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I INFRASTRUCTURE Intelligence

Produced for the industry by the Association for Consultancy and Engineering





INFRASTRUCTURE Intelligence

Produced for the industry by the Association
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MESSAGE FROM THE EDITOR

The phrase, "May you live in interesting times" is often thought of as a curse. However it has also referred to periods of history when great achievements and advances were made. So we can take the glass half empty or the glass half full approach to the outcome of the recent general election and the political and business uncertainty that has ensued. Let's be positive though and look forward to the delivery of that infrastructure pipeline the country so badly needs.

Being positive means continuing to champion our industry in the corridors of power. Despite and maybe because of the current political uncertainty and the challenges of the parliamentary arithmetic, we have a great opportunity to make the case for infrastructure. We should grasp it with both hands and ensure that MPs and ministers hear our message loud and clear.

The dreadful Grenfell Tower fire has cast a shadow over the construction industry. Many people have died and without in any way prejudicing the ongoing public inquiry, it's likely that the construction industry can expect that a very strong light will be shone on its working practices, procurement processes and how costs are allocated in a sector where 'value engineering' is often the norm. We take a look at some of those issues on page nine and will return to them in future issues and on our website.

Elsewhere in this issue, we take a look at diversity in the industry and how we can close the gender gap (p7), we look at the latest from the Northern Powerhouse (p5 and p18) and also examine the latest roads developments with a feature on Highways England (p10-11) and the government's new transport strategy (p28-29).

We've also got a very interesting account of our latest roundtable event with BST Global (p14-15) where industry leaders gathered at The Shard in London recently to discuss the challenge of digital technology, how best to adopt it and the effect technology was already having on businesses and the people who work in them.

We reveal the winners of the Consultancy and Engineering Awards in a special feature (p21-27) and there's much more, including news of a new infrastructure delivery report that shows that we certainly are "living in interesting times".

Enjoy the read and please keep sending us your feedback.



Andy Walker,
editor, Infrastructure Intelligence

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Government urged to get back to work on infrastructure



National Infrastructure Commission chair, Lord Adonis, has teamed up with business leaders to press the government on the urgency of key infrastructure projects, publishing a list of 12 top priorities, writes Jon Masters.

The unexpected general election result may have increased political and business uncertainty in the UK, but those working in the construction industry will need to keep a calm and cool head in the months ahead and refocus with even greater determination on the delivery of the current infrastructure investment pipeline.

To press the industry's case, National Infrastructure Commission (NIC) chair Andrew Adonis has teamed up with business leaders to lobby the government on the urgency of key infrastructure projects and has published a list of 12 top priorities. "Brexit and the hung parliament must not lead to dither and delay on the key infrastructure challenges facing the country," said Adonis. "We need to press on with decisions on Heathrow, HS2, new electricity generating capacity, and radical improvements to digital communications, to underpin jobs and economic growth," he said.

As well as HS2, HS3 and Crossrail 2, the NIC's top 12 list of the UK's most pressing infrastructure schemes features projects such as eastern crossings of the River Thames, more flexible power systems, renewable energy, decarbonisation, Hinkley Point C, broadband, 5G and flood defence, amongst others.

Adonis sees rapid progress in the next year on these top 12 major projects and priorities as an acid test of the government's commitment to the 'jobs-first Brexit' which the chancellor, Philip Hammond, has argued for. "All of these projects and priorities have been agreed in principle, but require decisive action to get them moving in the new Parliament. They ought to be at the top of ministers' in-trays, and they ought not to linger there a day more than necessary," said Adonis.

The list of priorities has the backing of the Confederation of British Industry, the British Chambers of Commerce and the Federation of Small Businesses. In a statement released with the priority list, Adonis said: "Britain's historic weakness has been to underinvest in infrastructure, and to adopt a stop-go approach even where decisions are taken in principle.

"Nothing symbolises this more than the long-running saga of Heathrow airport. A third runway was agreed in principle 14 years ago but there has still not been a firm decision to proceed. There's no point saying Britain is open to the world if business cannot get in because Heathrow is full."

Adonis's comments were welcomed by Robbie Owen, head of infrastructure planning and government affairs at Pinsent Masons. "This shows how helpful the NIC is



"There's no point saying Britain is open to the world if business cannot get in because Heathrow is full."

Lord Andrew Adonis, NIC chair

going to be, particularly at a time when we have a minority government with many other priorities and distractions," he said. "What Lord Adonis said is really helpful and provides a much-needed voice from a very senior and experienced person to keep these projects on track at a time when there is a considerable political vacuum. A lot of the projects in the list of 12 have already got government support, but they need continued pushes to get them over the line," Owen said.

ACE chief executive Nelson Ogunshakin said: "While the industry would have preferred to see more detail, such as Heathrow runway expansion and Crossrail 2, in the recent Queen's speech, we need to stay calm and continue to strongly press the case for infrastructure delivery. Now more than ever we can see the importance of collective actions and working within our membership associations to articulate and fight for the issues that mean so much for our companies, industry and the country.

"Regardless of the current political uncertainty and the challenges of the parliamentary arithmetic, ACE will continue to champion our industry in the corridors of power and ensure that the UK remains an attractive destination for foreign direct investors."

The top 12 priorities for government action

1. Heathrow Airport (right)
2. High Speed 2
3. High Speed 3 (linking northern cities from Liverpool to Newcastle and Hull)
4. Crossrail 2
5. Eastern crossings of the River Thames
6. Flexible power systems
7. Renewable energy
8. Decarbonisation of energy



9. Hinkley Point C
10. Broadband and mobile
11. 5G mobile
12. Water and flood defence infrastructure



Hinkley Point C costs rise by £1.5bn

The expected out-turn cost for the Hinkley Point C nuclear new-build project in Somerset has been revised upwards by £1.5bn, with warning of a risk of a further £0.7bn to come. A statement released by EDF Energy puts the latest out-turn estimate at £19.6bn after a review of the project's costs and delivery timetable since the company's final investment decision was made in September last year.

According to EDF, the increase in the overall cost estimate has come from a greater understanding of additional work needed to adapt the project's design to requirements of Britain's Office of Nuclear Regulation, plus greater detailed knowledge of the quantity of work and

time and costs of implementing the construction contracts.

The project remains on schedule to hit its next big milestone, of having the first concrete poured for the first reactor building by mid-2019, the company said, but this is reliant on having the final design completed before the end of 2018. This is running on a tight schedule and EDF is warning of a risk of deferral of delivery for the first reactor building of 15 months. If this happens a further £700m cost increase is likely.

EDF's latest cost assessment came just a week after the National Audit Office (NAO) concluded that Hinkley Point C has "locked consumers into a risky and expensive project with uncertain strategic and

economic benefits". The NAO report into the project's development said government's economic case for the project has weakened since key commercial terms were agreed in 2013. Delays have helped to make the taxpayers' liabilities as high as £30bn over the course of the 30-year deal, compared to £6bn as originally expected. Government has been tied in, unable to take an alternative course since the terms of the deal were agreed, the NAO says.

However, it also points out that it is EDF's subsidiary for building Hinkley Point C, NNB Generation, that has taken on the risks associated with the costs of construction. According to EDF, NNB will study and implement the recommendations of its project review.

Energy industry doubts UK will hit emissions targets

Current government energy policies are damaging the UK's chances of hitting vital targets for reducing carbon emissions. So say 80% of industry professionals interviewed by the Energy Institute (EI).

The EI's 2017 Energy Barometer report reveals that eight out of 10 of EI members surveyed believe the UK is on course to miss the crucial aim of the fifth carbon budget, which requires emissions to be cut by 57% from 1990 levels by 2030. This points to the need for the government's Clean Growth Plan to present new policy measures and greater confidence, the EI says.

The Clean Growth Plan is the long-awaited government strategy for meeting the UK's carbon reduction targets. In April this year, the former climate change minister Nick Hurd told a Business, Energy and Industrial Strategy select committee hearing that the plan had been put into a "holding pattern" by the snap general election. Hurd said coordinating the plan across multiple government departments was proving to be a "fantastically complex and challenging process".

EngineeringUK names new chief executive

EngineeringUK has announced the appointment of Mark Titterington as its new chief executive. Titterington, who will join the organisation in October, has a background in government relations and corporate communications and will join EngineeringUK after more than a decade at Syngenta, one of the world's leading plant science and agriculture technology companies, where he is currently the global head of corporate affairs and a member of the executive team.

Commenting on Titterington's appointment, EngineeringUK chair Malcolm Brinded said: "Mark's business leadership experience and wide communications and policy background, together with the new

perspective he brings, mean he is well placed to build on the achievements of Paul Jackson and the team and to work with the engineering community to deliver our collective ambition to inspire tomorrow's engineers. I very much look forward to working with him."

Speaking after his appointment was announced, Titterington said: "EngineeringUK is playing a critical role in inspiring the next generation to pursue careers in engineering, which is so important for the development and prosperity of our country. I am absolutely delighted to have been given the opportunity to join the team and lead the organisation in its next phase of development".



Mark Titterington: new boss.

