

POLITICS

Shadow minister Rebecca Long-Bailey outlines Labour's infrastructure plans

page 8-10



PROCUREMENT

What the Construction Sector Deal means for the future of procurement

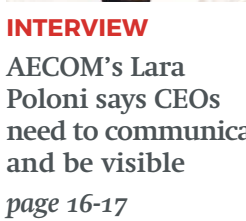
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INTERVIEW

AECOM's Lara Poloni says CEOs need to communicate and be visible

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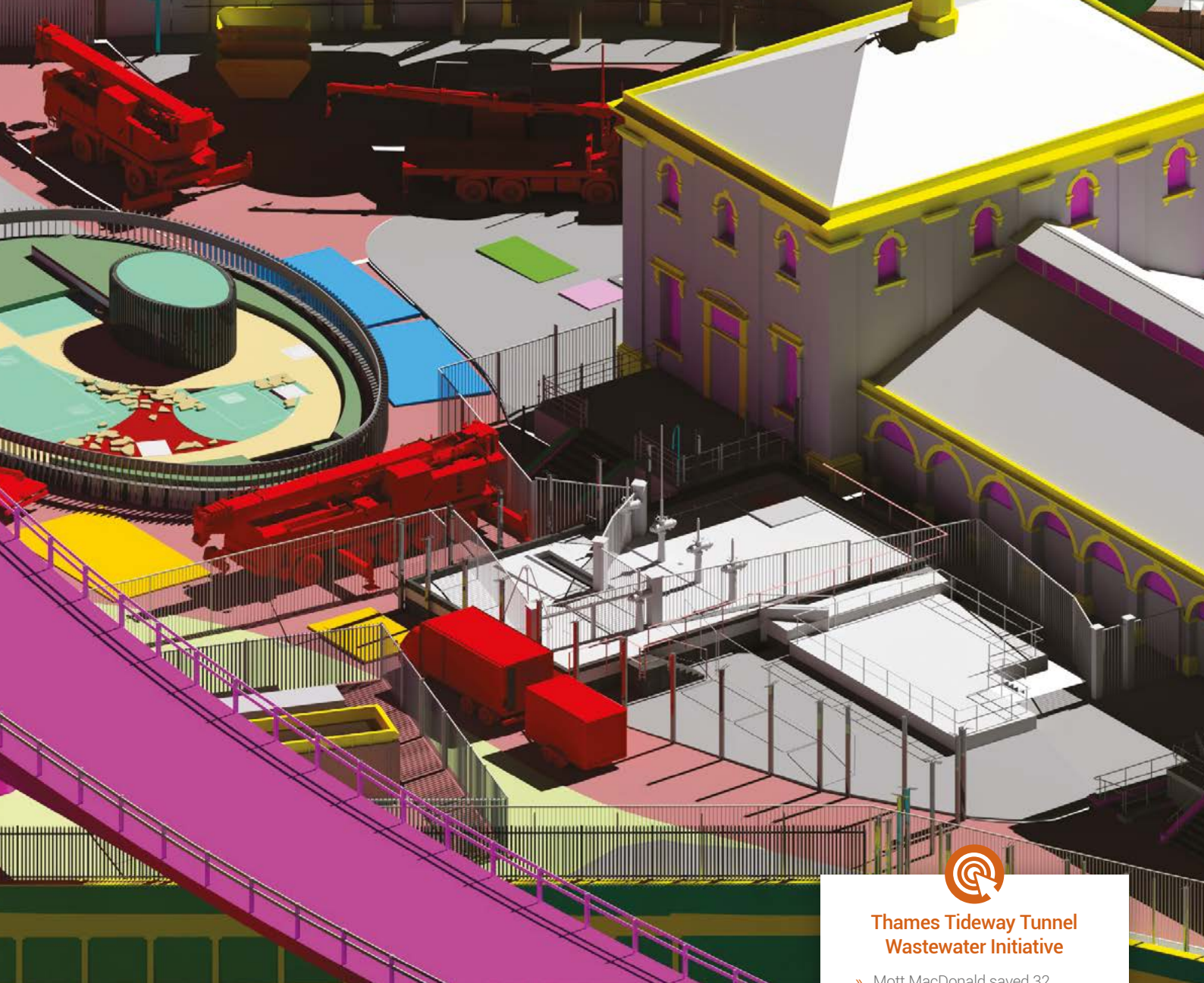
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PLUS: ● Lords' construction inquiry ● Social value ● Crossrail delayed ● Placemaking ● Artificial intelligence



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INFRASTRUCTURE Intelligence

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MESSAGE FROM THE EDITOR

High-profile women making an impact on the construction and infrastructure sector feature prominently in this issue of *Infrastructure Intelligence* and I am delighted about that.

Over recent years I have seen the industry take some significant steps forward to improve its gender diversity and it's something that's been long overdue. There is still a long way to go in ensuring that we have more women in leadership positions, but I sense that real progress is being made and that is to be welcomed.

Our front cover highlights the arrival of a new chief executive for ACE, Hannah Vickers. Having spoken with Hannah at length for our interview with her on page 14-15, I have no doubt that she will make a real impact at ACE and on the industry. Elsewhere in this issue, we also hear from Labour shadow minister Rebecca Long-Bailey, who outlines the party's plans for infrastructure (p8-10) and also the Construction Leadership Council's Ann Bentley, who looks at the procurement detail behind the government's Construction Sector Deal (p18-19).

We're also delighted to get AECOM EMIA chief executive Lara Poloni's interesting and enlightening views on how she sees the future for consultancy businesses (p16-17) and we interview industry rising star Charlotte Jones, who won the Apprentice of the Year and Diamond awards in this year's Consultancy and Engineering Awards (p30).

As ever, it's a packed issue and I hope you enjoy the read.



Andy Walker,
editor, *Infrastructure Intelligence*

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Construction sector “radical overhaul”, in

Lord Robert Mair speaks to *Ryan Tute* about the evidence a House of Lords inquiry heard on the challenges facing construction and the need to move away from outdated procurement models.

Back in March, the House of Lords launched an inquiry to find answers into why the construction sector continues to lag behind others and, after hearing from scores of invested parties, the committee ruled a radical overhaul of construction was needed to solve poor productivity levels.

A report published by the House of Lords science and technology committee concluded that if the government was to achieve its aim of building 300,000 houses a year by 2020, then traditional construction methods would need to be shelved and re-evaluated.

Central to achieving ambitious construction targets would be off-site manufacturing (OSM), according to peers. OSM has been highlighted as key to increasing productivity while reducing labour demands, improving the quality and efficiency of buildings, and reducing the environmental impacts associated with traditional construction.

Chairman of the committee, Lord Patel, concluded that there was “clear and tangible benefits from off-site manufacture” for construction. Patel said evidence received by the committee showed OSM could “increase productivity in the sector by up to 70%”. However, a lack of collaboration across the industry and the sector’s business models no longer being appropriate were not supporting the UK’s urgent need for new homes and infrastructure.

“OSM requires collaboration between clients, designers and contractors from an early stage but much of the evidence the committee received painted a picture of a construction sector that is fragmented and lacking in trust,” the report added. “These barriers must be addressed by the sector itself and strong leadership is needed from the Construction Leadership Council.”

One of the committee members Lord



Robert Mair, who is also president of the Institution of Civil Engineers (ICE), says the inquiry was called due to a much-anticipated construction sector deal and because housing had become a very big issue and something that everyone was aware that needed addressing.

Once it was established what the committee was looking to achieve, a call for evidence was sent out in April. Lord Mair says the committee was delighted to receive a “very big response” with about 80 different written submissions coming from a very wide field made up of clients, consultants, contractors, the insurance industry and the supply chain. Oral evidence in the chambers then followed.

Chief executives like Tony Meggs (Infrastructure and Projects Authority), Suzannah Nichol (Build UK), and Diana Montgomery (Construction Products Association) were just a handful who have supplied their views in recent months on which peers started to make conclusions on what could improve the sector’s poor productivity.

The ICE president says both written and oral evidence taken on board helped develop a picture of frustration within the industry and that all parties wanted to avoid outdated models of procurement and practices which were systemic in the sector.

Mair added: “None of the evidence surprised us but there was a definite consistency in what we were hearing,

in that there was quite a lot that was not satisfactory about the construction industry. We were painted a picture of a very fragmented construction industry with conventional business models of delivering infrastructure not all that satisfactorily. This was a consistent element across all the submissions we received.”

Mair says that one of the strong recommendations to come out of the report was the fact there was lots of things to be gained by exploring what Project 13 is recommending in a means of improving collaboration and removing barriers. The Project 13 model is an attempt to reassess and rethink the delivery model and prioritise better outcomes for the public and customers of infrastructure and by ensuring the right invested parties are involved together from the outset to lead to much better outcomes.

“In the inquiry we had to understand what the barriers were and what was holding back the construction sector, the House of Lords peer said. “It was clear to us there was a compelling case for a much more widespread use of OSM but we heard from lots of witnesses saying that the current culture and structure is not conducive to extensive use of OSM. That was blamed on a lack of collaboration and the system most commonly used making it difficult for all the clients, consultants, contractors to be involved from the very

needs inquiry finds

“In the inquiry we had to understand what the barriers were and what was holding back the construction sector.”

ICE president, Robert Mair.



start of a project which is what you really need to maximise the potential.”

One of the stakeholders to contribute to the report was offsite specialists the McAvoy Group. Managing director Eugene Lynch said: “The construction industry faces significant challenges - low productivity, poor performance in consistent delivery on time and on budget, a growing shortage of key skills and a lack of transparency relating to issues such as life cycle costing and project performance. We believe these issues can be addressed with the wider adoption of offsite construction technology, provided the barriers to change can be removed.”

The committee’s report also backs the government’s Construction Sector Deal which was published in November 2017 as part of its much-awaited Industrial Strategy, which stated a “presumption in favour” of using OSM from 2019 across the five governmental departments of health, justice, transport, education and defence. Mair believes improvements within the industry can be expected sooner rather than later with the government clearly recognising the importance of the sector with construction worth nearly £100bn to the UK economy in 2016.

Mair said: “Ministers clearly recognise the value of OSM so we were keen in our enquiry to find what the government meant by that and we very much welcomed its stance to positively encourage OSM and changing the way procurement is done. This is along with the government’s “presumption in

favour” of off-site manufacture across five departments, this will provide an important signal to the construction sector that there importantly will be a tight line of projects and provide confidence for companies to invest in OSM facilities.”

Another potential barrier highlighted in the report is the industry’s ever-growing skills gap. If OSM is to be embedded into the inner workings of the industry, then the government must ensure that young people entering the workplace are equipped with the digital skills needed for modern methods of construction, according to the committee.

However, there is a change of tune starting to appear within the industry with many believing that more attention is being paid to what is needed going forward with the construction sector deal and the House of Lords report proving there are efforts to overhaul the industry.

Simon Rawlinson, head of strategic research and insight at Arcadis, said: “It starts to create that momentum of more volume going through the system, more investment, more opportunity, so that gives me a lot of confidence. You’ve got lots of effort being put into finding ways to start pooling demand and people are thinking about developing skills. It is going to help bring offsite out of the holding pattern it’s been in for quite a few years.”

Despite construction being plagued by lagging productivity levels over recent years, a move to ensuring OSM becomes embedded within the inner workings of the industry has begun with the role

Tangible benefits of off-site manufacture for construction concluded by the committee:

- Better quality buildings and infrastructure
- Enhanced client experience
- Fewer labourers and increased productivity
- Creating more regional jobs away from large conurbations
- Improved health and safety for workers
- Reduced disruption to the local community during construction

of the government and the wider public sector described as “pivotal” by the committee’s chair. The next stage of the process will see the government respond and a debate in the chambers likely in autumn will follow.

“We have had very good feedback from the report we published,” Lord Mair added. “I anticipate the report will be well received; we are not being critical, we are simply making recommendations. The government remains the single biggest employer of infrastructure projects, so I don’t think change will be a slow-burner. We believe our report makes sure improvements happen sooner rather than later.”

The chief executive of the National Infrastructure Commission, Phil Graham, speaks to *Ryan Tute* about the first ever *National Infrastructure Assessment*.

NIC fires starting gun on shaping future of UK infrastructure

It's been nearly three years in the making and marks the culmination of the first phase of work in shaping the future of UK infrastructure but the industry reaction to the National Infrastructure Commission's (NIC) first ever National Infrastructure Assessment (NIA) has been overwhelmingly positive with invested parties now waiting to see how the government responds.

The publication of the assessment document is a notable landmark in a process that began in October 2015, when the establishment of the commission was announced. Many in the industry have said that the report provides the blueprint for infrastructure investment going forward and some of the largest firms and trade associations are demanding that ministers stand up and take note.

