah. He cited the limitations of the Blackwall Tunnel as a corridor for east London and said that the economic consequences of traffic congestion made the case for more effective solutions unarguable. "Other nations get it right so why can't we?" he said.

Lessons could be learned from Denmark, said Nick Blake. "Copenhagen in the 1980s was suffering from depopulation and they were losing a lot of young people," he said. "Their solution was joined up thinking from local city and national government. It allowed them acquire land on the outskirts of the city, take it under the city's control, create a masterplan and say that this is going to be a new neighbourhood and then allocate plots for offices and use the money from that to fund a subway. It's a 20-year plan but it's worked by local and national government working together then using the profits to put in the infrastructure to make that area work," said Blake.

Roundtable participants

- **Marion Baeli** – partner, PDP London
- **Nick Blake** – director, SLCE Architects
- **Julian Francis** – director of policy and external affairs, ACE
- **Philip Hudson** – partner, Price & Myers
- **Alister Kratt** – director, LDA Design
- **Jason Millett** – director, Mace Group
- **Eduardo Niebles** – managing director, international business, BST Global
- **Brian Nolk** – commercial director, Victoria Street Capital
- **John Nsiah** – director, HTA Design
- **Steve Parker** – director, Currie & Brown
- **Andy Walker** – editor, Infrastructure Intelligence, chairing the meeting
- **Chris Young** – executive managing director, Tony Gee and Partners

Julian Francis from ACE said that UK's political structure acted as a break on projects being developed. "We really only have one ultimate client in this country and that is the UK government, where in other countries there are devolved tiers that have degrees of autonomy," he said. "Although we have had devolution to the nations and to some cities, we have had very little economic devolution. State governments in other countries have revenue raising powers so they have more scope to make projects happen," Francis said.

There was a real feeling that the UK needed to recognise the long-term whole life costs of infrastructure and amortise that cost across generations rather than a narrow five-year cycle. This message needs to be transmitted to government and it's down to the industry to get its views across to politicians.

The government are responsible for the lack of investment and progress on projects, said Steve Parker of Currie & Brown. "If we look at France, the government supports infrastructure schemes and just drives them through while we have many reasons to hold them up," Parker said.

Marion Baeli of PDP London added a note of caution saying that while the TGV was a great service its overspend had sucked up investment and there was no more money to maintain the existing local network. "You have to be careful what you wish for," Baeli said.

Working smarter was crucial and digital was seen as the key to that. "The architecture and engineering community is considered one of the least digitised industries and the only sector it is ahead of is agriculture," said Eduardo Niebles. "Firms are making digital a top three criteria but they are struggling to put everything together. They look at one piece of the equation but often don't realise that the equation is quite big and it goes deeper than technology and applications, it's about changing your business models," Niebles said.

Working more flexibly using digital is something firms are discussing more and more said Philip Hudson and this is breaking down previously held attitudes towards remote and home working. "Digital working is essential for flexible working but we need to be aware of the mental load that places on people, especially women," said Marion Baeli. "Never disconnecting is not healthy for any of us and we need to guard against that," she warned.

"The timescales for projects often span more than one political cycle so it's stop-start as politicians' priorities change".



Chris Young of Tony Gee & Partners

"Post-Brexit the UK will need a strong differential and infrastructure is key to making the country more attractive for business."



Marion Baeli of PDP London

"Technically the government is balancing their books if they take out infrastructure and maybe it would help if they put that in a separate pot."



Nick Blake of SLCE Architects

"Although we have had devolution to the nations and to some cities, we have had very little economic devolution."



Julian Francis, director of policy and external affairs, ACE

Nick Blake thought that there was a real possibility and opportunity for digital disrupters to come into the industry and start doing things differently by redefining their business models. That was also an opportunity for consultancy and engineering firms if they did things differently and changed their business models.

"Having that engineering firm or architectural practice that says let's look at things with a clean sheet of paper and maybe bring in other organisations to help us think about this problem is going to happen," said Eduardo Niebles.

In a conservative industry where failure is feared then digital innovation has been slow but younger workers coming into the industry are slowly changing the mindset of businesses. They are less inhibited and more ready to innovate and that approach needs to be harnessed for the benefit of the industry.