Mayor calls for revolution in technical education

Greater Manchester mayor Andy Burnham says technical education has been seen as a second class option for too long and it is time to give it true parity with academic study, writes *Andy Walker*.

Greater Manchester elected mayor Andy Burnham says he wants to end the “stigma linked to the class system” around technical education.

Burnham, who has just been named in the number one spot in the *North West Business Insider* Power List rankings, said that the region should turn its back on a “class-system bias” which he blames for university qualifications being prized over apprenticeships and work experience.

During his mayoral campaign he pledged to implement a new drive to raise the status of technical education. “When traditional industry left in the 80s and 90s, so did the quality trainee schemes that had provided a ladder for working-class young people,” said Burnham. “But, sadly, the English education system did not respond to this seismic change. Instead, for decades, national education policy obsessed on the university route and left young people wanting technical skills feeling distinctly second-class,” he said.

Burnham said that Germany proved that a modern economy could not be built by side-lining technical skills and that his goal was to provide the same clarity for young people who want technical qualifications as those on the university route by establishing “a UCAS-style system for apprenticeships across Greater Manchester”.

“Governments of all colours failed to give priority to technical education,” said Burnham. “There is a stigma linked to the class system. It’s ingrained to think of

apprenticeships as a second-class option, because the decision-makers all went to university. We should be following the German model, with academic and technical education valued equally. Through devolution we have to take the opportunity to do things for ourselves. It’s about true parity between academic and technical to give hope to all students,” he said.

Burnham said that the apprenticeship levy, launched in April, was a “good start but not the only show in town” and he’d like to see it broadened into a skills levy for people who want to retrain.

The Greater Manchester mayor has long advocated for raising the profile and status of technical education. When he stood for the Labour leadership in 2015 he said then that governments of all parties had ignored the 50% of school leavers that do not go to university. He believes that there needs to be a “revolution in technical education” that includes the extension of financial support.

Burnham’s said his ambition was to create a system where young people to be able to find out and apply for apprenticeships in exactly the same way as people apply for university. “My ambition is for a UCAS-style system for apprenticeships, raising sights, rewarding those who work hardest, giving all children hope and a goal in life,” he said. He is pressing the government to pilot the idea first in Greater Manchester and provide partnership funding.

It’s clear that Burnham sees devolved



Greater Manchester mayor Andy Burnham speaking at the recent Northern Transport Summit.

government as an opportunity to implement his plans and he is keen to work with businesses and the education sector to make them a reality. “With the challenge of Brexit, we can’t afford to wait for Westminster to deliver for us,” he said. “We may end up waiting for ever. That is why we need to seize our destiny in our own hands and develop a shared 20-year plan for the re-industrialisation of Greater Manchester.”

Speaking at a recent apprenticeships conference in Manchester Burnham pledged to oversee the development of an enhanced UCAS-style application system. The system will guarantee to only offer quality apprenticeship and traineeship opportunities, alongside other high quality training and skills development.

Firms in the construction and infrastructure sector will welcome the new mayor’s focus on technical skills and also his recent pledges on transport priorities for Greater Manchester including devolution of railway stations, plans to improve cycling infrastructure, making rail more attractive to passengers and the launch of smart ticketing.

Speaking at the Northern Transport Summit in June, Burnham called on the government to commit to Northern Powerhouse Rail (HS3), which would link the cities of the north, calling it a “game changer” for the region. He also said that the government should integrate the plans with proposals to bring HS2 to the region.

Burnham said that transport in the north was at capacity following years of under-investment, and transport infrastructure projects would be the catalyst for bringing the Northern Powerhouse “back to life”.



Burnham has called for “a UCAS-style system for apprenticeships across Greater Manchester”.

Is the industry Brexit ready?



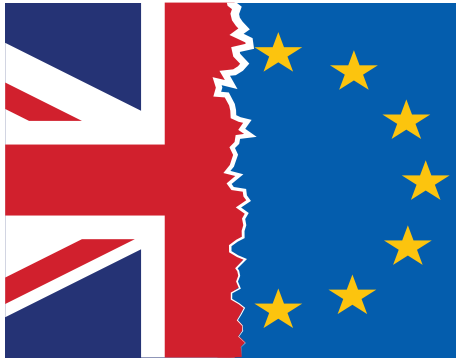
Brexit is happening and businesses need to get used to it fast and take the necessary steps to ensure that they are prepared for a new political and commercial reality, says *Nelson Ogunshakin*.

As the clocks continue to count down on the time the UK has left in the EU, business leaders in all industries must look to the future and be prepared. There can no longer be a debate about whether Brexit should or should not happen. It is happening and the concern of all businesses must be making themselves 'Brexit ready'.

Historically, as an industry we have depended on Europe. With the uncertainty of what it means to leave, those of us representing the industry have been vying for government consideration and action. Action to ensure that initiatives are put in place now for future commercial viability of those UK firms working in infrastructure.

We have not, as a country, proactively played to our strength in leveraging up to offer our collective capability in planning, development, financing, execution and operation of major infrastructure services to other countries.

Successfully we have delivered major iconic projects such as London 2012, Crossrail, Heathrow T5, The Shard, major hospitals, education facilities and more, to the envy of the world. However, we have



No longer a debate – it is happening.

historically failed to leverage on such success.

The UK infrastructure sector has always been at the vanguard of progressive change on planning, financing, procurement, operations and maintenance of major infrastructure investment assets. The combination of Crossrail with London

“All firms must engage now to change the dynamics of our industry to best achieve success in 2019 and beyond.”

Underground operational capabilities is a classic model that could be exported to a number of emerging countries. Such a holistic infrastructure investment delivery solution approach could enhance economic transformation and be a game changer for the recipient country.

This July the government launched an initiative called Infrastructure Exports: UK (IE:UK), a collaboration with 17 leading UK firms to help UK companies to secure major international contracts. Through initiatives like this, we as an industry must shape a vehicle through which we are able to promote our services around the world.

Such efforts must be supported by the industry and all firms must engage now to change the dynamics of our industry to best achieve success in 2019 and beyond.

Having worked historically with UKTI to improve industry input into government initiatives and continued with the Trade Challenge partnership with the Department for International Trade, ACE will continue to work to ensure the voice of the industry is heard.

It will take more support and action such as this from government, as well as true engagement of businesses now, to ensure that by 2019 our industry has a commercially viable future post-Brexit.

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

Using procurement policy to improve diversity

Inclusion and diversity are currently the unicorns of the engineering industry, sometimes glimpsed but hard to grasp and keep.

Yet, we are highly aware that diversity and inclusion could alleviate many of the skills challenges facing the industry, as well as improve innovation. For an industry struggling to achieve improved diversity and inclusion, procurement may provide a catalyst to change, making tangible action a priority for companies wishing to be on the supply chain.

The current landscape of inclusivity in procurement comes from regulatory frameworks driven forward by the EU, making this an ideal time for the UK to

further develop its own regulatory frameworks for diversity and inclusion in procurement.

In the last seven years the UK has adopted a more inclusive approach to procurement supply chains, through three key pieces of legislation – SME Agenda (2011), Equality Act (2010), and the Public Services (Social Value) Act (2012).

Unfortunately, these three policies are limited in scope as well as sector reach, making this a still vastly unexplored area of fostering diversity and inclusion in the UK.

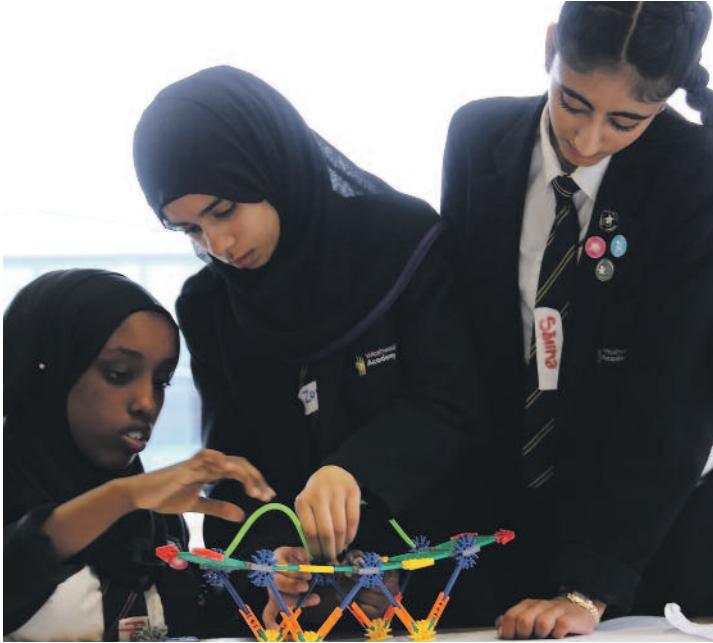
Within the procurement supply chain, diversity and inclusion can have

various meanings including the size of companies in the supply chain, the staff makeup of the company, as well as corporate responsibility efforts such as sustainability or public outreach.

Aside from threshold statistics, all aspects of diversity and inclusion are difficult to document or quantify. This means that their incorporation into the procurement process requires careful consideration to avoid inappropriate elimination of those companies attempting to join the supply chain.