What makes it different to anything else is the fact that it's the first time an independent body been set up to look across sectors with a long-term perspective and to provide policy advice to government on a permanent basis. The report is no one-off and those within the commission will be completing the same process every five years in the future and holding the government to account for delivery in the meantime.

The much-anticipated report sets out the nation's long-term strategic needs in transport, water, digital technologies, waste and energy. NIC chairman Sir John Armitt says the purpose of the UK's first-ever assessment is "to think beyond the technologies of today and to ensure we can make the most of future innovations".



Phil Graham, NIC chief executive.

Sustainability is a central theme throughout. A switch to greener ways of providing energy to homes and businesses without increasing bills is said to be possible if ministers "act now" and invest in low cost renewable technologies, such as wind and solar, rather than accelerate the numbers of large nuclear plants.

Supporting renewable energy

The NIC recommends that established technologies like wind and solar power be allowed to compete to deliver most of the extra renewable electricity needed as overall demand increases and sets out a clear pipeline, with dates and budgets, for future auctions to support renewables.

Speaking to *Infrastructure Intelligence*, the NIC's chief executive Phil Graham, says the government should be "cautious to committing" to lots of nuclear power stations and believes the energy sector is likely to be a lot more decentralised and focused around smaller renewable technologies in the future.

"I believe we are firing the starting gun on what the next generation of project investment might look like," said Graham. "We should not assume that the next generation will look like those of past. Sustainability does run through the assessment we produced, and it's crucial to what we say. However, in many cases we are not saying that you make a sustainable choice simply on the basis of environmental reasons, rather that these sustainable choices make more and more sense for economic and practical delivery reasons," he said.

Funding will always be a concern when it comes to ensuring needs are met and

senior bosses of some of the biggest firms within the industry have called on the government to back the plans. But the NIC chief executive says he is assured that recommendations can be implemented thanks to the work that has been put into costing.

"I am pretty confident the funding can and will be in place," Graham said. "We didn't just do this in isolation of understanding levels of infrastructure investment available. We were guided by the Treasury in terms of the level of availability of funding going forward and the fiscal remit set by government - we had to do our work."

Funding and affordability

"Everything that we have recommended is affordable within the limits set. There is a question as we head into the budget and spending review whether that guideline will be returned by the government. I am hopeful it will remain the case and I would not know why they would set it if there wasn't a strong chance of it being adhered to. But it's incumbent on the industry to ensure that the government commits to its guideline," said Graham.

Another central theme in the report is for £43bn of long-term transport funding for regional cities with an increased role for metro mayors in the development of infrastructure within their regions. Graham would also like to see devolved powers for areas without metro mayors.

The NIA's spending plans include funding for projects including Crossrail 2 in London, and Northern Powerhouse Rail linking the major northern cities and recommends a boost in funding for major cities totalling £43bn to 2040,





with cities given stable five-year budgets, starting in 2021.

Graham said: “Broadly speaking the devolution of powers to metro mayors has been a huge step in the right direction; they are getting close to the right sort of powers that they need. There are small tweaks that you can make but the real key now is matching powers with funding, so mayors have a long-term budget they can plan around and make the most of the powers they have.”

Moving forward, Graham is hoping the commission can put forward some place-based proposals that will give context to the recommendations set out in the report. But reflecting on the landmark document produced by the infrastructure tsar, he says he was surprised that responses did not focus on calls for lots of new expansive projects like new tram lines, reservoirs or bridges. Rather, the report published centres around long-term needs and policies ensuring planned schemes are a success.

“One of the really important things that came out of that paper was the need not to just talk to the industry but to talk to the public as well,” Graham added. “The focus groups we ran were a way of finding out what type of things the industry really cared about moving forward and something not usually historically done by the government. The infrastructure sector has huge program of work over the next decade, so the document focuses more on the long-term needs of the country and the how best to ensure the projects already in the pipeline are delivered successfully,” he said.

Since the report was published at the start of July, some of the biggest firms within construction, engineering,

architecture and law have come forward to back the recommendations and call for it to be supported politically and financially.

Industry reaction

Jonathan White, UK head of infrastructure, building and construction at KPMG, said: “I’m impressed with a comprehensive review from the commission that challenges government to take the necessary steps to ensure that the UK’s infrastructure is fit for purpose in the future. By taking on board the assessment’s recommendations, the government can send a signal that the UK is open for business and has a clear plan.”

Nelson Ogunshakin, chief executive of the Association for Consultancy and Engineering, welcomed more powers for metro mayors and city leaders, saying: “It is vital that these areas are given more powers to influence decisions on transport, housing and employment.

Devolved infrastructure budgets will enable strategic interventions for the good of local communities by bodies who fully understand local needs.”

David Whysall, managing director of Infrastructure at Turner & Townsend, added: “The NIA sets out a bold vision for a UK which is better connected, more sustainable and more productive. The onus is now on government, infrastructure clients and the construction supply chain to back and deliver this vision.”

Liz Dunn, partner for infrastructure consenting at law firm Burges Salmon, said: “A key issue that it addresses is the need to encourage investment in green projects and technologies. 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 they can achieve the government’s ambitious aims.”



The commission’s core proposals in the assessment include:

- 1 Nationwide full fibre broadband by 2033.
- 2 Half of the UK’s power provided by renewables by 2030.
- 3 75% of plastic packaging recycled by 2030.
- 4 £43bn of stable long-term transport funding for regional cities.
- 5 Preparing for 100% electric vehicle sales by 2030.
- 6 Ensuring resilience to extreme drought through additional supply and demand reduction.
- 7 A national standard of flood resilience for all communities by 2050.

“We’re the true p

Long-Bailey outlines Labour’s i

Labour’s plans for infrastructure are good news for construction businesses, says shadow minister for business, energy and industrial strategy Rebecca Long-Bailey. She spoke to *Infrastructure Intelligence* editor Andy Walker about the party’s plans for the sector.

I met up with Labour’s Rebecca Long-Bailey in the leader of the opposition’s offices in Portcullis House on the day that the parliamentary work and pensions and BEIS committees delivered their damning joint report into the collapse of Carillion. Long-Bailey said the report was a vindication of Labour’s position on business and regulatory reform and the need for a fairer, more effective construction sector that better served the needs of the people that worked within it.

Unsurprisingly, she was keen to talk about the collapse of Carillion, its implications for the industry and what Labour would do differently. “With Carillion, we need to look at the behaviour of the company itself, corporate governance arrangements and how they were allowed to rack up significant debts and big holes in their pension pot, whilst at the same time paying out vast sums to shareholders and increasing the salaries of those at the top,” said Long-Bailey.

“There are also issues about how the government has dealt with procurement with Carillion,” she said. “It issued contract after contract despite Carillion issuing profit warnings, yet the government’s own strategic risk management policy on procurement was not to award contracts to firms that had issued profit warnings and to designate



them as high risk. The government has a level of responsibility, not just in making sure that the contracts it procures are sound but also to look at the wider implications down the supply chain. Many contractors contracted with Carillion on the basis that they thought that this was a

“What Labour would do in government is to ensure that any public contracts have a mandated 30-day period for payment and that 30-day period would be mandated in all of the contracts that the sub-contractors granted to their sub-contractors, so it rippled out across the whole sector.”

good deal and they were going to be paid, but there were no measures put in place to protect those firms in any way shape or form,” said Long-Bailey.

Labour’s shadow minister said that work needed to be done to create a government-led project delivery vehicle that can step in in the event that another Carillion goes bust and that suppliers also needed to have protection. “We need to ensure that the supply chain companies are protected, which is why Labour has said that project bank accounts should be used on all government projects, to ring fence the amount of money that government puts in and to ensure suppliers and sub-contractors are paid for the work that they do,” said Long-Bailey.

Payment is a big issue for construction more widely and Long-Bailey wants to see prompt payment rules enforced across the industry. “In Carillion’s case we saw many sub-contractors not being paid,” she said. “It seemed that the standard was 120-day payment in many cases and that goes against the government’s own

arty of business” infrastructure plans



procurement policy of 30 days and the prompt payment code of 30 days. It's simply not acceptable," she said.

"What Labour would do in government is to ensure that any public contracts have a mandated 30-day period for payment and that 30-day period would be mandated in all of the contracts that the sub-contractors granted to their sub-contractors, so it rippled out across the whole sector," Long-Bailey said. "That would also need to be enforced and the government or the government-led delivery vehicle would have to ensure that there was adequate monitoring of contracts to ensure that payment was being made within 30 days and there would have to be penalties imposed for those who didn't."

Long-Bailey said that Labour also wanted to see a 30-day payment rule implemented in the private sector rather than the current voluntary code. "What we are looking at doing is setting up a system of buying in arbitration similar

to the Australian system," she said. "Obviously we will consult on that as soon as we get into power but there needs to be legal recourse for all types of businesses that are paid beyond the 30-day period. Quite often the risk for SMEs is passed down by bigger players time and time again who essentially use these smaller firms as a bank account by not paying them within the required period and that is not acceptable," said Long-Bailey.

Long-Bailey says that Labour wants to see a vibrant and healthy construction sector and sees it as crucial for the party in implementing its ambitious plans. "As a party, we have one of the most radical and transformational programmes in terms of infrastructure investment that we have seen in a generation and we have to have an industry that's fit enough and robust enough to be able to deal with that, so we have the skills and the expertise that we need," she said.

"The government has to play a key role in that. Not to deliver all of the services themselves, because we want to have that healthy relationship with the private sector, but government needs to have that level of experience at the top to know what to procure and why," said Long-Bailey.

Construction firms will be pleased to hear Long-Bailey talk about working

"The government has to play a key role in that. Not to deliver all of the services themselves, because we want to have that healthy relationship with the private sector, but government needs to have that level of experience at the top to know what to procure and why."



Labour leader Jeremy Corbyn.

with the private sector. So, what would her message be to those firms working in sectors like rail and energy, sectors that Labour plans to bring back into public ownership. How would those firms be affected by Labour's plans?

"If we look at energy, one of the things that upsets me is the reporting of Labour's proposals in the press as if we are going to nationalise every single thing under the sun," she said. "We have not said that; what we have talked about is looking at the monopolies where there aren't vast numbers of SMEs, sub-contractors and businesses operating. In the water sector we've got a number of water companies that essentially hold responsibility for delivering water in perpetuity and there's no opportunity to go to a different water company if you're not happy with what you are getting.

"At the top level we are looking at ensuring that we have some public and democratic local control, but in terms of investing in water and energy infrastructure and generation in the future, of course we want to have a fantastic relationship with the private sector because they will be the people who are building and constructing these projects. They are the lifeblood of our economy. There is certainly no intention whatsoever to create an overall nationalised construction programme," she said.

The major work needed to upgrade energy infrastructure would provide a significant amount of work for the construction sector, said Long-Bailey. "As well as upgrading the infrastructure we have, we also need to make sure that all networks are completely fit for purpose

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to deal with a future decentralised energy system and that is going to require a vast upgrade,” she said.

Long-Bailey was critical of the water companies for not investing enough in infrastructure, while paying out vast dividends to shareholders. “We’ve got to deal with the years of underinvestment and bring all of these infrastructures into the future. So, there will be a vast amount of work and a vast amount of expertise that’s required at the top, including advising government, to procure the services that are necessary from the construction sector,” she said.

Ambitious plans for sure, but where would Labour find the money to finance all of these improvements and upgrades? “Labour is proposing a national infrastructure fund with £250bn to completely upgrade our infrastructure but there will also be a knock-on effect in terms of private investment,” said Long-Bailey. “We don’t expect the government to subsidise everything, so we’ll have regional banks and a national investment bank to act as a catalyst to ensure that businesses can also partner to deliver a lot of these projects. For example, with energy generation we would expect the private sector to come in as well and crowd in their funding to upgrade certain elements of the generating capacity that we have got,” she said.

What about the thorny question of PFI and Labour’s plans to scrap the initiative as a procurement method? What does this say about the party’s commitment to working with the private sector?

“I have no problem with the general principle of engaging with the private sector to get projects delivered,” Long-Bailey tells me. “But one of the main concerns I have with PFI is that the structure of the deals is essentially an accounting trick to remove costs from the government balance sheet. Hiding a debt by legally structuring a document in a particular

way doesn’t get rid of the debt and the way that many of these deals were structured meant that they weren’t cost effective and they didn’t provide value for money. When you hear examples of schools paying £5,000 for a blind as part of an FM agreement, then that’s not palatable to the British public,” said Long-Bailey.