The new people coming into the industry, the digitally enabled generation, are bringing with them the tools of change. Will firms rise to the challenge? That is the challenge facing the entire industry.

"It's all about how do you collaborate better at the end of the day," said Eduardo Niebles. "We are now working in sectors that we never thought we'd be in because we collaborate and have something to offer. What we and your firms bring to the table can make all the difference," he said.



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The 16 young voices shaping the future

The NIC has recently revealed the 16 men and women who will make up its pioneering Young Professionals Panel and *Ryan Tute* spoke to its members about their hopes and expectations.

As the industry continues to call for a long-term vision and fresh ideas when it comes to tackling some of the biggest obstacles in getting major infrastructure projects off the ground within the UK, efforts are being made to address repeated and stale approaches to project design and delivery. One unique group which embodies this and provides an opportunity to allow up-and-coming engineers, architects, designers and planners to have a say on the country's future is the National Infrastructure Commission's Young Professionals Panel (YPP).

The YPP involves 16 of the best and most enthusiastic young infrastructure specialists who are in the first few years of their careers. It is all about allowing those who want to make a difference have an avenue to articulate their ideas and influence decision makers on how the UK's future is shaped, with some even possibly delivering the infrastructure themselves over the next three decades.

The selection of the 16 top young professionals has been a long road which started in late November when the NIC announced the plan and those now sitting on the panel have been whittled down from 500 applications. It allows the chosen individuals to not only get a step closer to infrastructure sector leaders but provides a platform for them to have a say on the commission's work.

Infrastructure Intelligence spoke to some of the panel members to gauge what they expected from the experience and to find out what sectors were of particular interest going forward.

Victor Frebault, a consultant at Arup, believes the panel as well as the NIC has a major role to play in improving the quality of the collective deliberation that lies at the

heart of infrastructure development. "The main interests and ideas I would like to bring to the panel include helping development teams, local authorities and other key stakeholders understand social value in relation to the built environment, and what they can do, working together, to improve societal outcomes from new development," he said.

"My ambition is for the concept of social value to help make the economic and financial case for better building and so improve the sustainability of the built environment in the UK," Frebault said.

Charlotte Mitchell, an associate at the independent consultancy Quod, based in London, said: "I'd love to use the YPP to shift the professional culture around infrastructure away from cumbersome and inaccessible toward visionary, inventive and collaborative. If we can get the infrastructure industry to take visioning seriously – to really think creatively about the what the future of infrastructure could and should look like – that could have a hugely positive impact on outcomes, from sustainability to user experience."

To be considered by the NIC, entrants had to be in the early stages of their career and submit a detailed application, with shortlisted candidates presenting to a selection panel including Sadie Morgan from the commission, an external panellist and members of the NIC team. The panel met for the first time in April at the Churchill War Rooms in London to discuss their programme of work.

Others in the group are keen to use the YPP as a platform to explore new ideas and provide

Victor Frebault:

"My ambition is for the concept of social value to help make the economic and financial case for better building in the UK."



Charlotte Mitchell:

"I'd love to use the YPP to shift the professional culture around infrastructure away from cumbersome and inaccessible toward visionary, inventive and collaborative."



Sakthy Selvakumaran:

"Having a National Infrastructure Commission to form an infrastructure strategy can shape the future of our cities, as well as prioritise investment and action."



Alison Caldwell:

"I aim to harness my experience and passion for water management to raise awareness and understanding of the infinite value of water."



Laura Daniels:

"The transition to low carbon energy, the EV revolution and the need to electrify heat are all game changers for our sector."



Members of the National Infrastructure Commission Young Professionals Panel at its launch.

fresh perspectives within the UK infrastructure sphere. Based in Birmingham, Alison Caldwell, a principal engineer at WSP, said: "As a civil engineer, I consider, design, influence and explore

infrastructure every day, with a keen interest and passion for infrastructure relating to flood risk and water management. In our ever-changing climate, I aim to harness my experience and passion for water management to raise awareness and understanding of the infinite value of water and bring water to the top of the agenda."

While Laura Daniels, a project lead for Innovation at UK Power Networks, believes the panel is vital in order to ensure different sectors who work in infrastructure come together to tackle some of the global challenges. "I work in the electricity sector, which is an exciting place to be with the transition to low carbon energy, the EV revolution

The future of UK infrastructure



Commission's Young Professionals Panel pictured

and the need to electrify heat are all game changers for our sector and the interactions with other infrastructure sectors will be key to design a reliable network to cater for everyone into the future," she said.