The reality of using procurement in this way are currently being explored by the diversity and inclusion leadership group at the Royal Academy of Engineering, with the hope that within the next year clients as well as the supply chain will be able to leverage procurement to ensure diversity is properly addressed industry wide.

By Natasha Levanti



Lack of diversity in the industry is a serious problem, yet gender-diverse companies are 15% more likely to outperform less diverse firms.

Are we ever going to fix the gender gap?

Increasing the number of women in the industry means challenging outdated myths and misconceptions about what modern engineering actually involves, says *Nicola Hindle*.



A statistic that you saw a lot of during the recent International Women in Engineering Day is that women make up just 9% of the UK's engineering workforce. And, sadly, we're trailing behind our European cousins when it comes to attracting women into the industry.

It's a dim picture. But it's not one that is wholly confined to the engineering sector – although I recognise the industry is one of the worst offenders. Shockingly, in the UK, more men named John run FTSE 100 companies than women.

So, what's the problem? I could spend an age debating the cause of the gender gap in engineering. Is it schools? Is it parents? Is it the industry itself? In all honesty, I don't think it's any one thing, but rather a combination of everything wrapped up in outdated myths and misconceptions about what modern engineering actually involves.

What is crystal clear is that we need to be actively addressing the issue because a

lack of diversity in business is a serious problem. McKinsey's *Diversity Matters* report says "We know intuitively that diversity matters". It's also increasingly clear that it makes sense in purely business terms, showing that gender-diverse companies are 15% more likely to outperform their less diverse counterparts. And research from the Royal Academy of Engineering and Engineering and Physical Sciences Research Council suggests that nearly 65% of engineering employers say a



"We have made a commitment that, by 2020, over 30% of our engineers will be women."

Nicola Hindle, Amey

shortage of engineers in the UK is a threat to their business.

As a large business, we need to be challenging this issue. We need to use our reputation as a leading engineering firm to help change the perception of the sectors we work in.

So why haven't we fixed it already? Both intuition and qualitative data shows that gender diversity – and any other kind of diversity for that matter – is good for business. So why, when women have been working in engineering for over 100 years, are we still trying to fix the gender gap?

Again, I don't think there's any one answer to this question. But I do know what I'm doing to help, and what Amey, as a business, is doing to help. And that's why campaigns like International Women in Engineering Day are so important – and we're proud to support. Because by working together, by shining a light on all the problems we know exist and by refusing to stand idly by and hoping this issue will fix itself, we're helping to close the gap, for good.

To mark this year's International Women in Engineering Day, we have made a commitment to ourselves and to the wider industry that, by 2020, over 30% of our engineers will be women. And we've got an aggressive plan of engagement and investment to help us achieve this goal in just three years.

Once we reach this, we'll set another milestone and another if we need to. We're not going to quit until our business truly represents the diversity of the communities we work in.

Nicola Hindle is managing director for consulting and rail at Amey.



The Infrastructure Industry Innovation Platform (i3P) is an innovative new platform that allows the brightest minds in infrastructure to collaborate to deliver infrastructure for the future. *Natasha Levanti* reports.

As newfound sciences and innovations abound, the imagination is the limit to what is probable, with funding as the limit to what can become both possible as well as certain. The greatest human advancements may have been inspired by one person, but progress only really begins to accelerate when bright people unite for a common goal.

There is a choice for all those working within our industry – to make the most of innovations and remain competitive globally, or to approach projects in the same way they have always been done and become obsolete in the marketplace.

Innovation is the lifeblood of our industry's success and the reason why we are trusted with the very landscape of our society and our world. The demand on our infrastructure is clear; to continue to meet the needs of society, as those needs evolve at a faster rate than ever before.

This can only be done by fostering innovation to glean what is probable, maintaining a research and development programme sufficient to turn probable into possible, as well as a willingness to utilise these newfound innovations in real projects.

This is how our industry evolves, by new innovations gaining enough backing that they turn into reality, de-risking these innovations for use in future infrastructure.

Knowledge Transfer Network (KTN), a network partner of Innovate UK, specialises in connecting funding to new innovations, helping de-risk innovation by ensuring that cost does not prohibit the much needed innovations that will strengthen the UK economy.

Operating across a variety of sectors it is within KTN that the Infrastructure Industry Innovation Platform (i3P) was developed in 2016. Confronting the perception that infrastructure is not sufficiently collaborative and that project-specific creativity gets lost, i3P is intended to transform ideas into opportunity as well as ensure that lessons or innovations from a single project are fed back into the industry, fostering progress and increasing the value of infrastructure more widely.

Composed of seven clients and 14 tier one contractors or consultants, the group aims to showcase and capitalise on innovations from throughout the supply chain. The aim is to make procurement easier by de-risking the selection of innovative practises through this neutral broker, facilitating collective knowledge.

Pushing the industry forward, one innovation at a time



Still under development, the i3P initiative will have a public list of innovations, relevant news items, and member meetings to share further practical experiences. Intended as a trusted collaborative space, i3P aims to improve the global competitiveness of UK, ensuring that UK industry offers innovative solutions to infrastructure needs worldwide.

By fostering a truly collaborative culture of innovation across both infrastructure clients and their supply chains, i3P is creating a 'safe space' to identify areas for potential industry improvement, share ideas, and enable members to partner in projects that drive increased value across the infrastructure industry.



The i3P forum is run by a chair and senior representation from member organisations.

As our industry faces more and more challenges ahead, capitalising on innovation and de-risking the use of such innovation in infrastructure will be vital for the future. While select individual companies foster innovation as well as research and development within their service offerings, progress can be halted at the limitations of what one company alone can do.

An online innovation portal, hosted on the i3P website is accessible by the staff of all member organisations and facilitates the sharing of innovation. The portal enables members to upload and download content, provides a trusted collaborative space and a 'toolkit' and connects members from different organisations to share expertise and ideas. The innovation portal will be interfaced into the individual innovation management systems owned and governed by each client member.

Leveraging on the innovation knowledge throughout the supply chain, i3P can ensure that those working in the infrastructure supply chain offer services that are 'ground-breaking' on the domestic as well as the international stage.

Innovation will continue to be the lifeblood of our industry and it is through initiatives such as i3P that we can truly capitalise on this across the industry.

The Grenfell Tower fire has placed government, the building industry and the way it operates in the public spotlight like never before. Key questions need answering to ensure that such a disaster can never happen again. *Andy Walker* reports.

With the total number of those who perished in the Grenfell Tower inferno still unknown, a public inquiry has been announced and questions are rightly being asked about the government, local authorities, fire safety, building regulations and the way that the construction industry goes about its business.

Given that the spread of the fire is widely believed to have been due to the cladding used on the tower following its renovation in 2015, there are some critical questions for the industry and the inquiry to answer. Exactly what do the building regulations and guidance say about fire safety measures? Are the regulations too ambiguous or not clear? Is the cladding of the type used at Grenfell and other similar properties illegal or isn't it?

If the cladding is 'banned', how can so many local authorities and design and build refurbishment teams have got it so wrong so that more than 600+ buildings ended up being covered in similar cladding? Despite one government minister claiming that the cladding used at Grenfell was "banned", it beggars belief that the industry would regularly fit non-compliant cladding that has been deemed unfit for use in the UK.

Attention will inevitably focus on the building regulations and how these were applied and adhered to. The public inquiry should look at these issues in detail but the industry should expect that a very strong light will be shone on its working practices, procurement processes and how costs are allocated in a sector where 'value engineering' is often the norm.

The government is under the spotlight too. Fire safety experts had previously warned that a government delay in reviewing building regulations was endangering tower blocks throughout the UK. Following the fire at Lakanal House in South London in 2009, which claimed six lives, fire safety failings were uncovered in the resulting investigation. These failings included inadequate fire risk assessments and panels on the exterior walls not providing the required fire resistance.

Following the Lakanal fire, the then housing minister Gavin Barwell said last year that the government would review part B of the Building Regulations 2010, which relate to fire safety. That review has yet to happen.

Speaking to *Infrastructure Intelligence* on the morning after the fire, secretary of the All Party Parliamentary Fire Safety and Rescue Group, Ronnie King, said that

Industry and government in the dock after Grenfell



Grenfell Tower: before and after...

building regulations "haven't taken account of the Lakanal House fire inquest, or updated recent accredited research". King said that he and others had called for the regulations to be reviewed following the Lakanal fire as people's safety was being compromised.

King also said that new build structures above 30 metres would also require automatic fire sprinkler protection but that as Grenfell Tower was an older building he presumed that this would not have applied for the refurbishment. "I can't believe that this fire would have spread the way that it had if there had been water suppression," he said.

King, a former chief fire officer for 20 years with 40 years' experience in the fire and rescue service, said that the All Party Parliamentary Fire Safety and Rescue Group had failed to persuade successive government ministers, including the then housing minister Gavin Barwell, to review the building regulations because they could be endangering tower blocks

throughout the UK. There are still 4,000 tower blocks within the UK which have the same regulations applied to them. And following tests, more than 150 tower blocks have been found to be fitted with combustible cladding.