According to Long-Bailey, Labour and the public is unhappy about the cost of PFI. “The amount that the government has to pay back under many PFI schemes is more in the long term than it would have been if they had just done the initial outlay for those capital projects, so it would have been cheaper for public bodies and government to borrow rather than have special purpose vehicles borrowing themselves,” she said.

Labour is pledged to bring PFI schemes back into the public remit but would do so by judging each scheme on its merits, said Long-Bailey. “In bringing things back in house we will do it on a case by case basis, assessing the value for money aspects of each particular arrangement,” she said. “It will depend on how long there is left on the relevant PFI – some of them could be potentially be nearly expiring – and it would also mean repackaging some deals and refinancing them to try and get the finance at a cheaper rate. Finally, there would need to be an assessment of the

supporting the renaissance that Labour wants to see in manufacturing because there will also be construction of new manufacturing sites up and down the country. Add to that the energy infrastructure and energy generation projects and there’s a lot of work that needs to be done and we need to have a construction sector that’s properly resourced,” said Long-Bailey.

“Those resources the sector needs include skills,” she said. “We need to quickly address the skills shortages facing the industry, especially in areas such as engineering, because we are



not going to have the people with the skills that we need to do the work that’s needed without investment in that area too,” said Long-Bailey.

Finally, I asked Long-Bailey what her message would be to firms in the construction sector who were not sure about Labour and its plans. She was eager to say that firms had nothing to fear and everything to gain from the party’s proposals for infrastructure. “Our message to the construction sector is, we want to make sure that you can be the best that you can be,” she said.

“We want to provide you with the resources that you need, we want to use government as a driver for your business so that it will spur you on to become the big success story of tomorrow and we want to make sure that the landscape is fair, so that all businesses are treated in the same way and everybody has the same opportunity to achieve and go for work and projects as they should be able to,” Long-Bailey said.

Creating a level playing field where all firms had an equal chance of success showed that Labour was “the true party of business”, Long-Bailey said. “Our intention is to encourage growth, encourage prosperity and to provide a fertile business environment, not to have a 1% at the top exploiting everybody else. So, when we say for the many not the few, we don’t just mean people and communities, we mean businesses as well,” she said.



excesses of particular deals and that would be a question for parliament to decide on compensation,” she said.

Long-Bailey was keen to stress the importance of the construction sector to the UK economy. “Public projects are often the catalyst for the construction industry and it’s incumbent on the government to take that role very seriously to create a ripple effect through the construction sector and make sure that we have a sector ready to deal with the challenges that are facing it in the next 20-30 years,” she said. “These challenges include housing and also

“We want to use government as a driver for business.”

Rebecca Long-Bailey

STEM apprenticeships contribute £6bn to society

A new report from WSP has highlighted the potential £6bn socio-economic contribution of science, technology, engineering, and math (STEM) apprenticeships from getting more young people into engineering, writes *Andy Walker*.



A new report by leading engineering consultancy WSP, has shed light on the potential £6bn socio-economic contribution of science, technology, engineering, and maths (STEM) apprenticeships by quantifying the social value of getting more young people into engineering.

In collaboration with the New Economics Foundation, the consultancy used the Social Value UK SRoI methodology to measure and quantify the social value of WSP's apprenticeship programme for both the company and the broader community.

Unlocking social value, which is about recognising the importance of social, environmental and economic wellbeing of individuals and communities in the long run, is a key part of WSP's Future-Ready programme. Since the implementation of the Social Value Act (2012), the construction industry has been required to factor in social value for all UK public service contracts.

While the challenge of delivering and measuring it had been a potential stumbling block, WSP hopes that this research will create a galvanising benchmark for both the public sector and the construction industry, while making it easier to deliver on transformational infrastructure and equipping the next generation to succeed in the 21st century.

In this assessment which was carried out before the apprenticeship levy was implemented, WSP identified that

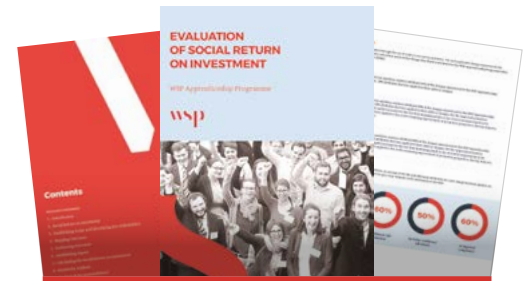
every £1 invested in its apprenticeship programme created £2.26 in return for stakeholders.

"If every company involved in STEM fields and looking to apprentices to bolster their skills shortage were to apply WSP's approach, our report found that the social value created could exceed £6bn," says Jane Grant, head of learning and development at WSP. This figure is based on the 114,400 young people that have started a STEM apprenticeship in England in 2017.

"This research clearly demonstrates the value apprenticeships bring to a business and to the wider society," said Grant. "We launched our apprenticeship programme back in 2010 with only one apprentice and are now proud to employ more than 180 apprentices with a further 80 joining us in September," she said.

The UK is predicted to need approximately 87,000 new engineers every year. As government recognises, increasing the talent pipeline through apprenticeships is vital to deliver on the infrastructure pipeline.

"The levy has allowed us to continue tackling the skills gap in engineering by diversifying our offering of apprenticeship programmes to have both school leaver and degree level apprenticeships," says Grant. "Only 27% of 11 to 14-year olds admit to knowing what engineers do, much less transport planners and environmental consultants, yet engineering and related fields represent



Key findings from WSP's social value report included:

- Most of the social value created for apprentices comes from financial independence (69%), followed by career prospects and employability (19%) and supportive relationships (8%);
- Most of the social value created for line managers comes from improved promotion prospects (62%), followed by pride (23%) and improved competence (20%);
- For mentors, most of the social value created comes from improved relationships (48%) and improved promotion prospects (29%);
- And finally, most of the social value created for the learning and development teams and human resources teams alike, comes from pride (55%) followed by improved competence (22%) and fulfilment (13%).

a quarter of the UK's GDP. It is the Year of Engineering so a good time to celebrate the social contribution apprentices make to society, from the early conceptual stages of engineering and environmental planning right through to site construction," Grant said.

WSP also identified which stakeholder benefited the most from the apprenticeship programme, with apprentices coming first at 93% and which areas had the biggest impact helping to inform future investment decisions.



Dominik McCormick, apprentice at AECOM's transport division

Apprenticeship or university? Why not do both?

Many students receiving their GCSE results today with the hope of embarking on a career in engineering are at a conundrum. Do they go down the apprenticeship route or seek the necessary qualifications to go to university? In reality, you can do both.

I have been able to pursue both an apprenticeship in AECOM's transport division and gain valuable work experience whilst studying civil engineering at Coventry University. My career choice has enabled me to work on huge projects such as HS2 and become the youngest ever person to be awarded EngTech MICE status by the Institution of Civil Engineers.

My reason for wanting to work in the transportation sector is mainly because it is one of the most vibrant industries in the UK to work in, with projects such as Crossrail and HS2 experiencing huge backing and investment. Indeed, the future looks very positive with government recognising the importance of infrastructure investment for the economy.

I'm fortunate in that I find my job very rewarding and varied, bringing me a lot of career satisfaction. After all, the important work engineers deliver has a huge impact on the world around us. Through my role, I meet and work alongside a wide range or interesting people from all sorts of backgrounds and delivering a large spectrum of different jobs. These range from engineers and construction professionals, to architects and historians, as well as the infrastructure owners and the public. While the apprenticeship

route is slightly longer than the university route alone, apprentices have several years of experience under their belt when they are finished.

My favourite thing about being an apprentice is that every day is different. I can go from working on a billion-pound project one day to a small site visit the next. As well as the rail projects I mentioned, I've worked on several exciting schemes including Istanbul New Airport, Hinkley Point C Nuclear power station and Cycle Superhighway. It's the best feeling seeing projects I have worked on become a reality. My hope is that I will always get the same satisfaction from seeing my ideas make a real difference to the business as I progress through my career.

AECOM's apprenticeship development scheme includes training for specialist skills that the company has found as being needed to deliver the projects of the future. The company is working closely with the Technician Apprenticeship Consortium (TAC) for instance, developing new apprenticeship programmes for certain in-demand transportation disciplines.

However, if companies want to attract more apprentices, it is crucial that our industry can capture the imagination of more young people like me. Stereotypes about a career in engineering or construction are still rife, but the reality is very different. Young people need to hear about the exciting, intellectually challenging work engineers do to build a better world, from designing sustainable transport and energy infrastructure to protecting people from floods or planning cities of the future.

My favourite thing about being an apprentice is that every day is different. I can go from working on a billion-pound project one day to a small site visit the next.



Claudine Mosseri, general manager, field support, at business logistics company, ByBox

Delivering reductions to inner city congestion

The estimated cost of congestion in the UK is predicted to rise 63% by 2030, to a cost of £21bn. London is top of the congested heap, with the weight of traffic also set to increase by 60% by 2031, according to Transport for London (TfL).

A major factor is delivery vehicles on the roads during peak times. TfL says that a quarter of London's traffic during the peak hours of 7-11am is freight. The number of workplace deliveries being ordered by people who cannot accommodate home delivery are rising. When it comes to next day and same day deliveries, expectations are high. And van space is underutilised, with many shipping fresh air and making multiple stops. In response, TfL advocates more effective delivery consolidation, ensuring better use of space, in fewer vehicles.

Current discussions include changing delivery times to alleviate weight of traffic and avoid peak congestion hours. After all, busy roads become a vicious cycle of more delivery vehicles being stuck in traffic, further reducing their efficiency. And it isn't only consumers demanding quick and convenient delivery options. Businesses and cities are increasingly dependent on technology due to the integration of smart 'Internet of Things' devices and other automations.

Until recently, delivering during off-peak times was not possible. Where is open at two in the morning to take delivery? Now, there are networks of 24/7 click and collect locations in newsagents, stores and locker banks all over urban areas. Similar solutions for part delivery have been used across the country for

years to increase efficiencies in the field service supply chain. These accessible, fixed point delivery locations not only reduce the number of stops vehicles make, but also reduce van traffic on city centre roads. This type of point-to-point planning using conveniently located lockers ensure deliveries are easy to access with minimal environmental impact and maximum speed.

Delivery to these locations overnight reduces failed deliveries, allows efficient use of vehicle capacity and doesn't increase existing congestion. For businesses with high frequency deliveries, or where stock needed is time sensitive or high value, using or hosting their own secure drop-off location could facilitate timely delivery of essential items. With predictive analytics on stock levels and 'smart' devices communicating their status back to businesses, it is possible for holding stock and collection points to house critical parts in advance of breakdowns, so they are available before they are needed.

Congested cities seem a problem that will only get worse. At ByBox we believe no problem is insurmountable. New thinking facilitated by technological innovations which can reduce transportation costs and optimise delivery routes can help to tackle some of the issues around inner-city congestion and air pollution.

By approaching the issues differently when it comes to vehicle use, drop-off and delivery schedules, we can reduce congestion and environmental impact, while meeting the needs of demanding and 'always-on' customers.

Businesses and cities are increasingly dependent on technology due to the integration of smart 'Internet of Things' devices and other automations.



Marcus Walters, senior associate in the projects team at Burges Salmon

National Infrastructure Assessment targets energy and transport

The recently announced National Infrastructure Assessment (NIA) contains some interesting recommendations in relation to the energy and transport sectors.

In energy, the National Infrastructure Commission (NIC) has concluded that the optimal low-cost option for the energy system in 2050 is a highly renewable electricity generation mix. It has recommended at least 50% renewable electricity generation by 2030 and the continued use of contracts for difference and the capacity market to achieve this transition, with all renewable technologies, including tidal, competing with one another on an equal footing. The NIC has also recommended a 'one-by-one' approach to new nuclear power stations and that prior to 2025 the government should not agree support for more than one nuclear power station in addition to Hinkley Point C.

In terms of the decarbonisation of heat, the NIC has recommended that the government establishes a coherent programme to gather the necessary evidence to make informed choices, including establishing a safety case for using hydrogen as a replacement for natural gas in heat generation.

In order to accommodate the impending revolution in road transport, the NIC has recommended the roll out of a core network of charging infrastructure to facilitate 100% electric vehicle sales by 2030 (with local authorities being required to free up 20% of their parking

spaces for such purposes by 2025). It has also noted that the implications of technical innovation, such as connected and autonomous vehicles, should be taken into account in future long-term transport planning and investment strategies through a centre of advanced transport technology established within the Department for Transport.

Furthermore, the NIC recommends devolving infrastructure budgets to cities for locally determined urban transport priorities, including additional funding to support major capacity upgrade programmes.