NIC chair Sir John Armitt has hailed the group as an important addition to the commission and hopes the 16 young professionals challenge the NIC as much as possible. "It's right we give the next generation of infrastructure leaders a say in our work," Armitt said. "I look forward to working with these young professionals, some of whom could end up designing and managing world-leading infrastructure built as a result of commission recommendations."

Those within academia have also been welcomed from the start of the process and one member who proves this is Sakthy Selvakumaran, a civil engineer/PhD researcher at the University of Cambridge. She says the

YPP is an "exciting opportunity" to learn about and contribute towards the future of UK infrastructure.

"Growing communities face new and increasing challenges. Parallel to this, we see the rapid rise of new technologies and

John Bradburn: "I want to help the NIC engage with a wider range of people, particularly early careers/younger professionals and harder to reach groups."



opportunities in new digital spaces," she added. "Having a National Infrastructure Commission to form a UK infrastructure strategy can help all stakeholders to work together and shape the future of our cities, as well as prioritise investment and action."

John Bradburn, a senior consultant in the transportation division of SNC-Lavalin's Atkins business, says he applied as he believes that long term, strategic planning of infrastructure is vital in order to deliver prosperity in the UK and increase the quality of life for all. Bradburn added: "I would like to contribute to this work, by helping the NIC incorporate the new opportunities that

Intelligent Mobility and connected and autonomous vehicles bring for making the most efficient use of our transport, energy and city infrastructure. I also want to help the NIC engage with a wider range of people, particularly early careers/younger professionals and harder to reach groups," he said.

Another member of the panel is Madeleine Kessler, a project architect at Haptic Architects, and she is delighted to have been accepted onto something

Madeleine Kessler: "I believe that integrating technical engineering solutions with good architectural and urban design is fundamental to the future success of the UK's infrastructure."



which provides a unique opportunity to share ideas. "As an architect with a background in structural engineering, I believe that integrating technical engineering solutions with good architectural and urban design is fundamental to the future success of the UK's infrastructure," she added.

Martin Plant, a senior geotechnical engineer in the infrastructure division of SNC-Lavalin's Atkins business,

says he has two main areas of focus while in the group - empowering the public to engage more with their local infrastructure to help hold government to account and building deeper collaboration between civilian and military infrastructure professionals.

"I am looking forward to working with my fellow panel members, who have very interesting backgrounds and skills, as well as learning from the Commissioners; the most

Rosie Hughes: "Technology is going to rapidly reshape how people live and move around so we need interdisciplinary thinking to develop smart infrastructure."



influential people in UK infrastructure policy making," Plant said.

The introduction of the panel comes at an important time for the commission as it prepares to publish its National Infrastructure Assessment. The assessment will analyse the UK's long-term economic infrastructure

needs, outline a strategic vision over the next 30 years and set out recommendations for how identified needs should be met. YPP members will be able to look at the detailed report before its official release and get an insight into what areas the commission is targeting for policy-makers.

Rosie Hughes, innovation and continuous improvement lead for Strategic Highways Europe, AECOM, says the YPP for her is a "dynamic collective mind" for an infrastructure vision of the future. "I am honoured to bring my social science perspective to the panel and know I will learn much from our range of professional backgrounds collaborating together," she said. "Technology is going to rapidly reshape how people live and move around so we need interdisciplinary thinking to develop smart infrastructure."

Finally, Annette Jezierska, co-founder of the transport tech company The Future Fox, says she has two

goals in joining the panel which are putting people first in infrastructure development, and helping it adapt faster. "I think the big challenge for UK infrastructure is that the timescales of progress are at odds with reality," she

said. "Infrastructure decision making takes years, even for small street schemes, because they are controversial. If we're going to fully exploit the benefits of new vehicles, mobility services and changing travel patterns in our growing cities, we need to get much faster at adapting our infrastructure," said Jezierska.

Martin Plant: "I am looking forward to working with my fellow panel members, who have very interesting backgrounds and skills."



Annette Jezierska: "I think the big challenge for UK infrastructure is that the timescales of progress are at odds with reality."



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