The government were warned, by King and other experts, but for whatever reasons their warnings went unheeded. "We made strong pleas to government get the regulations reviewed and said that there is going to be a tragedy and you will be held responsible," King told me.

King said that the review of the legislation being demanded would have covered all aspects of fire safety on tower blocks, including sprinklers, internal compartmentation and prevention of fire spreading up a building and penetrating buildings. "We said repeatedly that the regulations weren't good enough and needed to be addressed," said King.

Nobody listened to those warnings made years ago. They must be listened to now.



Highways England is now two years old and two years into delivery of the first five-year roads investment strategy.

Jon Masters reviews the progress.

Five million a day: HE spending in rude health

It's the end of June 2017, at the time of writing, and Highways England chief executive Jim O'Sullivan is reflecting on progress, two years in. That is, progression of the organisation as a whole, as well as delivery of the circa £12bn, five year Roads Investment Strategy (RIS).

Highways England (HE) is now two years old as a government-owned company, with a five-year regulated spending settlement and regime of key performance indicators. To that RIS total is added another £4.4bn for operating and maintaining the strategic road network from 2015/16 to 2019/20. The KPI targets the HE is working to include scores for safety and user satisfaction, among other things. So for a two-year status report, how's the HE doing?

"We're doing very well. The move from the regime of our predecessor the Highways Agency, a delivery arm of the Department for Transport, to being Highways England Ltd, has been a huge success. Our business case and economic case analysis are now seen as industry best practice. And our safety performance improvement has been dramatic," O'Sullivan says.

The reportable injury rate of the HE's

traffic officers has halved over the past two years. On its project sites, where around 22,000 people are working every day, a performance problem has been reversed, O'Sullivan says.

"Our contractors were telling us that their accident and injury rates were higher on HE sites than all of their other activities. Now they're reporting that safety performance in roads is better than other sectors." This has been achieved purely by becoming a more demanding client, he says.



"Our business case and economic case analysis are now seen as industry best practice. And our safety performance improvement has been dramatic."

Jim O'Sullivan, Highways England chief exec



The third area of safety, that of road users, is the more difficult to influence. On this, O'Sullivan claims HE to be making great improvements, but according to DfT's statistics, numbers killed or seriously injured on Britain's roads have remained largely unchanged, fluctuating marginally since 2011.

The HE faces a tough challenge to hit its target of cutting KSI figures by 40% by 2020, but, O'Sullivan says: "Our responsibility is just the motorway and major A-road networks. We were given an additional £220m to focus on congestion and safety hazards in the last government spending review. We reckon that by implementing simple changes – better signs and wider slip-roads etc – we can save 150 lives over three years."

On major road upgrade schemes, the HE has now completed 12. About 120 lane miles have been added through the Smart Motorway programme and another 20 projects are currently under construction. These include the largest yet, the £1.4bn A14 improvement in Cambridgeshire. "At some point over the summer of this year, our spending will begin to exceed over £1m a

All change for HE contract procurement

Jim O'Sullivan confirmed to *Infrastructure Intelligence* the HE's next intentions for contract procurement, including less secondary bidding for suppliers on regional framework deals.

The HE says it is moving away from a "one size fits all" approach. Previously all work of the Roads Investment Programme was let through the Collaborative Delivery Framework (CDF). To date £3.69bn of the £5m maximum

possible spend through the CDF is committed. By December 2018, a new arrangement will be needed.

Four 'routes to market', are being outlined: Contracts for the next tranche of the Smart Motorway programme will be let through alliancing arrangements from early 2018; conventional road and junction improvements – the Regional Investment Programme (RIP) – will be awarded in regional lots; 'complex infrastructure

projects' (A303 Stonehenge and Lower Thames Crossing) will be procured bespoke; and maintenance and minor capital works will go through HE's Asset Delivery Model.

The second route, for the RIP, is arguably most significant, if the HE really does start to award contracts directly to companies and joint ventures on regional frameworks, without secondary bidding.

"We recognise the need for procurement routes

appropriate for each particular part of the market; for bespoke contracts for complex projects for instance and we want to move away from the costly and stop-start nature of repetitive bidding," O'Sullivan says. "We've not worked out the detail yet, but we want to be rewarding suppliers on the basis of performance rather than just the value of their bids. There will still be some secondary bidding, but direct awards also, where companies do well."



The M1 Junction 19 Colthorpe Interchange – one of 12 major projects completed.

day on that project alone. More broadly, we'll be paying contractors and consultants about £5.5m every day," O'Sullivan says.

During the current financial year, the HE's annual spending will break through the £2bn mark. Progress with the investment plan has already started to ramp up.

"A lot is made of the number of project starts we have planned in 2019/20, but the biggest step-change in our spending actually comes sooner, from this year to next, from 2017/18 to 2018/19. We'll have a significant number of projects on site and a large quantity of lead-in work getting underway at the same time. We'll have 31 schemes going from options to development stages over the coming year. It's a major step-up in design work," he says.

The HE's list of major projects completed isn't exactly as planned. The A21 Tonbridge-Pembury improvement in Kent is running about six months late, while another, the A43 Abthorpe Junction, started early. Not everything is going to go to plan, but overall the HE is "more or less" on schedule. "We're managing all this as a portfolio," O'Sullivan says.

Progress has not been so good according



to the National Audit Office. In March this year an NAO report found that costs of the 112 projects of RIS were exceeding available funds by £841m. "The Department and Highways England need to agree a more realistic and affordable plan if they are to provide optimal value from the Road Investment Strategy," said the head of the NAO, Amyas Morse.

The NAO report pointed out that £652m of the funding gap was due to over-programming the RIS – done to ensure all of the available money could be spent if a number of schemes did not pass successfully through statutory procedures and approvals.

According to O'Sullivan, a lot of what the NAO called for has now been done. The funding gap has shrunk, he says: "When we started out, we had a funding pressure of £1.2bn. We've reviewed the programme, looked at changes to the scope and got the risk of overspend down to £717m, so we've solved about £500m of the problem.

"It's traditional and sensible to over-programme, which now amounts to about £500m, so at present we've got a circa £200m risk of overspend, which out of a programme of £12bn, is not too bad a position."

Projects planned and designed but not started by 2020 will go forward into the HE's second five-year investment period, O'Sullivan says. Progress with developing RIS2 is also coming along, he says. HE has published 18 route strategies and is currently collecting feedback from all stakeholders. A RIS2 strategic business plan is due next year ready for a start in April 2020.

"What's important here is that we want a real industry and public engagement process, beyond the normal consultation procedures," he adds. "We want everyone to tell us how we're doing, whether we're doing things right and what they want to see done next."

Lay-bys turning orange

Later this year, a number of emergency refuge areas (ERAs) on stretches of motorway are going to be painted orange. This will be to make them more obviously visible; the latest effort designed to ease concerns over the safety of the 'all-lane-running' (ALR) configuration of Smart Motorways.

The House of Commons' Transport Select Committee (and some emergency services and motoring organisations) remain steadfast in their view that ALR is more hazardous than previous Smart Motorway designs, despite Highways England's risk analysis.

Part of the problem is a perception that ERAs are too far apart, too short and present risks for vehicles pulling out of



them into live traffic. So, Highways England will be assessing the merits of making them more visible. According to Jim O'Sullivan, the HE has also been working on safe operations with vehicle recovery firms and writing to motorists that are spotted driving in lanes closed by Red X gantry signs.

This is another sticking point raised by the Select Committee. HE's analysis shows risk of collisions with stationary vehicles in live lanes has increased (but risks overall are reduced). Red X compliance is an important issue, but at present HE doesn't have data available to present to MPs. "This is something we're considering and working on," a spokesman says.



Paul Payne, managing director, construction and rail recruitment specialist, One Way

Construction skills challenge is a ticking time bomb

“It’s worrying that few organisations truly appreciate the extent of the skills shortages and the impact they could have a few years down the line.”

Skills shortages within construction and its associated industries have been endemic for some time now and, despite urging from leading employers, trade bodies and agencies like ourselves, they continue to get worse. And with new industry data suggesting that a hard Brexit could dump further problems on the industry, it appears that something needs to be done, and fast. But why are there skills shortages within construction and what can be done to stop them?

Construction has faced a lack of skills since the global recession when thousands of skilled professionals left the field in search of new work. Those individuals have never been properly replaced and, at the same time, the sector has faced challenges with an ageing workforce – approximately 19% of all professionals are aged 55 and over and can therefore be reasonably expected to retire in the next decade. However, worryingly, replacing those professionals approaching retirement isn’t even the biggest challenge we face.

Our departure from the EU has created headaches for many industries but perhaps the most severely impacted is construction. If we face a ‘hard’ Brexit then almost 200,000 construction professionals could be forced to leave the UK as a result of tighter immigration laws and a loss of freedom of movement. So, if the shortages are bad now, imagine what they’ll be like after we leave the European Union. And, as yet, no realistic solutions for how we replace these departing individuals have been proposed.