Successful implementation of the NIC's proposals will require both public and private financing and the NIC has put forward an analytical framework to enable a proper evaluation of the costs and benefits of various financing options for infrastructure projects. As an immediate next step, the NIC intends to pilot this framework to develop insights into its practical application and update it where necessary.

In addition, due to the significant role that an independent state institution can have in catalysing private investment in public infrastructure, the NIC has recommended that by 2021 the government should establish an operationally independent UK infrastructure finance institution, in the circumstances where financial support from the European Investment Bank is no longer accessible following Brexit.

The government has committed to lay the NIA before parliament and formally respond to it within the next 12 months. It will be interesting to see which of these recommendations are 'endorsed' by government and form part of its infrastructure policies going forward.

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Influencing change at the highest level



ACE's new chief executive Hannah Vickers started her new role in September. *Andy Walker* spoke to her to find out about her plans and her thoughts about her new job.

I met Hannah Vickers at ACE's London offices and asked her first, what made her want to take on the role of chief executive of the Association for Consultancy and Engineering (ACE). "I think it's a really interesting time for consultancy and engineering, with a lot of potential disruption and change," she said. "We've seen things like Grenfell, the collapse of Carillion and we've got disrupters entering the industry around digital transformation which will have a huge impact on what our bread and butter is as a consultancy sector. So, I thought it was a really exciting time to come and be part of that," Vickers says.

Vickers says she is keen to see ACE using its collective strength and voice to influence the industry. "One of the things I'd like to focus on in ACE is collectively how we can move our industry forward, how we can be progressive and look at how we can apply our skills and expertise to different areas of the market in future," she said. "Although our firms might be competitors in a commercial sense, if we are looking to sell services and expertise we need to market collectively what we contribute to the overall built environment sector. If we fail to do that we may start to lose our influence because the market and the recognition of the value that consultancy adds won't be recognised universally across all clients," says Vickers.

Amidst all the current talk about disrupters and change in construction,

Vickers sees the potential disruption as a challenge but also an opportunity for ACE members. "If you look at the long-term infrastructure pipeline there is a lot of opportunity and there's a big prize there for someone who starts to move into this sector or an existing player," she said.

"Look at some elements of detailed design for example. Something that would have taken three weeks historically, now with new technology this can be done in about 15 seconds. That sort of disruption is ultimately going to have to have an impact on industry business models and you'll probably start to shift towards being paid and being valued for the outcomes that you add to a particular project or asset rather than

"Having been in the centre and advised the chancellor on infrastructure policy and having worked on commercial strategy for a client, it gives a really deep insight about how those decisions are made and what you need to do to try and influence and change the direction."

the amount of time that you spend on the job," Vickers said.

Vickers believes there is a big role for ACE and the industry to act collectively in this area. "We have a really big opportunity to use the collective expertise of ACE members to start to shape what we want our market to be in future and to be able to sell it consistently," she says. "Don't forget that this also going to be a big disruption for clients and the way they buy services and expertise. We will be in a much stronger position if we have a collective understanding of what the opportunities are and are able to bring clients on that journey," says Vickers.

Civil engineer Vickers's previous experience includes leading the policy and public affairs team and the Institution of Civil Engineers, advising ministers at HM Treasury on infrastructure delivery policy and also working as a consultant to senior stakeholders on a number of major projects. So, how will she bring her lobbying and policy experience to bear at ACE?

"In each of my previous roles I was moving into areas where I was able to undertake more lobbying and influencing government," she told me. "Having been in the centre and advised the chancellor on infrastructure policy and having worked on commercial strategy for a client, it gives me a really deep insight about how those decisions are made and what you need to do to try and influence and change the direction."



"I have been there and done that and understand what is going through decision makers' minds and what they have to weigh up, so I will be able to go in and sell the ideas, concepts and outcomes that ACE members want in a way that is appealing. In the same way that you market to clients, it is marketing ideas back into government," said Vickers.

Influencing at the highest level is a key role for all modern business associations and Vickers is keenly aware of this. "Trade associations are uniquely placed to act on behalf of their corporate members and to do this effectively requires an independent corporate voice to speak to government," she said. "Of course, we have to change and adapt with industry and business challenges, but that core role is absolutely critical," said Vickers.

Vickers says there are three main areas of focus that will be at the top of her in-tray at ACE. "Firstly, things that are in members' interests that need to change quickly and are immediately

impacting on their businesses. These will include the immediate impacts of Brexit and bad practice around procurement and I will be spending my first months at ACE listening to members and getting up to speed on those things that are stopping firms doing business and affecting their bottom line," she said.

"Secondly, are some of the industry changes, the future of consultancy and engineering, new business models and what this means for clients. Finally, how we retain and enhance the visibility of consultancy and engineering with external partners, like government and clients, to make sure we have a high profile and demonstrate the value that we bring as an industry," Vickers said.

As the first woman to be chief executive of ACE, I asked Vickers about her thoughts on diversity in the industry. She told me that she was impressed with the refreshing approach that the ACE board had taken in appointing her. "What I did find refreshing about ACE was the fact that the member firms on the board were very welcoming and supportive and considered it positive rather than a risk that they were going to get a different blend of skills and expertise than they might have seen in the market before.

"That was a refreshing attitude and something that a lot of organisations could learn from. It's good to be open to new approaches and to broaden things out and there are lessons to be learned in addressing the skills gap. If the industry looks outwards and broadens the range of people it chooses from, then that would go a long way to helping with the skills crisis. We need to attract more people from different backgrounds into

our industry," Vickers said.

Vickers is keen to see ACE and the industry be open to a more diverse approach. She enjoys the collaborative approach and is looking forward to "being able to piece together and to learn from the best of what we already have in the industry". "It's important for us to be able to take the expertise of individual members, pool that and create something that is better than them acting alone," Vickers said.

ACE's new chief executive is also keen to strengthen the organisation's international links and her first job in her new role was to attend the FIDIC global infrastructure conference in Berlin. "Knowledge transfer and learning from around the world is important and we need to be linked into that network," she said. "We also need to cultivate the links that ACE has with the Department for International Trade, articulate what we have to offer as a sector and then sell this overseas, which will be especially important in a post-Brexit environment and hugely valuable for ACE's member firms," she said.

"I will also be trying to join up our work programmes and our lobbying to coordinate our efforts where we can with other industry organisations. Having been on the receiving end of it, I know there is a lot more that we should be collaborating on to give a single voice to government," said Vickers.

Collaboration and influencing change are sure to be key priorities for Vickers as she embarks on her new role. It will be interesting to watch her progress and that of ACE in the months and years ahead.

"What I did find refreshing about ACE was the fact that everyone was very welcoming and supportive and liked the fact that they were going to get a different blend of skills and expertise than they might have seen in the market before."

As chief executive of AECOM's EMIA region, Lara Poloni heads up a 20,000-strong team across the UK, Europe, Middle East, India and Africa. She spoke to *Infrastructure Intelligence* about how she sees the future for consultancy businesses.



CEOs need to communicate and be visible in changing times

Over a career spanning more than 25 years, Lara Poloni has predominantly worked in the planning, assessment and development of major infrastructure in the transport, energy and telecommunications sectors. A member of AECOM's executive leadership team, Poloni leads a 20,000-strong team working on a range of services to deliver solutions to some of society's most complex infrastructure challenges.

At the recent FIDIC Berlin 2018 conference, Poloni spoke at the Perspectives from the Boardroom session on the future for consultancy businesses in the digital economy. In the run up to the conference, she took time out to answer a number of questions.

How will the digital economy and increased digitisation affect consultancy firms in the future?

The construction industry is particularly risk averse, sometimes wary of adopting new tools and technologies. Yet the merging of digitisation, infrastructure and the built environment is happening faster than ever and is only set to continue. So, it is important that

business leaders embrace the rise of digital economy and play a proactive role.

AECOM is already taking advantage of the digital approach on a number of projects including developing the detailed BIM strategy for the Rail Baltica project, one of the biggest transport projects in Europe, which will integrate the Baltic states into the current European railway network. We have also found that virtual reality (VR) solutions have the potential to merge separate delivery phases by offering an interactive and easily accessible digital design model. We have used this technique on projects as diverse as the Wessex Capacity project at Waterloo and the Serpentine Pavilion in Hyde Park, enabling us to deliver schemes more efficiently than ever before.

What are the key challenges of change for a CEO?

Followership and the need to take people with you are among the main challenges of change for a CEO. We also have to keep things fresh and innovative as a large organisation, ensuring that we recruit people with the right skills

to meet the challenges of today and tomorrow. It is also hugely important to ensure that the company is an attractive place for graduates to work. More needs to be done for industry to convince good candidates that apprenticeships offer a meaningful and rewarding career path, including sponsorship for a part-time degree at a later date. We help graduates turn their knowledge gained through their education into limitless career potential.

How do you view the leadership role at a time of change?

Communication and visibility are always very important in a leadership role particularly at a time of change. Being very open and honest with staff is equally important. Above all, the buzzword should be 'listen'. Always have time to hear and fully understand client's issues. Effective listening is crucial for improving the standard of client service and, ultimately, profitability. AECOM currently provides a client listening service as part of its client account management programme. This provides an independent review of a client relationship with the intention

of learning how an organisation can improve. The service helps form a deeper understanding of a client's priorities and the service standards they expect.

Leaders must also ensure that they are staying connected with what is happening in industry and to make sure they bring their staff on that journey with them.

People are always a key challenge in the consultancy and engineering sector. How are you addressing this?

The best companies are built from the inside out. They inspire employees to stretch for big ideas, and they transcend their roles in leading projects and colleagues forward. It's our belief at AECOM that the way for our business to achieve excellent performance will be through the success of our people. We not only believe it, we're truly committed to it. We are focused on ensuring we recruit people with the right skills for the projects of today and the future, whilst offering ongoing training so that our staff are equipped with the necessary client-facing skills.

It's also important to value the health and wellbeing of our staff to address retention challenges. Several factors, including job demand, content, resources and level of autonomy, can influence employee wellbeing. Organisations with an interest in bringing positive change must engage with organisational policy, prioritise desired outcomes and initiate a successful change management process. To nurture wellbeing, it's important to have a range of spaces to meet different needs. In AECOM's Aldgate office, we've moved from an FM to a hospitality model and there has been a shift from a focus on space to a focus on people and employee experience.

How important is diversity to AECOM and what steps are you taking to encourage it?

AECOM values difference and we are truly committed to ensuring that talent is the only criteria for success. An inclusive culture where everyone can be themselves is extremely important to us.

For those women currently working in the industry, mentoring plays a vital role in the sustained drive for greater diversity. We have a global mentoring scheme for women called mCircles, where women in leadership positions within our business mentor female colleagues – not just at entry level, but throughout their careers at AECOM. In

addition to providing ongoing personal development and coaching, the work streams cover different career stages, as well as specific areas where female employees have said they would like additional support.

We also launched the Career Returners programme this year, which is open to anyone returning to work after a period out of the industry. This offers a six-month paid placement coupled with a structured programme of support including training, coaching and mentoring to help participants reacclimatise in to the corporate landscape, build up their confidence and undertake any training/knowledge updates as required. Where possible placements lead to a permanent role within the organisation. It's a great opportunity to see if the job is right and to gain experience in the world of engineering.

To align with Pride month earlier this year, AECOM launched DiverCity, the company's employee-led lesbian, gay, bisexual, transsexual, queer plus

(LGBTQ+) working group. DiverCity provides a transparent and accessible support network for staff, as well as organising networking events and discussions around the UK and Ireland.

What is the most challenging aspect of being a CEO?

Like any CEO, our role can sometimes bring unexpected surprises that are inevitable. However, this makes things interesting and there is always a solution. I lead AECOM's EMIA business which includes a wide breadth and incredibly diverse range of projects. These range from delivering clean water and energy, building iconic skyscrapers and planning new cities to restoring damaged environments and connecting people and economies with roads, bridges, tunnels and transit systems. Importantly, AECOM also helps governments maintain stability and security. While it's hugely exciting to be leading the region, this also means I need to be careful to make sure I prioritise the right tasks and priorities.

How optimistic are you about the future?

I am feeling very optimistic about the future, thanks to the much-needed momentum for infrastructure which has gathered pace in recent years, with significant investment plans in roads, rail and aviation now taking shape across the UK. We're also extremely excited by the opportunities that lie ahead in the Middle East, especially in the Kingdom of Saudi Arabia.

“The best companies are built from the inside out. They inspire employees to stretch for big ideas, and they transcend their roles in leading projects and colleagues forward.”

Lara Poloni, Chief Executive, AECOM EMIA



Passengers were given the opportunity to experience the new station at London Waterloo using virtual reality headsets.