Some commentators put forward the idea of ‘brickie visas’ – a temporary measure which would allow some workers including joiners and bricklayers, for example, to remain in the country for three years following our departure from the EU – however this

was largely negatively received. Firstly, it only plasters over the issue and means we’ll simply face the same, if not more severe, issue a few years down the line and secondly, it surely wouldn’t appease those who voted leave in order to see tighter control over the UK’s borders. What’s needed is a more robust and long-term solution.

To an external audience, particularly those in the ‘millennial’ bracket, construction doesn’t benefit from a positive reputation and is seen as a legitimate career option by far too few young people. This isn’t entirely surprising, even many of those working within the field don’t do enough to promote the sector as a viable career option, and even fewer actively promote career opportunities to school aged youngsters and those further up the education chain. Ultimately, we need to widen the pipeline of people interested in a construction career and that will require a long-term and dedicated approach.

It’s worrying that few organisations truly appreciate the extent of the skills shortages and the impact they could have a few years down the line, particularly as the industry contributes around 8% of overall GDP. While it may seem like a lot of work to engage with almost an entirely new community – from a standing start – it’s absolutely necessary to put the graft in now, rather than face the consequences in the future.

Widely promoting the potential of a construction career and engaging with youngsters will provide a long-term fix and won’t fall apart a few years down the line. Construction employers and trade bodies need to think long-term about the talent crisis and start to launch their own programmes to help tackle ever-growing skills shortages.



Fiona Smith, chemical engineer, BPE

Engineering isn’t all spanners and overalls

People always seem to be surprised when I say I’m an engineer so I think the perception of the industry hasn’t changed in 20 years. In my experience though things are different, I’ve worked in departments where there was an equal split between male and female and also departments where I was the only girl but I’d say that situation is getting less common now, thankfully.

I’d never heard of chemical engineering before my chemistry teacher mentioned it to me as a career path when I was 16. I looked into it and realised I’d be really suited to the problem solving aspects of it and the diversity of where it could take me really appealed.

“I think more information about the different engineering disciplines needs to be got across to girls at an earlier age to try and shift perception away from engineering just being very manual and at times dirty.”



Dr Karen Panetta, professor of electrical and computer engineering at Tufts University, Massachusetts

Diversity in the boardroom starts with acknowledging ideas

Recent images of corporate executive boards and government leaders have been posted on social media with the caption, “What’s wrong with this picture?” The answer is that no women are included in the images, which means women are still not present in the highest echelons of corporate boards and government leadership.

To gain entrance, some women have felt the need to assimilate to fit in with the guys. For instance, one female engineer learned to play golf, so that she could join the men on the golf course, where many deals are negotiated and relationships are established. Her strategy worked – she is now a CEO.

The most common problem women cite is the scenario where a woman presents an idea to the board or team and is quietly ignored, wherein a few minutes later, a male co-worker makes the same comment and the team is not only receptive to the idea, but openly attributes credit to the idea to the man and not the woman who originally stated it.

This may or may not be done deliberately, but the result is the same. It causes a stressful dilemma for the originator of the idea. Namely, whether one should bring attention to this injustice and declare to the group this oversight or remain silent. In the former case, a woman who speaks up, no matter how politely, may be perceived to be a poor team player by refusing to “share credit”, while in the latter case, her contribution is forever attributed to another person.

While other bystanders may later approach and acknowledge that they too witnessed or experienced the same scenario, most colleagues remain silent. What is missing is good leadership and a champion for equity in the room.

If corporations want game changing novel ideas and solutions, they need to realise that the volume or assertiveness by

“If corporations want game changing novel ideas and solutions, they need to realise that the volume or assertiveness by which an idea is communicated does not correlate to the creativity or quality of the idea.”

which an idea is communicated does not correlate to the creativity or quality of the idea. All voices need to be heard and acknowledged.

The absence of the female perspective on boards and teams translates into a missed business opportunity to reach 50% of the world’s population, which are women.

The absence of women on high-level executive boards and teams is evidence that there are underlying issues in the work environment preventing the retention and advancement of women. Women cannot advance in a company if there are none present.

Why do they leave? Because women who see themselves working harder than their counterparts, but receiving less compensation or experiencing unwelcoming work environments will exit for other positions. Nothing will change until corporations (and academic institutions) openly acknowledge the problem, own it, and deal with it.

Companies are appearing to deal with the issue quietly behind closed doors and on their own terms, but these types of issues are not in their area of expertise and they need help. Positive changes in workplace environments will only happen if companies open their doors to look and share the facts that these issues are happening, take ownership and get expert help to fix it.

I think more information about the different engineering disciplines needs to be got across to girls at an earlier age to try and shift perception away from engineering just being very manual and at times dirty. Obviously there can be an element of that, but there’s also so much more.

In my career I have spent time on chemical sites in overalls with a spanner in my hand but I’ve also sat in meetings with patent attorneys discussing intellectual property law and travelled by private jet to view possible site locations, I’ve known engineers who’ve gone to Westminster to lobby MPs on legislation, so there’s so much more to the profession than people realise.

“I can’t say it’s been all plain sailing but some of the time I think the issue has been more generational than gender-based.”

On the whole my experiences have been good. I can’t say it’s been all plain sailing but some of the time I think the issue has been more generational than gender-based. Occasionally, when you are the only woman in a team you sometimes have to make it known that you want to be included in things, especially on the social side, as it can be assumed that as a woman you’re not interested.

If I could tell young girls one thing about engineering it would be that it’s not what you think it is, or at least, it doesn’t have to be. Your career can take you wherever you want it to.

Industry leaders gathered at The Shard in London recently to discuss the challenge of digital technology and how best to adopt it at the latest executive roundtable organised by *Infrastructure Intelligence* and supported by BST Global. *Andy Walker* reports.

Time to bring on the disruptors

A key question discussed by those attending the roundtable was “Is the industry ready for the impact of disruptive technology and how can firms manage their resources in a world where the industry is changing along with the people who work within it?”

“Technology is great and it enables you to do more things quicker but then clients also demand more things from us, so we are almost using technology just to tread water,” said Buro Happold’s Angus Palmer. “But is the people that is the difference. It’s not technology that wins you the next project, it’s the people. We should never ever forget that,” said Palmer.

Ben Freedman of MLM said how the industry collaborates and how people engage with each other was key. “I’ve been fortunate to work on a few projects where we have worked in a very collaborative environment, using a lot of video conferencing and other collaborative tools,” he said. “The speed those projects run at and the speed at which decisions are made in comparison to the email and attachment driven world we are still quite used to is quite fascinating to see,” Freedman said.

“Are we fearing disruption, allowing it, or are we ignoring it?” asked Richard McCarthy of Capita. “In our businesses I don’t think we invite disruption, we try to invite a continuation of what we have done

before with a bit of modernisation. We need to invite people in our businesses to disrupt,” said McCarthy.

Jiten Chauhan of Rider Levett Bucknall said: “We are on a journey and we are moving with

it, maybe not as fast as we want it to but it is moving. The key thing is that the knowledge and expertise that we have in our organisations is what is going to drive us forward. It’s not all about pressing a button, you need that experience and intelligence,” said Chauhan.

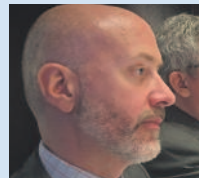
The industry was still struggling to digitise knowledge, said Nic Hillier of Faithfull and Gould. “How do we take that five years of knowledge, compress that time and get that to the younger people? It’s a huge challenge,” he said.

Robert Fry of Aukett Swanke thought that dramatic change was on the way. “We work in a huge industry that is still incredibly siloed and actually the real talent pool is very very small. I agree

that there will be a lot more automation, especially robotics, that will force us to make choices about the kind of businesses we want to be. The big thing is going to be robotics in future,” he said.



Angus Palmer: “It’s not the technology that wins you the next project, it’s the people.”



Mike Goggins: “The advantage will lie with those who can grab the data and create new insight.”

The Shard was the venue for the latest BST Global roundtable.

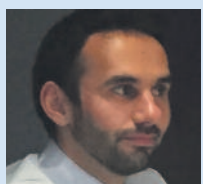


Richard McCarthy said it was important not to equate disruption with technology. It was about more than that. “Be very careful about ‘disruption means digital’. Digital is part of disruption but it is also a mindset. When you disrupt you invite people to think about doing things differently. Being creative and empowering people is an important part of the story,” he said.

Echoing this, Rob Witt from Wardell

Armstrong said that the industry had always needed people with the ability to think and move things forward. “We still rely on and need people with bright minds to enable our businesses to grow,” he said.

Mixing disciplines in ways that haven’t been thought of before to promote a real cross-fertilisation of views and genuine collaboration was also



Ben Freedman: “The speed collaborative projects run at is fascinating to see.”