The Construction Sector Deal has been released and with it came publication of *Procuring for Value*, a report detailing the Construction Leadership Council's aims for widespread changes to contract procurement. Jon Masters quizzed the author, Ann Bentley.

Procurement detail behind Construction Sector Deal laid out

In conversation with Ann Bentley the subject in question moves quickly and easily from one point to another. Passionate and highly knowledgeable on all things related to the construction industry, Bentley is the lead on supply chain and business models for the Construction Leadership Council (CLC). She's also the author of *Procuring for Value*, the CLC report on procurement published with the industry's sector deal with government.

Bentley has frank and well-informed views on the issues that *Procuring for Value* sets out to address. For instance: "At the moment we have a system of public procurement whereby suppliers are actually incentivised to not be innovative. It's worse than neutral," she says. Those that have worked across numerous different sectors or contract frameworks may recognise the scenario Bentley describes - one where bidders struggle to bring good ideas from one sector or contract framework to another, because by suggesting an alternative approach, they would likely make their bid non-compliant with the tender documents.

"Typically, people in the construction industry will build up tremendous amounts of knowledge and experience in one framework, in building schools for example. Then if that same team is tendering for work in the health sector, they cannot bring in better value from what they've developed from education, even if it saves money, because their bid will be non-compliant," Bentley says.

This is relevant to the second of three main themes of *Procuring for Value*, specifically about benchmarking. As global director of consultant Rider Levett Bucknall, Bentley is promoting work for the CLC gathering data on the performance of assets, contracts and suppliers.

"Our industry needs a much more robust attitude towards collecting and doing something with benchmark data,

with measures on whether assets actually achieve what they were supposed to do and also on the performance of suppliers," she says.

"We have the ridiculous situation in the public sector - and many of us can give examples of this - where a contractor or consultant can make a bad job of something, but then still get reappointed by the same client simply because they've won the next round of OJEU bidding. We're not saying firms should be struck from bidding lists, but

strategy. Fairly low down on page 197, but in there all the same, it says that under the Construction Sector Deal, "the sector and government will work to ensure construction projects across the public and private sectors are procured and built on the basis of their whole-life value rather than just initial capital cost".

"It is massively pleasing and important to our industry, that this statement of intent has been included in a government strategy," Bentley says. "If



previous performance should at least influence clients' decisions. If someone does a bad job for the likes of Tesco they won't work for them again, but if they perform badly for a government department, they'll still be included in the tendering lists," says Bentley.

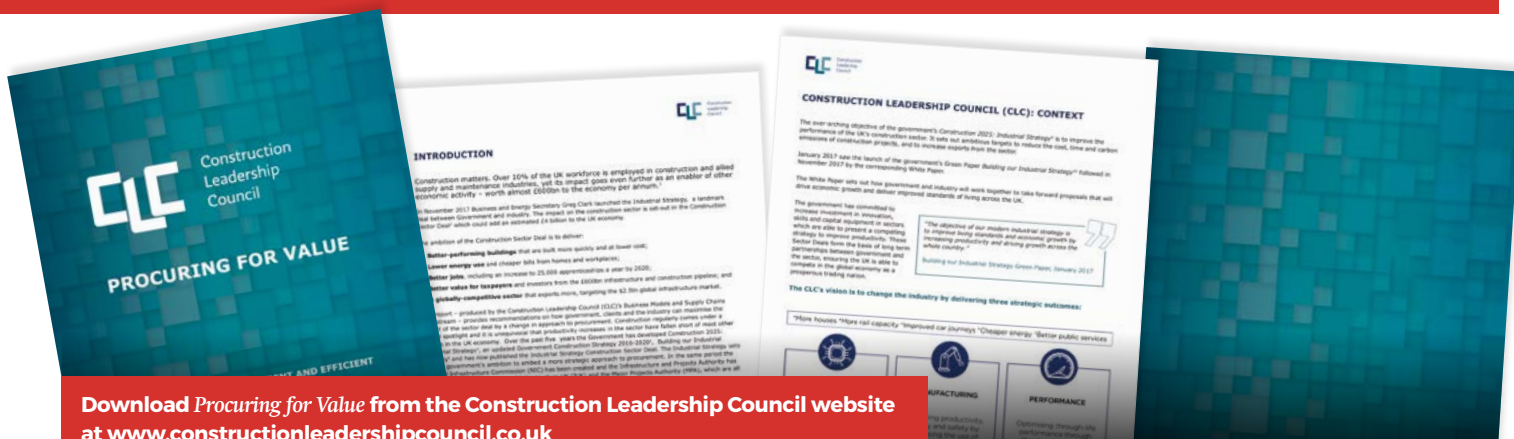
The conclusion from all this is that, in the public sector at least, contractors and consultants are not incentivised enough to perform well, to innovate and bring better value. The metric that really counts in the bidding for government contracts, or the one that always wins, is cost.

Government has recognised the problem, so it seems from the industrial

it happens, if whole-life value replaces initial cost as the key metric, then it will effectively throw out some 200 years of procurement practice. That's the 'what' we're doing. It's the 'how' that is the really difficult part, however," she says.

The 'how' is what Bentley, RLB and other firms supporting the CLC are going to be working on, by coming up with suggestions for ways of defining what value really means.

"We need a mathematical mechanism that makes it easy for clients to understand what the options are. It's relatively easy when considering the equation of whole-life operational cost versus capital cost of a railway



Download *Procuring for Value* from the Construction Leadership Council website at www.constructionleadershipcouncil.co.uk

bridge. It's much more difficult when talking about complex buildings like hospitals. Nonetheless it's possible and we've got some very well qualified people working on it," Bentley says.

Simply modelling whole-life value is not enough either, Bentley adds. Clients presented with bids priced for value would still have to take a chance on whether the resulting asset will perform as promised. "The key to it will be adding some form of guarantee or system of penalties so that clients can



Ann Bentley.

be confident of getting what they've signed up for," she says.

"We want to put values on all this. We're modelling it based on some good PFI contracts and projects we've been involved in where alternative procurement and forms of contract have been used, gathering data from overseas as well.

"Looking heavily at infrastructure and how it can inform general construction, ultimately we'll come up with mathematical models based on price but giving clients choices on long-term value in terms of social and environmental value too. Some clients may not be interested, but others want

real ways of measuring all this. They think they're buying it, but how can they be sure? We want to put financial values on the performance of different procurement models," Bentley explains.

The benchmarking of assets' and suppliers' performance feeds into the headline task of defining value. Plus, there's a third main element to the work behind *Procuring for Value* on the theme of procurement efficiency, addressing problems with prequalification, fair payment, retentions and forms of contract.

"Why do we ask the same contractor to prequalify 15 different ways for 15 government departments? Surely if they qualify for one they should qualify for them all," Bentley says. "And our line on standard forms of contract is that they should simply be used as they are and if they don't fit the project then go back to the standard form author and get it changed. If we want greater productivity, a level playing field and everyone to understand what they're doing, then contracts must be simplified, and the simplest forms are the standard ones. If the contract has to be complex, then staff must be trained in its correct use," Bentley says.

On retentions and poor payment practice, these are hugely important problems that must be addressed, she says. Government appears to be acting on both. The Department of Business, Energy, Innovation and Skills has completed its consultation on firming up payment procedures and changes to rules are expected.

It's in *Procuring for Value* as a vital issue for industry, Bentley says: "It's a lot more important than many of the strategic thinkers think it is. We're talking about people's livelihoods. We all knew about Carillion's poor payment terms, but they were still allowed to do it. One of the really good things we can do for procurement is make contracts conditional on proof of good payment

practice. It would make a phenomenal difference if companies were properly rewarded for paying promptly," she says.

This third theme of *Procuring for Value* alone represents a very broad ranging challenge, but an important one. Sort out the four issues of prequalification, contract forms, retentions and payment practice and many of industry's difficulties will be a long way to solved, says Bentley. These are problems other organisations are working on as well. Specifically, for Bentley, asked what success will look like in the near future, she says: "In a year's time, I want to see a significant portion of government contracts being procured on the basis of value rather than lowest cost."

Like other initiatives before it, however, what danger is there this one will fade out and disappear? "There's always a danger any initiative can die, but I have a lot of hope for this one, because it's coming down through a hierarchy of the government's industrial strategy, then the sector deal. My piece of work sits below that," Bentley says. "It will be launched as part of a suite of things with some clear objectives. We've now got a better framework for success than we've had for a long time," says Bentley.

"Our industry needs a much more robust attitude towards collecting and doing something with benchmark data, with measures on whether assets actually achieve what they were supposed to do and also on the performance of suppliers."

Ann Bentley



Crossrail trains will not be heading through the capital as planned come December, but what has caused the delay and what will it mean for London and its passengers? *Ryan Tute* investigates.

Crossrail delay raises questions about construction delivery

With only three months to go until London expected a new high-speed rail network, news suddenly broke on a sleepy late summer Friday afternoon that expectant commuters would have to wait until autumn 2019 for Crossrail central services despite bosses having remained adamant the £15bn project would be on time.

To add to the delay confusion, a little more than a month prior, the public were told by rail minister Jo Johnson that Crossrail was 93% complete with no suggestion that London's new railway would not be complete by December. The fallout has seen a plethora of politicians, business leaders and transport bodies demanding detailed answers on why London's multi-billion-pound rail project is now expected to open nine months late.

Crossrail Ltd has been forced to concede that workers have run out of time to adequately test the new Elizabeth line trains running through central sections of the capital. The organisation has cited delays in fitting out the tunnel and testing software systems that control signalling, lighting and other essential services which in has turn cut into the time available for safety testing.

One particular testing incident which significantly halted progress was revealed by *Infrastructure Intelligence* in February, when an "explosion" during

the powering up of a new sub-station on the Crossrail network was said to push back plans by three months. It occurred during testing last November at a sub-station at Pudding Mill Lane as engineers attempted to energise the system.

But despite the continued rumblings of problems at track level, the official responses from the firm have remained positive about achieving the December deadline. A spokesperson for Crossrail in March said the project "remains on time" and continued to "manage increasing cost and schedule pressures". However, Simon Wright, Crossrail chief executive, has said the organisation needs "further time to complete the testing of the new railway" to ensure a "safe and reliable railway" is delivered. He has attempted to reassure the public of no further delay by insisting teams "are working around the clock" to complete the project.

"The Elizabeth line is one of the most complex and challenging infrastructure projects ever undertaken in the UK and is now in its final stages. We have made huge progress with the delivery of this incredible project but we need further time to complete the testing of the new railway," Wright added.

However, questions are now focusing on the timing of the announcement and why it took so long to admit that Europe's largest infrastructure project to date was going to be so long overdue. Last year the Unite union went public

with concerns when it referred to the scheme as the "hokey-cokey" line with regional officer Guy Langston saying: "the entire Crossrail project has been beset with problems...our members continually fit out, only to remove work that has been wrongly designed".

With the project also running almost £600m over budget and extra funding required to complete the work, there is increasing pressure being placed on bosses to be forthcoming with answers for failings to ensure that mistakes are not repeated on subsequent projects in the pipeline. But the implications of the delay could be more far-reaching than what is first apparent, most notably for Transport for London (TfL), which has found itself under more financial strain after losing central government grants.

While commuters in London are set to miss out on the extra 10% capacity which Crossrail will eventually bring to the underground network, it is TfL which will be really counting the costs. At the start of the year, Val Shawcross, the deputy mayor of transport for London, warned of the network's significance by stating any failure to deliver the project on time would be the biggest revenue risk to the organisation.

The government is now left to hope that no more problems are encountered in the final stages while ministers have to reassure contractors and an expectant public that resources will still be pumped into both HS2 and Crossrail 2.

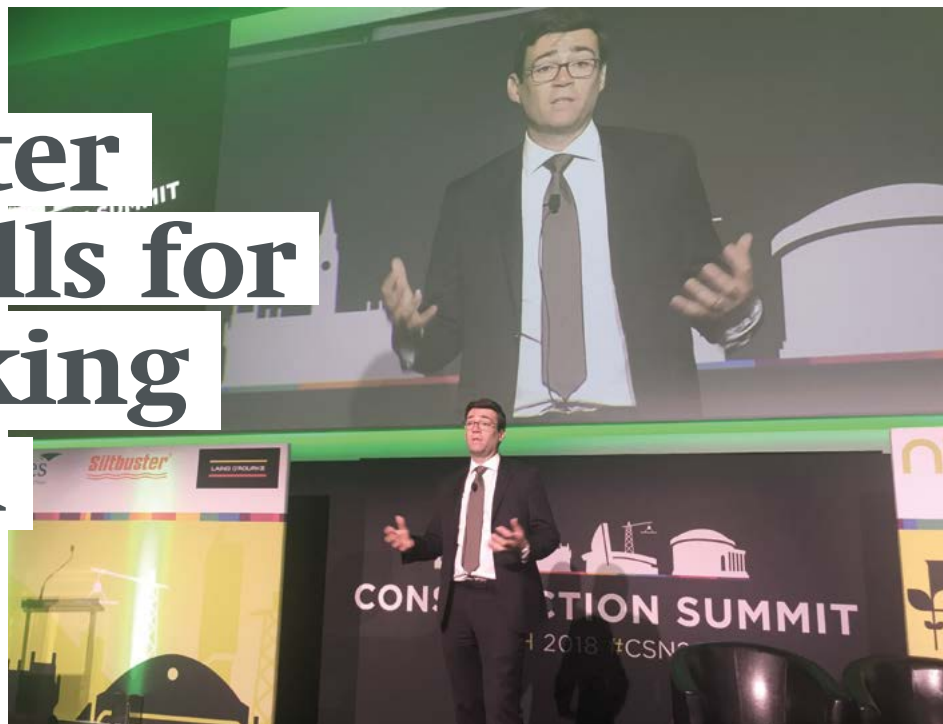
Greater Manchester mayor calls for placemaking approach

Placemaking needs to be at the centre of local development and regeneration, says Greater Manchester mayor Andy Burnham. *Andy Walker reports.*

Politics and local development should be much more focused on place according to Greater Manchester mayor Andy Burnham. Making an impassioned plea for a place-centric approach at this summer's Construction Summit North, Burnham said that devolution could create big opportunities for regions and local communities provided that people worked together in partnership and politics adopted a less London-centred approach.

The Greater Manchester mayor said he had quit national politics because he "came to the view that the system wasn't working and the way that we were doing politics wasn't working either". "We don't prioritise projects that are more catalytic, so we overspend in one part of the country (the south) and underspend in the north," Burnham said. "The concept of the Northern Powerhouse offered an opportunity to reverse the decline so I decided to put myself forward for the mayoral role to make a difference. A year on and it looks like Whitehall is reverting to type but we are not going to let things go. We need investment and we are determined to get it," said Burnham.

Burnham pledged that placemaking would be at the forefront of his city region's development approach.



Andy Burnham speaking at the Construction Summit North event in July.

"Construction can't just be about building more housing and factories; we have to get our head around good placemaking and creating better public realm, especially in our outlying towns," said Burnham. He highlighted the mayor's Town Centre Challenge to aid the development in towns across Manchester's ten local authority areas. "Those towns are not going to be the retail destination that they once were. They will be more residential linked to good transport links. Good public realm can then support better development," said Burnham.

"We need the right homes in the right places," he said. "They need to be in places that can support development and they must be affordable. Too much of a developer-led approach will lead to homes being built in the wrong places. If we carry on with that approach you end up with decaying town centres and places where people don't want to live," said Burnham.

Calling for a shared vision and a partnership approach, Burnham said that a public-private approach was needed to create a housing policy that is fit for people's needs. "We need a Greater Manchester Spatial Framework that can build more homes and solve the housing crisis. It's not just about the number of homes, it's about the type of homes and where they are sited," Burnham said.

The mayor also said that it was crucial to think about the people of Greater Manchester can benefit from a

growing construction sector. "We need to think about how we bring young people into the sector and also older adults to enter the industry too," he said. "We are focusing on developing a local industrial strategy that will also mean developing a local skills strategy because we need the right people with the right skills. Education policy has been far too obsessed with a university-centric approach and we've got to do something about this," he said.

Devolution was crucial in making a difference, said Burnham. "We can create specific solutions for Greater Manchester that can work. On skills, we can give business more influence on the education system and I hope that this will make a difference. Our investment in fibre broadband and Greater Manchester's bid to become a 5G testbed will also help influence greater investment in Greater Manchester," said Burnham.

After one year in post, Burnham said that people were beginning to see how devolution can make a difference. "We know where we want to go. We are ambitiously digital, going green and doing politics differently," he said. Burnham said that he had an absolute focus on the area he was elected to represent. "My job is all about place not party. Place is what unites everyone and if you work in that way then politics and business can have a different and more productive relationship with a clear united voice," said Burnham.

Hands-on approach to Vietnam's Golden Bridge

In June, Vietnam's Golden Bridge was opened to the public. The main designer of the project has spoken to *Ryan Tute* about the project's challenges and the extensive reaction to its completion.

Sitting at a lofty 1,400m above sea level, nestled in the midst of the Trường Sơn Mountains and held up by the two "giant hands of Gods" is the latest striking structure to be designed by some of the world's best architects.

The pedestrian walkway, entitled the Golden Bridge, emerges from the dense and spectacular greenery of the Ba Na Hills in Vietnam. Designed by TA Landscape Architecture in Ho Chi Minh City, the walkway offers tourists uninterrupted views of the breathtaking landscape beneath.

The 150m long bridge sits perched on the mountaintop and overlooks the forested scenery that Vietnam offers and is seemingly held up by two huge concrete hands that look like they're coming out of the mountainside itself. Opened in the summer, the structure is reportedly part of a \$2bn project to accommodate tourists in the area. The Ba Na Hills resort is advertised as "the Da Lat of Danang province" by local tourism authorities and was founded in 1919 by French colonists.

The bridge has shot to fame for its quirky design and has encouraged more visitors to head to the lofty heights via the cable car station within the gardens. The 5.8km cable car track was once the world's longest and highest but it's the colossal hands under the walkway which have attracted the most attention with finer details in design even ensuring the hands look aged, giving the impression they have been sat there for years and years.

In the long run, the Golden Bridge functions as a highlight feature for Ba Na Hills Mountain Resorts, its symbolic image is believed to serve as a great tourism attraction not only in Da Nang city but the whole country as well.

The bridge was designed to show the "giant hands of Gods, pulling a strip of gold out of the land," said Vu Viet

Anh, design principal at TA Landscape Architecture. "The main concept of the Avatar Garden is to make a land of Gods. It creates a walkway in the sky, among the foggy and fairy-like lands of Ba Na Mountain. We proposed to have a pair of bridges for better connection and to champion the glorious views of the surrounding nature. One of them is the Golden Bridge, the second is the Silver Bridge, which is still under construction," he said.

The pillars of the Golden Bridge have a painted exterior in harmony with the forest, adding to the feeling of walking in the air. The hands are supported by steel frame and fiberglass with a hand-like structure and painted according to the design theme.

The Ho Chi Minh company says while the Golden Bridge allows people to enjoy stunning views, it is also an important part of the upgraded line between the cable car station and Tiantai Garden within the mountainside. Before the structure was built, traffic between two bridgeheads was difficult due to high deviation which meant a new connection for convenient travel was necessary, according to the design team.

The bridge is located in the city of Da Nang, which is in the middle of the country by the infamous Hai Van Pass. While its purpose has been to link two cable cars stations, the 150m long pedestrian walkway is fast becoming the main attraction. Despite only being open for a little under three months, views obtained from the walkway have led to plenty of social media posts showing off the spectacular scenery and the attention it has received over the summer has taken back the principal designer himself.

Anh said: "The bridge is there because of its genius location. The site needed a walkway, hence why the

Golden Bridge is born. We're proud that our product has been shared by people all round the world but yes, we are surely surprised with the public attention to the bridge." While the team involved at TA Landscape Architecture confirm they are "quite happy" with the final product, they do concede that it is "not as perfect" as they proposed.

The vision for the bridge presented by Anh and his team was consequently built by The Sun Group, a property



"The bridge is a great place for walkers and an exceptional observation

deck where visitors can feast their eyes on the city. In the future, the Golden Bridge will be a prominent feature in the Ba Na tourist area. Its symbolic image is believed to serve a great tourism attraction not only in Da Nang city but in the whole country as well."

Vu Viet Anh, design principal, TA Landscape Architecture.

developer which has already built luxury resorts, a theme park and a cable car route within the country in the last two years. Those behind the design of the Golden Bridge told *Infrastructure Intelligence* that one of the most difficult challenges in the process was changing

Designing ge



the Sun Group's "mindset" in the designs they set out from the start.

In an area of such outstanding beauty, the design team revealed that trying to convince its client that two gigantic hands should appear out of a hillside was not the easiest of challenges. Along with conquering the complex topography of the hilly area, the design process is said to have taken just over a year to complete.

"At first, the client was quite concerned about this bridge," Anh added. "It took months to persuade them of the final design, but the remarkable appearance of two huge grips looks like they drew the bridge out from the land and adore it as it were a gift from nature," he said.

The developers behind the project

have been described by some within the country as "gimmick merchants" but a spokesman for the company said the bridge fell into the group's aim of creating "timeless, influential developments". Sun Group says their mission is to construct services in travel and entertainment sectors to not only to upgrade the tourism industry but to "put Vietnam on the world map" and to "improve the quality of life for Vietnamese people" by making the nation richer and more beautiful.

Another important aspect the architects had to take into consideration when implementing the design was how to build bridges without damaging and affecting the cliffs below. Anh credits the specialised software used in the process and the extensive experience of

assembly techniques within the team in ensuring the aesthetics of the bridge and limiting construction problems encountered.

Every finer detail was considered within the year-long design process according to Anh. He says even the selection of golden stainless-steel handrails, the timber deck and the green bridge columns in the form of trees, were all chosen to give rise to a colour contrast. Colour and materials used for the two God-like hands which the bridge centres on were carefully selected to create a lifelike appearance of an old ruin from the ground. The two eye-catching hands were deliberately embellished with cracks and moss finishing, according to the team.

But despite the challenges faced, the principal designer believes the final product will be significant in the future as it increases the value of space around the mountain. "The bridge will be a new destination for visitors, giving a great space to view the city of Da Nang as well as the Truong Son range on clear days," Anh added. "The bridge is a great place for walkers and an exceptional observation deck where visitors can feast their eyes on the city. In the future, the Golden Bridge will be a prominent feature in the Ba Na tourist area. Its symbolic image is believed to serve a great tourism attraction not only in Da Nang city but in the whole country as well," he said.

Workplace wellbeing never more vital for construction sector

Already facing the challenges of filling the skills gap and the uncertainty of Brexit, it has never been timelier for industry employers to prioritise and safeguard the wellbeing of their workforce, writes *Mike Blake*.

The sector-wide skills gap, the magnitude of the Carillion collapse and Brexit. There's no arguing that the infrastructure industry and the people that work in it, are under significant pressure. The Willis Towers Watson Global Benefit Attitudes Survey (GBAS) recently revealed that more than half of UK workers (52%) suffer with above average or high levels of stress. The cost to businesses of not addressing this issue can be significant with decreased productivity at best and increased absenteeism as a result.

The research uncovered the key reasons for stress, with financial worries topping the list (38%) and 36% citing job pressures. Ex-Carillion employees looking for alternative employment suffer increased stress and the firm's suppliers, customers and creditors will also suffer the consequences for some time. The wider implications for the construction sector may take years to address.

Creating a positive wellbeing environment and delivering benefits that support employees, both mentally and physically, will ensure strengthened resilience to stress within the industry in both the short and longer term as it navigates uncharted waters. Despite evidence linking high stress levels with poor lifestyle choices, only half (51%) of employers are currently taking proactive steps to reduce workplace stress according to GBAS.

The study identified that a large proportion (61%) of highly stressed employees were more likely to smoke,



Mike Blake, wellbeing lead at Willis Towers Watson.



suffer with insomnia, have poor diets and were less likely to participate in regular exercise, compared with only 34% of those experiencing low stress. Leading to a greater risk and frequency of minor ailments, the ramifications of poor lifestyle choices can also result in more serious conditions including obesity, heart disease, stroke and mental illness. The cost to both individuals, and their employers, is high.

Employees increasingly expect their employer to play an active role in encouraging and supporting healthy lifestyles at work and this can be delivered in a variety of ways. The use of wearables is popular, with one in two UK workers using this technology to manage personal health, from monitoring weight to managing diet and levels of exercise. Employers can harness this and utilise the data (employee permitting) to gather a clear picture of the state of health of their workforce to better inform health and wellbeing strategies.

Mental wellbeing, while enjoying greater awareness, can often remain a silent issue but one that employers cannot afford to ignore, particularly given the unique challenges currently being faced. Nearly a third (29%) of UK workers have suffered anxiety or depression in the past two years alone and one in ten have taken time off during the same period due to mental health issues.

Employers should take a preventative approach to allow for early interventions

before matters escalate for both individuals and their wider teams. Adding mental health to meeting agendas and promoting open door policies to encourage conversations removes the associated stigma and creates a supportive culture at work.