Roundtable participants

- **Jiten Chauhan** – partner, Rider Levett Bucknall
- **Tim Curtis** – managing director, Ricardo Energy and Environment
- **Ben Freedman** – director, MLM Consulting
- **Robert Fry** – managing director international, Aukett Swanke
- **Brian Furr** – director strategic account development, BST Global
- **Mike Goggins** – group client engagement director, Steer Davies Gleave
- **Mark Goldspink** – chief executive, Purcell
- **Nic Hillier** – director, Faithfull + Gould
- **Richard McCarthy** – executive director, Capita Property
- **Eduardo Niebles** – managing director, international business, BST Global
- **Brian Nolk** – acting commercial director, Victoria Street Capital
- **Nelson Ogunshakin** – chief executive, ACE, chairing the meeting
- **Angus Palmer** – group director London, Buro Happold
- **Tony Scott** – chief information officer, WSP
- **Andy Walker** – editor, *Infrastructure Intelligence*
- **Rob Witt** – technical director, Wardell Armstrong



crucial. So was listening to clients' changing needs. Increasing numbers of clients were interested in social value said Mark Goldspink of Purcell. "We mustn't lose sight of what the client is looking for because that may well change and it might not be all technology driven. Many want to see the social value in what we do," he said.

Eduardo Niebles of BST said that the sector needed to be aware of its key strengths which were a considerable business advantage. "This sector has something that no other technology business has – and that's knowledge. You own the information and data. Technology for this sector is more of an enabler versus a disrupter. The disrupter in this sector will come from within and will be about how you redefine your business model," said Niebles.

Tony Scott of WSP said that becoming a learning organisation was crucial to companies being able to take advantage of opportunities. "We can't deny the developments in technology that are being seen elsewhere in business. Technology is on the cusp of disrupting our industry, so don't wait, we need to disrupt our businesses now. Think big, start small and scale quickly," said Scott.

Ricardo Energy and Environment's Tim Curtis said that current businesses mechanisms don't necessarily drive collaboration, so changing the business model was a



Tony Scott: "Technology is on the cusp of disrupting our industry, so we need to disrupt our businesses now."

challenge but a necessary one if firms are to progress. Richard McCarthy agreed. "We need to challenge and mix people up in the way that we deliver our infrastructure. I think we are just moving into a mindset where we are realising that just carrying on how we have been is not sustainable. We are going to have to change our business models faster than we may realise," McCarthy said.

The younger generation coming into the industry would be crucial in businesses making that shift to a different way of working and all those round the table recognised this. "You have to monitor the young generation who are tied to mobile technology," said Jiten Chauhan. "I mean, they are doing code at primary school! Our world is changing and our industry needs to change too. We need to look at how the younger generation is learning and learn from that. Ask them how they think we should do things?" Chauhan said.

It was clear that the next generation was learning more quickly than the one before and their speed of thought was faster too.

While there is much talk in the industry about the millennial generation, the so-called 'digital natives', it would be the 'digital developers' that would come next and it might be that the industry might have to skip a generation, such was the speed of change.

"The use of data for different purposes will be the disruption



Robert Fry: "The big thing in the future is going to be robotics."

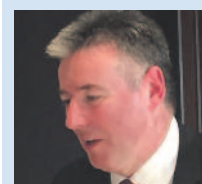
in our sector," said Mike Goggins of Steer Davies Gleave. "Someone is going to come in, the data is going to be open and we won't own it as consultants. The IPR won't be with us it will be an open data platform. The competitive advantage will lie with those who can grab the data and create new insight or leverage it more quickly. Exploitation of data is going to come suddenly and rapidly," said Goggins.

Ownership of data was seen by everyone as crucial to future business success.

Consultants can really add value to clients with their use of data, as they often knowing more about their clients' clients than the clients know themselves. Whoever owns that data and exploits it will be in the driving seat in the future and this was the feeling of many attendees.

Businesses needed to be much more open about data and the way it is shared to benefit clients and less worried about losing their competitive edge by working in that way. There also needed to be more conversations with clients and a lot more discussion about what the industry means by changing its business model. What does that mean in reality and who is going to make it happen?

A subject for a future discussion no doubt.



Nic Hillier: "How do we take five years of knowledge and get that to the younger people?"



Richard McCarthy: "How we have been carrying on is just not sustainable."



About the sponsor

BST Global provides integrated business management software solutions for the world's leading architects, engineers, and environmental consultants. More than 100,000 professionals across six continents and 65 countries rely on BST solutions each day to manage their projects, resources, finances, and client relationships. The company's latest offering, BST10, is the world's first multi-lingual business management system to be built exclusively for the architecture and engineering industry and made available both in the Cloud and On-Premises. For more information, visit bstglobal.com.

Interesting times for infrastructure delivery

A new report from independent law firm Burges Salmon offers a snapshot of the UK infrastructure sector and the challenges it currently faces.

Andy Walker looks at the report and the issues it raises.

Is the UK's infrastructure working? It's a question that is well worth asking given the importance that our politicians place on the sector for the long-term health of the UK economy. That's why Burges Salmon and Infrastructure Intelligence got together to produce a report, *Perspectives on Infrastructure: How can we improve the delivery of UK infrastructure?*

Launching the report at June's National Infrastructure Forum at Excel, London, Burges Salmon said that they wanted to create an informed debate on the challenges of delivering UK infrastructure projects, as part of the country's future industrial strategy. Given the result of the recent general election and the political uncertainty that has since ensued, that debate seems more urgent than ever.

"We drew on the opinions of over 100 industry experts for the report, including interviewing a dozen of them face-to-face," said Burges Salmon's head of infrastructure Will Gard. "The results make for fascinating reading, with opinions varying widely on the effects of Brexit, technological advances, changing political and regulatory commitments, the need to marry good projects with the right finance, skills and leadership issues, devolution and engagement challenges," said Gard.

At the heart of the report's findings is a simple fact. The UK needs new infrastructure to retain its economic powerhouse status. Despite the differing opinions contained in the report, the research shows that all stakeholders in the infrastructure sector understand and support the need to deliver that vision and they are keen to see the industry get the leadership it needs to make that happen.

Some of the key concerns expressed in the report include the availability of funding for UK infrastructure projects, the need for collaboration

along the supply chain, the skills gap challenge and issues around devolution. Those interviewed in the report included senior executives from a number of organisations active in infrastructure development and delivery like Aviva, Bristol Airport, CH2M, Costain, ENGIE, FirstGroup, KPMG, M&G Investments, National Australia Bank, RBS, St. Modwen, UK Regeneration and Wessex Water.

The issues raised are ongoing concerns that the industry faces, which will continue to require the industry to work together to find effective and long-term solutions. "During the course of our research, we were pleased to find that industry leaders are keen to talk about how we address the challenges to delivering UK infrastructure," said Gard. "There is a collective sense of wanting to further the industry together and help the UK remain a primary destination for foreign direct investment," he said.

The responses to the survey of industry leaders conducted as part of the report were very interesting and revealed a sector that, although

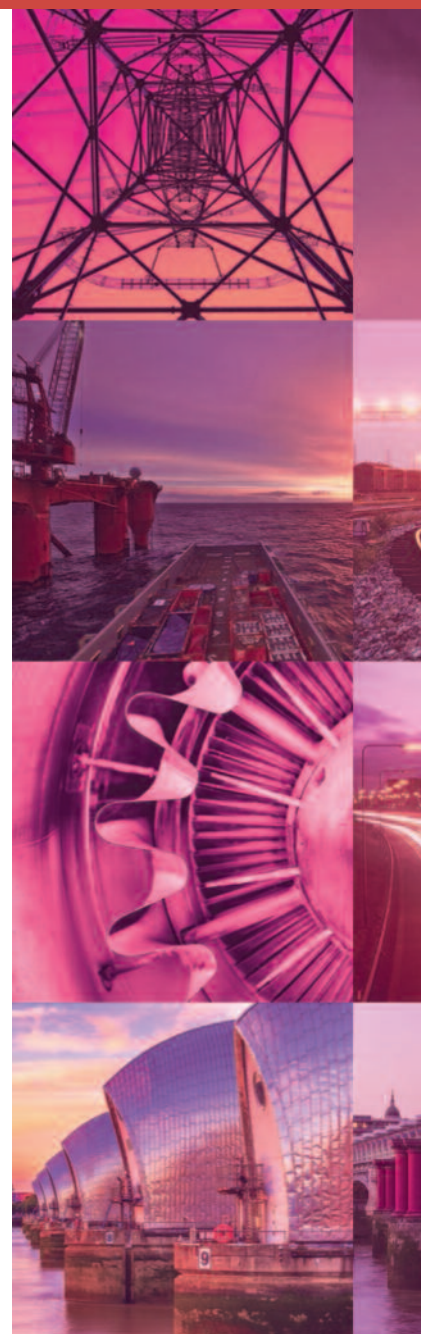
"There is a collective sense of wanting to further the industry together and help the UK remain a primary destination for foreign direct investment."

Will Gard, Burges Salmon



vital to securing the long-term prosperity of the nation's health and wealth, is one that could and should work better than it currently does in a number of areas. The survey results and the face-to-face interviews conducted with key industry figures both revealed significant concerns around funding, the certainty of government policy on infrastructure and the regulatory regime that underpins projects and their delivery.