Around 80% of workers told Willis Towers Watson that they preferred to self-manage stress however, with only one fifth turning to their line manager for support. Our experience suggests that more employers are training suitable employees to become 'mental health first-aiders' to provide a first port of call should someone need help in the workplace. An alternative benefit to promote positive mental health is the provision of Employee Assistance Programmes (EAPs), allowing individuals to talk confidentially to trained counsellors over the phone from the comfort of their own home.

At a time when productivity, creativity and agility are key, focusing on the health and wellbeing of the people working in construction has never been more paramount. Investing in robust health and wellbeing programmes will build strong foundations for the industry - one employee at a time - cementing the health, competitiveness and resilience of the sector both in the UK and the global marketplace.

Mike Blake is wellbeing lead at Willis Towers Watson.



In the latest *Infrastructure Intelligence* Think Tank article, Dr Andrew Wheen, principal consultant at Mott MacDonald, says the industry needs to be aware of the potential risks of artificial intelligence (AI) to prevent unexpected problems further down the line.

Let's move now to tackle risks of artificial intelligence

You have probably noticed advertisements on the web which have a knack of knowing exactly what you are interested in. You may have sought help from a digital assistant such as Alexa or Siri and you will almost certainly have spoken to intelligent machines on the telephone. Whether you are aware of it or not, artificial intelligence (AI) is playing an increasingly important part in your life.

AI can deliver enormous benefits. For example, it is already being used to diagnose illnesses and improve the safety of self-driving cars. However, as in the case of any powerful technology, AI also has a darker side. In the hands of malign individuals or organisations, AI is a powerful weapon that could be used to cause serious harm.

A report by Cambridge University has warned that the malicious use of AI could be a threat to global stability. The authors expect novel cyber-attacks such as:

1. Highly believable fake videos that impersonate prominent figures to manipulate public opinion
2. Automated hacking
3. Finely-targeted spam emails using information scraped from social media
4. Exploiting the vulnerabilities of AI systems through adversarial examples and data poisoning.
5. Crashing fleets of autonomous vehicles
6. Turning commercial drones into face-targeting missiles
7. Holding critical infrastructure to ransom

Thankfully, there is now a public debate over the dangers of AI, including voices from the science and technology community. The late professor Stephen Hawking warned that AI needs to be controlled or it could do severe damage to humanity. Similarly, CEO of Tesla and SpaceX Elon Musk has stated that AI is a fundamental risk to the existence of human civilisation and called for tougher



government regulation. However, this view has been dismissed by Facebook CEO Mark Zuckerberg who prefers to focus on AI benefits such as better disease diagnosis and fewer car crashes.

AI enthusiasts argue that humans will never lose control of AI because it is humans that decide when and where the technology should be deployed, but the same can also be said about nuclear weapons.

History has taught us that we cannot hold back the march of science. International treaties and government regulation can help but, as recent attempts to stop nuclear proliferation have shown, they are unlikely to have much impact on rogue states. The problem must be addressed from a number of different angles:

Take the lead in developing AI and identifying the threats

By developing the technology as quickly as possible in strong, stable democracies, it can be adequately supervised with problems identified and mitigated.

Invest now to counter the threats

Investment is required to establish and maintain defences against AI-based crime, terrorism and warfare. Recent experience with cyber threats has shown that

developing effective counter-measures can be a slow and difficult process.

Engage wider society in the debate

Open discussion should be stimulated to ensure that public opinion is not left behind by the pace of AI developments. Ethics committees (similar to those used in medicine) should be created to monitor developments and set boundaries.

Transparency is crucial

Users must be made aware if AI is being used in a product or service. Where AI is being used, the reasons for using AI should be completely clear from the outset.

Develop the regulatory environment now

Law-makers and regulators must keep pace with the speed of AI developments. Technological progress will not slow down to suit their own more-ponderous ways of working.

The increasing use and development of AI will undoubtedly bring efficiencies to a range of industries, with many benefits in store for the infrastructure industry. However, in the rush to develop this exciting technology, we must be mindful of the potential risks to prevent unexpected problems further down the line.

Previewing this year's European CEO Conference

Industry leaders will gather in London in November for an ACE marquee conference under the theme “Visions for a Shared Future”, writes *James Ketchell*.

The informative and engaging programme at this year's European CEO Conference will give senior leaders the knowledge they need to stay ahead of the curve in a rapidly changing business.

Featuring an array of top academic, business, policy and industry speakers, the two-day programme has been produced to cover the big issues facing the consultancy and engineering sector, including globalisation, technology and finance. Streams on trends in financial and social economic infrastructure will also lead conversations on the current issues in these areas.

Speakers at the event are all senior leaders in their respective fields. Attendees will have the opportunity to hear from representatives from Argent, Bentley Systems, BST Global, Estates and Infrastructure Exchange, FIDIC, Global Infrastructure Investors Association, Heathrow, HS2, the Infrastructure and Projects Authority, IFM Investors, KPMG, Laing O'Rourke, Lloyds Bank, Pinsent Masons, Roland Berger, University of

Manchester and the University of Reading.

Representative from major European engineering and consultancy firms will also form a key part of the programme. Expect to hear from Ayesa, Artelia Group and Witteveen en Bos across the two days. Joining the above will be senior leaders from ACE member companies including AECOM, Arcadis, IMC Worldwide, Mott MacDonald, Peter Brett Associates, Ramboll, Tony Gee and Partners, Turner & Townsend, Waterman, and WSP.

As well as a packed programme of discussion and debate, the conference will also hear the findings from ACE's annual benchmarking exercise, which will reveal the state of the sector in the UK and Europe and will provide valuable insight into how companies compare with their peers.

All sessions at the conference are held under Chatham House rules, allowing for a frank exchange of views and in-depth discussion. The confirmed and expanding programme is available to view on a dedicated website.



Taking place at the European Bank for Reconstruction and Development (EBRD) in London on 5 to 7 November 2018, the European CEO Conference is complemented by additional opportunities for networking. These include the exclusive ACE Parliamentary Reception, which includes guests from the world of politics, and also the European CEO Awards and gala dinner which celebrates and champions the upcoming and established industry leaders, and takes place on the eve of the conference at Banking Hall. Both are great opportunities for building business relationships, inside and outside of the sector.

This year's events are supported by Bentley, BST Global, Ramboll and FIDIC. *Infrastructure Intelligence* is, once again, the selected media partner for the conference and awards.

Tickets are available now for this unmissable and exclusive series of events for CEOs and other c-suite company leaders at the dedicated website at www.aceceo.co.uk

Consortium urges government to review apprenticeship schemes

ACE has co-signed a letter published in *The Times* to urge a review of apprenticeship schemes in the light of failing targets.

In a letter published on 20 August ACE highlighted the fact that monthly apprenticeship numbers are routinely below targets set out by the government as part of its industrial strategy and will fall woefully short of its pledge for three million apprentices by 2020. More than 60,000 new apprentices a month are needed, yet the latest figures show only 22,300 new apprentices started in the last month.

The joint signatories of the letter have called for the Institute of Apprentices to be able to design and approve apprenticeship standards much more quickly and for more

flexibility in how employers can spend the apprenticeship levy contribution, including spending throughout the supply chain.

As well as former ACE chief executive, Dr Nelson Ogunshakin OBE, the letter was signed by the leaders of London First, North West Business, London Chamber of Commerce and Industry, NHS Employers, Creative Industry Federation, Association for UK interactive Entertainment, London Colleges, Tech London Advocates, and Freight Transport Association.

ACE supports the Technical Apprenticeship Consortium (TAC) which brings together consultancy and engineering firms to encourage the recruitment and training of technician and degree apprentices, helping members to meet their business and HR needs. TAC

recently wrote to Anne Milton MP, minister for apprenticeships and skills, to raise a number of issues around apprenticeships, including:

- Slow progress in gaining approval for apprenticeship proposals, standards and end-point assessment plans;
- Policy approach towards the development and subsequent mandating of qualifications to underpin apprenticeships;
- Lack of flexibility relating to the use of the apprenticeship levy; and
- Funding caps related to high skilled, quality and valued apprenticeship delivery.

TAC is hoping to meet with Ann Milton's team to discuss these issues in person and in due course.

APPG on Building Communities launches

The Association for Consultancy and Engineering (ACE) is to provide the secretariat for a new cross-party group on good design and placemaking and how it can help solve the housing crisis.

The new group has been formed with the aim of ensuring issues surrounding housing are prioritised and new ideas are formed to tackle the shortage of homes within the UK. The APPG on Building Communities will look to progress political discussions around good design and placemaking and how they can help solve the housing crisis.

At a meeting at the Houses of Parliament on 18 June, Bob Blackman MP was voted in as the first chair of the group, Liz Twist MP and Stephen Hammond MP were voted vice-chairs, and Mark Prisk MP was selected as group secretary. Other members will include Sir Graham Brady, Baroness Brown, Lord Shipley, Lord Hodgson

Andrew Lewer and Matt Western. The cross-party group of MPs and peers will meet in the autumn for its first session.

ACE will provide secretariat services for the APPG and the group will discuss proposals put forward in ACE's report, also launched on the same date, *Unlocking Housing: Reinvigorating Local Communities through Placemaking*.

Commenting on the launch, Bob Blackman, the APPG's chair said: "This new group will take the discussion around good design and placemaking to the next political level. We need to find new ideas to tackle the housing crisis and build the homes the country needs. I firmly believe that only a holistic approach which marries community engagement, placemaking and strategic infrastructure spending will enable this."

Former ACE chief executive Dr Nelson Ogunshakin OBE said: "ACE is pleased to provide the secretariat for



Bob Blackman MP.

the APPG on Building Communities. The group's formation is a vindication of ACE's work in championing good design and infrastructure and ACE members should be excited that their views will be heard, discussed and debated in parliament."

Financial support for the APPG on Building Communities comes from ACE members AECOM, Mott MacDonald, Peter Brett Associates, Ramboll, Waterman and WSP. It also supported by non-member Heathrow.

For more details on the APPG on Building Communities, please contact the Policy and External Affairs team at ACE on pea@acenet.co.uk

Network Rail among first to use new ICC contracts

Network Rail is to use updated contracts for its £47bn investment programme for CP6, writes *James Ketchell*.

Two new versions of the *Infrastructure Conditions of Contract* (ICC) have been released by the Association for Consultancy and Engineering (ACE). The target cost and design and construct versions of the contracts have been updated and are now available to purchase and among the first to use these will be Network Rail in upcoming enhancements and major renewals projects, as part of its £47bn, five-year investment programme for Control Period 6.

The new contracts are more concise, easier to read and follow a more logical sequence. They now include early warning measures and encourage mutual trust and cooperation within the legal text. In addition, the contracts have been future-proofed, accommodating issues such as BIM in a flexible way which will ensure the contract remains relevant no matter the

level of BIM maturity. The target cost contract comes with an accompanying set of guidance notes with worked examples.

The new versions will feel familiar to existing ICC users who will be pleased to know that the core clauses remain unchanged from the with quantities version published in 2014, and it still provides the flexibility to deal with a number of different situations. ICC contracts are a cost-effective way to create a professional and flexible environment for those working to deliver infrastructure projects.

Stephen Blakey, commercial projects director at Network Rail, said: "Following the successful co-operation between our organisations, we're delighted that these new contracts have been released as they will build an even stronger environment of consistency and trust with our suppliers. These new standard forms will

be simpler to use and manage, which will be welcome news to commercial practitioners and stakeholders across the supply chain."

Commenting on the new contracts, former chief executive of ACE, Nelson Ogunshakin, said: "Our continued support and development of the ICC contracts, as well as *ACE Agreements*, demonstrates our commitment to helping the industry work better and more effectively. Our contracts are a cost-effective way for contractors, consultants and engineers to mitigate risk, create trust and confidence, and to ensure they are as prepared as they can be to deliver major projects with certainty."

The new ICC target costs (£33) and design and construct (£22) contracts are available to purchase now. The guidance notes produced to accompany the target costs contract cost £22.

Visit www.acenet.co.uk to buy now.



The industry needs to be global in its outlook

In his final column as chief executive of the Association for Consultancy and Engineering, *Nelson Ogunshakin* looks back on his tenure and forward to an even more global and connected industry.

When I joined ACE the industry was litigious. The high cost of professional indemnity insurance combined with thin profit margins was the bane of the engineering and consultancy sector and collaboration was rare. The idea that public advocacy, diversity and bridging the skills gap were vital to businesses operations, was only recognised by the most forward thinking in the sector. However, ACE played a major role in effecting positive changes on all of these issues.