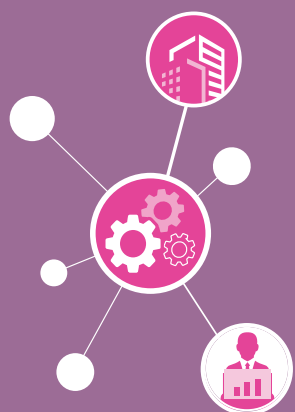
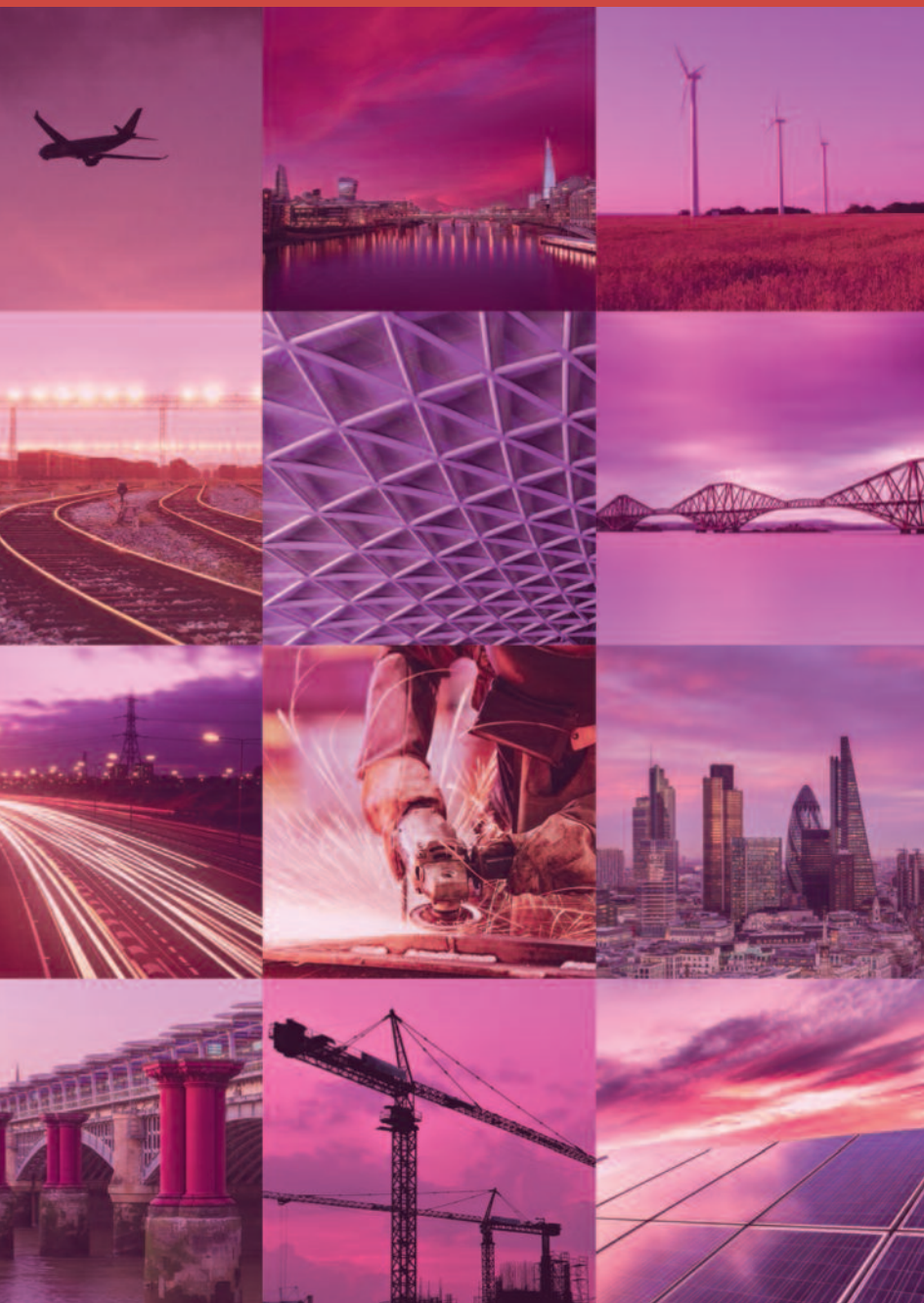
Whilst the survey showed that the industry largely agrees that the National Infrastructure Plan is "about right" in balancing short and long-term infrastructure priorities, there are a number of issues that clearly divide those working in the industry. In particular, the current state of



65%

agree UK infrastructure projects are viable long-term investments for institutional investors.





45%

agreed supply chains effectively collaborate to deliver projects more quickly. But 42% disagree.

collaboration in the supply chain, as well as the current level of consideration for the long-term impacts on local communities.

The majority of respondents to the survey (74%) think that national government should have the main responsibility for driving infrastructure delivery in the UK. This is interesting in the context of increasing devolution and decentralisation, with industry leaders sending a clear message that infrastructure delivery should still be led nationally.

That's not to say that devolution is not welcome. 21% thought that local and regional government should be driving infrastructure delivery and 71% said that city/region deals will help the delivery of UK projects. The industry leaders interviewed in the report were in the main enthusiastic about devolution, but there was a feeling expressed that the new political structures needed to deliver

results on the ground and that was yet to be seen. So no pressure on the new metro mayors then!

In terms of improving the delivery of infrastructure projects, industry leaders were clear that procurement (25%), planning (24%) and funding (20%) were the three main areas that could be improved the most. Given the links between these three areas it is not surprising that they were given top priority for improvement and it's clear from speaking to key players in the industry that there are some real challenges which need to be overcome in all of these areas.

One of the key issues raised in the surveys and interviews was collaboration, and the extent to which it is used to deliver projects more quickly. 45% either strongly agreed or agreed that UK infrastructure supply chains effectively collaborate to deliver projects quicker. However, 42% of respondents said that the industry wasn't collaborating effectively, showing an obvious disconnect in the way the industry views the current level of collaboration. Clearly there needs to be more collaboration on collaboration itself!

Given the importance of infrastructure to the long-term health and wealth of the nation, the response to questions about whether infrastructure projects properly consider the long-term social and economic benefits in local communities was a matter for concern. Respondents were evenly split with 45% saying long-term benefits were being considered but 50% said that they were not.

Winning public support for key infrastructure is crucial to those projects happening in the first place, so ensuring that they benefit local people has to be a priority for the industry. How best to secure that public support and promote local and national infrastructure projects better was a recurring theme in many of the interviews of industry leaders and it's something that the sector as a whole needs to get to grips with.

The biggest challenge to securing investment in UK infrastructure projects was widely seen as government policy (46%) with 40% of respondents saying that concerns around availability of funding and uncertainty of returns was holding investment back. This was also borne out by those interviewed for the report, where certainty and clear government policy for infrastructure was voiced as a key issue in creating an attractive market for investors.

"How we go about ironing out the inefficiencies and challenges identified in this report will be something we continue to assist with over the coming months and years," said Burges Salmon's Will Gard. "We are keen to hear people's thoughts on the topics raised in the report and we hope that by having a dialogue, the interesting times we currently face turn into interesting opportunities," said Gard.



Download the report at
<https://goo.gl/bRhvY9>

A superfast solution for Northern Powerhouse Rail

The world's fastest underground system could make Manchester to Leeds by train in nine minutes a daily reality if a new project gets under way. *Andy Walker* spoke to the company behind the ambitious plans.

Plans are being considered for a futuristic project to build a rail link to deliver a Manchester to Leeds train journey in a barely believable nine minutes as part of an eventual Liverpool to Hull route of just 29 minutes. The route will use Maglev trains which already exist in China and Japan at up to 340mph, or even Hyperloop 'trains' which are being developed up to 650mph.

The company behind the plans is Direct City Networks 300+ (DCN300+), an Anglo-American collaboration looking at how proven Maglev technology can be adapted to meet the unique demands facing transport in the UK. DCN300+ proposes a Maglev solution built in small tunnels and running from city centre to city centre. The preliminary business case which has been evaluated in detail, focuses on a route between Manchester and Leeds.

Unsurprisingly, DCN300+ group managing director Daragh Coleman is a passionate advocate of the scheme. "The current Maglev that runs in China has been the world's fastest train for the past ten years at 270mph and we can use that as a minimum," says Coleman. "We have done all the aerodynamic analysis with Imperial College and we know you can reach those speeds in a tunnel. It's simply a case of putting together existing technology with existing tunnels and existing Maglevs. It's a 'nothing to invent solution', it's not science fiction and it's already out there elsewhere in the world," he tells me.

Coleman says the solution has not been tried before because Maglev was previously seen as very expensive but increasing costs for current UK high speed rail schemes have made a much better case for Maglev that didn't exist before. I ask Coleman where the project is at currently. "We have produced a business case that proves it is financially viable and taken it to Transport for the North, who think it's incredible but want to know that it really works and we are now in



A current TransPennine Express train (above). Might this be replaced with a superfast Maglev train like the one below?



discussions with them to demonstrate that it does," he says.

Coleman says that the alternative solution to his project is HS3 or Northern Powerhouse Rail, which is a 20-year project

"The current Maglev that runs in China has been the world's fastest train for the past ten years at 270mph and we can use that as a minimum."