We successfully engaged with four prime ministers and their governments, securing a cost-effective risk management policy, hosted the FIDIC global infrastructure conference in London in 2009, celebrated ACE's centenary, co-chaired the National Infrastructure Plan Strategic Engagement Forum (NIPSEF) with Danny Alexander (then chief secretary to the Treasury), proactively promoted diversity and inclusion across our sector and helped achieve a true recognition of our members' work and value with politicians and the wider public. All huge personal highlights for me - and why organisations like ACE exist for its members.

Perhaps most importantly, society now better understands the need for investment. This hasn't always been the case - decisions on Crossrail and the expansion of Heathrow took decades - but there is now a consensus across all political parties and the devolved nations that increased infrastructure

investment is vital for the UK's economic prospects. Given the backdrop of austerity Britain, this is a remarkable ongoing achievement.

The social value of infrastructure is also better understood too. Our industry had a major role to play in delivering the feel-good London Olympics in 2012 and Crossrail, despite its recent delay, will deliver a revolution in the capital's transport, relieving congestion and making it easier for tourists, businesses and Londoners to navigate the city, while opening-up new opportunities for families to get on the housing ladder. The future for large-scale projects remains bright but we need to continue to make the case for investment - especially outside of the capital.

Despite infrastructure's role being better understood in the UK, it is on a global level where I think there is the most risk. International trade wars fuelled by a rise in protectionism and a rejection of globalisation will make it more difficult to plan and influence the economic environment and find new opportunities abroad. These are all topics which will be at the fore at FIDIC's conference in Berlin in September and will be discussed at ACE's CEO conference in November.

To my mind it is clear that we need to reject this emerging economic philosophy. Notwithstanding concerns around Brexit, the economy has thrived by being well-connected and our industry has grown because the UK is "open for business". We have helped to plug our skills gap thanks to

overseas expertise and a brief perusal of Infrastructure Intelligence shows that our members are now vital to delivering major projects all around the world.

I believe that as better connections have resulted in increased opportunities for people in the UK, a better-connected global industry will do the same for ACE members. FIDIC has a vital role to play in fostering this environment and I look forward to continuing to engage with ACE members over the coming years as vice chair of its advisory board on these issues.

Finally, I would like to take this opportunity to thank ACE members and key industry stakeholders with whom I have worked with over the years. I also wish to express my sincere gratitude to the board and advisory board members for giving up their time for the good of the sector and all the ACE staff who I worked with over the years who delivered for the industry and its members.

I am certain that ACE will continue to have a bright future under Hannah Vickers and that it will continue to confidently make the case for infrastructure and be even better prepared for the challenges which lie ahead.

Dr Nelson Ogunshakin OBE was the chief executive of the Association for Consultancy and Engineering until September 2018 and is now chief executive of FIDIC, the International Federation of Consulting Engineers.



Where's the plan to win the war on plastic?



The war on plastic may be hitting the headlines, but *Matthew Farrow* is concerned that while there is a vision, there isn't yet a worked-out plan.



A visceral dislike of plastic long preceded Messrs Gove and Attenborough. Around 40 years ago, the American novelist Norman Mailer, my favourite writer, was railing "I sometimes think there is a malign force loose in the universe that is the social equivalent of cancer, and it's plastic. It infiltrates everything. It's metastasis. It gets into every single pore of productive life. I mean there won't be anything that isn't made of plastic before long. They'll be paving the roads with plastic before they're done".

While this might be too strong even for Michael Gove, the alignment of senior politicians with the anti-plastics agenda is a new development. My understanding is that the original drafts of the *25 Year Environment Plan* had modest content on tackling waste plastic, but Michael Gove and his advisers shrewdly recognised that this was the issue that - post *Blue Planet* - would resonate most with the public. The result was some bold pledges - banning microbeads, setting a target date for eliminating plastic waste - and as the bandwagon began to pick up speed, some very public pledges by major corporates about their intentions to reduce plastic use. Within a few months plastic straws everywhere were either replaced by paper ones or became the sort of under the counter contraband you had to sheepishly ask for in cafes.

Don't get me wrong, I'm as much in favour of reducing plastic waste as anyone. Given plastic is not easy to recycle economically,

much of it ends up in landfill, where as we all know it will sit for hundreds of years, or it is sent to energy from waste plants where in carbon terms it is the equivalent of burning oil. But my concern is that while we have a vision, we don't yet have a plan.

The *25 Year Environment Plan* rightly emphasises the need to avoid a world where another 26bn tonnes of plastic is produced by 2050. It outlines a mix of clearly sensible but somewhat vague intentions like "increasing research funding into alternatives to plastic" and "working with retailers to rationalise packaging formats" and some eye-catching specifics such as plastic free super market aisles and refill points for water bottles. All well and good, but as ministers seek to steer the anti-plastic bandwagon along its path, we need to think about the twists and turns in the road ahead.

What do we mean by ending all 'avoidable' plastic waste by 2042. Footnote 25 of the *25 Year Plan* says: "Avoidable means what is technically, environmentally and economically practicable". This phrase has been somewhat oddly copied and pasted from the separate collection provisions of the Waste Framework Directive where it is used in a different context (and is worded so ambiguously that it sparked a judicial review in 2013 over what it actually meant). Sooner or later we will need to decide on the scale of ambition in avoiding plastic waste and we will

need more than this phrase.

Speaking of ambition, are we talking about reducing the flow of waste plastics into the environment, or are we thinking of trying to actually retrieve what has already been put there. Is it possible to extract microplastics from water for example? Increasing the volume of plastic recycling is also a challenge. The technical issues can be solved through innovation and regulation, but the economics are harder. If oil is cheap, then virgin plastic may be as cheap or cheaper than recycled plastic, so the market economics then need subsidy or some hard regulation to make viable. Do ministers have the stomach for going down this path?

It's always exciting when public opinion is aroused over an issue that has been troubling the environmental community for many years and politicians suddenly have the latitude to announce policies that would have been politically difficult only a couple of years ago. However, without a well thought through analysis of the issues and a clear roadmap to the vision, there is a risk that in a few years' time, when public concern has moved on to other things, paper straws in cafes will be the reminder of the plastic wars.

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



“I want to be a role model”



AECOM apprentice Charlotte Jones won big at this year's Consultancy and Engineering Awards, scooping two awards, including the prestigious Diamond Award. *James Ketchell* caught up with her recently for a chat.

Charlotte Jones was the star of this year's Consultancy and Engineering Awards, not only winning Apprentice of the Year, but also the best-of-the-best prize, the Diamond Award. An apprentice in transportation at AECOM in Birmingham, the judges were hugely impressed with her application.

In their words she was, “A classic example of the benefits of apprenticeships in the sector and an impressive individual who will inspire others through her actions and achievements.” The judges said that Charlotte's story of overcoming adversity was one that many can relate to and especially relevant in this, the Year of Engineering. “We need more Charlottes,” the judges proclaimed.

Jones began to think of a career in civil engineering following setbacks in the traditional education system. “I didn't do well at A-levels and only left school with GCSEs, but I had a great time doing work experience for a contractor and they helped me apply for an apprenticeship scheme in civil engineering,” Jones explains. “I've now been at AECOM for four years and I'm

currently studying for a degree as well as continuing my on-the-job learning,” she tells me.

At AECOM she's been able to work on a diverse range of projects. “I'm doing micro-simulation modelling and traffic signal design, as well as option-testing for junctions,” she says. “I've also worked with Birmingham council on parking studies, the Birmingham cycle Revolution and I'm currently working on Sprint, a priority bus lane project. I love seeing projects I've worked on completed. It's all really exciting stuff!” says Jones.

Part of her role involves her spending time at STEM fairs and visiting local schools where she is the living proof that apprenticeships work and should be considered as viable career options. “Apprentices are definitely the way forward,” Jones says. “I'm young, earning my money and I still know so much more than anyone else coming into the industry after university. Now I'm studying for a degree part time as well. We need to break the stereotype that it's all about poorly paid roles and slave labour,” she says.

Visiting schools has reinforced her belief that the industry needs to do better in getting the message across. “There's not enough knowledge about engineering generally,” says Jones. “Civil engineering itself is huge with hundreds of sub-sectors. There's no understanding at schools of the kinds of jobs available, nor that you don't need to be academically gifted to start a career in the industry,” she says.

When I ask her whether this also partly explains why there are so few women in the industry, she agrees. “I think the lack of understanding of the kinds of careers can put some women



off, but we need to profile women who are relatable, real women at engineer/graduate levels that can be profiled to show that anyone can make it,” says Jones.

I put it to her that she could be that inspiration to others. “I want to be a role model! I love my job and would love to help other women into the sector. I want others to go and win awards, the feeling of being recognised for your day-to-day work is really rewarding,” she says.

Wrapping up our conversation I ask how she felt winning the awards. “I was very shocked and was very honoured to receive it,” says Jones. “It wasn't until the next day that it all sank in and I realised what a big deal it was! When I came back to work there were balloons and flowers at my desk. People I don't know had seen my picture online at *Infrastructure Intelligence* and were congratulating me in the office.

“It was surreal but a lovely feeling. My line manager was there with me on the night and was over the moon about it all, which was nice too. It was great to share the evening with her and other colleagues from AECOM who have been so supportive,” says Jones.

An inspirational individual, I'm sure we will be hearing a lot more about Charlotte Jones in the future.

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Charlotte Jones, AECOM



After a period of knockbacks from central government for new infrastructure projects, *Ryan Tute* looks at what the future holds for Wales and whether policymakers in Cardiff feel let down.

Whitehall short-sightedness is damaging Wales, says minister



Ken Skates, Welsh government economy & transport secretary



In the space of a year, Wales has spoken of “crushing blows” handed down by the UK government to Welsh communities after feeling the brunt of ministerial rejections to major infrastructure projects regarded as transformational for the country.

Politicians in Cardiff believe Westminster has let not one but two opportunities “slip through their fingers” after scrapping plans to electrify the rail line between Cardiff and Swansea in July 2017 and then rejecting a plan for a £1.3bn tidal lagoon in Swansea at the end of June.

In the case of rail electrification, the coalition government promised in 2012 to modernise UK railways and make the network faster and greener by electrifying lines in three regions of the UK. Despite the pledge, transport secretary Chris Grayling in April this year told MPs spending hundreds of millions of pounds on the project was not “a sensible thing to do”.

The plug was pulled on the Swansea tidal bay lagoon this summer after ministers claimed it was too expensive compared with alternatives such as offshore windfarms and nuclear power. The decision was made despite the Welsh government offering a £200m equity

stake or loan to make the project viable and an independent government review strongly supporting the scheme 18 months prior.

Ministers who have been behind decisions to axe schemes have faced a backlash in the immediate aftermath, with both long-awaited plans being ditched largely down to financial reasons. Speaking to *Infrastructure Intelligence*, the Welsh government’s economy and transport secretary Ken Skates has lambasted the UK government’s “short-sightedness and complete lack of ambition” in thwarting projects.

He added: “We recognised the transformational potential of projects like the Swansea Bay tidal lagoon project and were committed to doing all we could to make it a reality. The money will remain in our reserves and be used for other purposes. We have been clear we do not have the powers or the resources to enable this project to proceed without the UK government supporting it. Its failure lies squarely at their door.”

The sense from those across the Severn Bridge is that they have been underfunded and forgotten. Data shows that over recent years, the country receives just over 1% of the money the UK has invested in rail enhancements

across England and Wales.

Skates is on record urging those in Whitehall to develop a new way of funding infrastructure across the UK, one which ensures a more even spread of opportunity and investment.

However, the Welsh government is keen to show it’s not resting on its laurels in developing infrastructure links. Recently, it has established the National Infrastructure Commission for Wales (NICfW), acting initially as an independent, non-statutory, advisory body to ministers. Its key purpose will be to analyse, advise and make recommendations on Wales’s longer term strategic economic and environmental infrastructure needs over a five-30-year period.

In July, John Lloyd Jones was appointed as the chair of NICfW for one year with plans in place to appoint up to a further 11 commissioners before the autumn. The commission will be strategic and forward-thinking in nature and have the unique opportunity to shape future infrastructure networks by making recommendations and holding the government to account.

But looking to the future, energy and integrated transport are the two areas of focus for the government. Policymakers in Wales want to reduce carbon emissions and increasing energy from sources like renewables will help to ensure the security and sustainability of our energy supplies for generations to come.

Welsh assembly minister Skates said: “Improved connectivity and integration of transport infrastructure is key to taking Wales forward as a place to do business, visit and live. The South Wales Metro is forging ahead and will transform our capital region, with lessons learnt being applied to shape thinking in north Wales and Swansea. We will also be working with stakeholders in Wales this year in a shared conversation about how we ensure energy infrastructure is fit for the low carbon transition in Wales.”

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