Daragh Coleman, DCN300+

that would cost a lot more than his Maglev solution, take a lot longer to build and cause enormous disruption. "Even then the Manchester to Leeds journey time might be 30 minutes after spending all that money and time, where we could build our solution in half the time, at half the cost and the journey would be nine minutes every day. They need to work out whether they want to do it the old way or the new way," says Coleman.

The Maglev solution would take people and freight off the current TransPennine Express route and replace the proposals for HS3 to deliver a different, superfast solution. So what will be the overall cost? Coleman says that the DCN300+ Maglev route will cost around £100m a mile which compares favourably with the cost for HS2 which is coming in at around £200m a mile. The Manchester to Leeds route would therefore cost £3.6bn, which Coleman says is more justifiable than other comparable rail routes being planned.

The travelling public should also benefit if Coleman's solution sees the light of day. "The lowest possible single fare between Manchester and Leeds will be £6.54," says Coleman. "Everyone looks at that and says 'that's a ridiculously low figure and you could double it' and if we did double it this has got a huge business case. Even at £10 at today's standards or £15 by the time it is built it would be hugely profitable," he claims.

So how soon could we see 270mph trains hurtling under the Pennines from Lancashire to Yorkshire? "If it was a normal process through a transport works act we are talking about a three year planning cycle and a four year build, so this could be built in seven years' time if the government remains supportive," says Coleman.

To produce their solution, DCN300+ has assembled a team of leading advisers and specialists and consulted widely with the public sector and industry. They now feel it is time to share the conclusions of their analysis and open it up to scrutiny. They hope their proposals will be taken on board and that the UK will soon see a transformational Maglev-based rail solution for the north of England.

● **For further information on the project see www.DCN300.co.uk**

Turning the funding gap into an opportunity



The fall in the value of oil and associated energy prices presents some real funding challenges for the industry with key players having to look at new opportunities, writes *Nelson Ogunshakin*.

At the end of 2016, I highlighted five big challenges for the industry ahead. While one of those challenges, politics, has presented our industry with largest amount of public attention to the inherent risks of change, the remaining challenges identified must also be addressed within future business plans and engagement efforts.

For years our industry has seen a substantial amount of funding for infrastructure coming from the flexible income of gas and hydrocarbon. Particularly for parts of the Middle East and Africa, this revenue source has provided unprecedented opportunities for our industry to build a modern, innovative landscape with funding sourced from the lucrative sale of non-renewable resources.

However, the dynamics of this have changed. The value of oil and associated energy prices have fallen worldwide, with these prices likely to plateau for the long-term future. This presents some real challenges ahead for our industry.

With less liquidity and flexible funding available, how will our industry fill the potential funding gaps? Will the increasing participation of pension funds fill the gap or will the perceived construction risk continue to be a barrier to attract participation in greenfield infrastructure investment projects?

These funding gaps, in the Middle East and Africa, have decreased the desire of companies as well as individuals to work in these areas, as they are deemed to have more business risk and fewer possibilities for exceptional innovation.

Particularly for those emerging markets that have a sovereign wealth fund derived from oil and gas revenue, with depleted reserves, the funds are looking to recycle and regenerate wealth in other ways. One of these alternatives for wealth generation is through renewable energy production. Saudi Arabia for example, after having a budget increasingly curtailed by the flattening of oil and gas prices, has changed their revenue stream to nuclear, mitigating the slowdown in funding for national infrastructure projects.



Saudi Arabia has changed its revenue stream to nuclear, mitigating the slowdown in funding for national infrastructure projects.

Compounding the impact of energy revenue shifts on our industry, is the increased level of energy consumption around the world, begging the question of not only how this will change the sources of revenue used for infrastructure, but also how alternative energy sources will impact global infrastructure needs.

Many of the renewable sources of energy are currently held back by the cost of production as well as some existing reluctance in fully embracing what this will mean for our cities and ultimately the form of our infrastructure. The question facing all of us, as industry leaders, is whether we will sit back and monitor how the evolving energy palette impacts infrastructure or whether we take a leap of faith to fully engage in developing this future reality.

Much of the changes in energy mix are dependent upon technological advancements, and as advancements continue, the declining cost of such technology. This technology and its

accompanying big data are key drivers for current and future investments.

We already have much of the technology needed to revolutionise not just tomorrow's energy mix but also the shape of tomorrow's infrastructure.

The question is, do we as an industry have the passion to seize this as an opportunity, or will we look longingly at the past when substantial infrastructure funding could be derived from non-renewable resources?

I encourage all to seize this as an opportunity to engage and help shape how energy sources, societal needs, technology, big data and infrastructure will interact.

Seemingly unconnected to the wider industry engaged in infrastructure, the change in energy prices, as well as usage, directly impacts all projects. And as the prevalence of solar rises around the world, the price of the technology itself has decreased.

This autumn will see the launch of the first ever European CIO conference for our industry. Hosted by the Association for Consultancy and Engineering, we will be focusing on many such contemplations of how new technologies interact with the ever changing global market and how best as an industry we can make the most of future opportunities. I encourage all technology leaders across the industry to attend.

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

“Do we sit back and monitor how the evolving energy palette impacts infrastructure or do we take a leap of faith to fully engage in developing this future reality?”

Big questions over green policy post-Brexit



With 40 years of EU control of green regulations about to end when the UK exits the European Union, who or what will set the direction of environmental policy after Brexit, asks *Matthew Farrow*.

They say that death and taxes are the only certainties in life, but for the last 40 years environmental businesses could add another – a steady and inexorable tightening of green regulations through the steady hand of the EU.

Of course, many EU-derived environmental laws aren't perfect. Poor drafting and the need to craft laws that were workable from Newcastle to Nicosia meant headaches aplenty, but they allowed UK governments to run green policy on autopilot and environmental consultants and contractors to plan and grow their business activity effectively.

Post-Brexit though, this may no longer be the case. Of course, it is still just about possible that we may stay in the single market (though my personal view is that this is unlikely) in which case we would continue to be bound by EU laws.

Alternatively we may sign a UK-EU trade deal in which our compliance with green laws from Europe is part of our obligations (the EU Parliament recently said that insisting on this should be a 'red line' in the EU's negotiations with the UK), but it is clearly possible that once we leave the EU we will have 'taken back control' of environmental law and parliament will be free to make changes to the many thousands of EU environmental regulations transferred to the UK statute book by the imminent Great Repeal Bill.

The question then arises, who or what will set the direction of environmental policy? If you believe the Conservative manifesto, a "25 year environmental plan" to be produced over the coming year by ministers, will do the trick. I think despite the election result we may still see the plan and in principle I think a long term framework of this type is a good idea, but I suspect it will be high level and once we have had another couple of ministerial reshuffles it will be soon forgotten about.

Instead, I think that in a post-Grenfell fire world, environmental policy will be



There is a growing concern that enforcement systems have been hollowed out.

driven by reactions to random failings of regulatory enforcements that develop political momentum. EIC has members spanning every aspect of environmental work, from land remediation to smart meters to air quality, but one thing that binds them all together is a growing concern that our enforcement systems across local authorities and the Environment Agency have been hollowed out.

To take but one example, the GLA has introduced a good scheme to set emission

performance standards for construction site vehicles, to combat the 17% of London's air pollution from construction sites. But the GLA does not have the legal powers to enforce its own scheme, while it is unclear how far London boroughs are doing so – certainly many EIC members in this field believe many contractors are not exactly rushing to become compliant. The inevitable teething issues with a new complex policy, or a scandal waiting to happen ("illegal fumes from construction poisoning neighbouring school children"?).

For businesses in this sector, this will add to uncertainty and the likelihood of 'feast to famine' procurement. And given how interconnected many environmental issues are, hardly a great way to run a national environment policy either, however welcome some political 'kneejerk' reactions may sometimes be.

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

"I think that in a post-Grenfell fire world, environmental policy will be driven by reactions to random failings of regulatory enforcements that develop political momentum."

A sell-out crowd for the annual Consultancy and Engineering Awards sees the industry's brightest and best unveiled.

Award winners highlight the best of the industry

A sell-out attendance of around 400 people packed into the Marriott Grosvenor Square on Wednesday 7 June 2017 for the unveiling of this year's winners of the Consultancy and Engineering Awards.

Guests at the event were drawn from all parts of the industry and it was noticeable that the crowd was more diverse than in previous years, including many women and young people.

The annual awards, sponsored by Brunel, Deltek, Pennington Manches, and Willis Towers Watson, celebrate the best of the UK's consultancy and engineering profession and the work showcased spanned a variety of specialisms. As well as recognising individual companies' prowess, the awards also highlighted the contribution of individuals in a number of categories as well as the role of partnerships and collaborations that are increasingly important in the delivery of UK infrastructure.

Those attending saw Curtins win the best large firm of the year award, IMC Consulting walk away with two category wins and Reading University's

professor Roger Flanagan take the Ambassador Award.

Speaking at the awards, Nelson Ogunshakin, chief executive of ACE, said: "Tonight is about lifting the curtain and celebrating the often unseen contributions of consultants and engineers to our local communities, our countries and the world at large. We are the creators of the world around us, those who ensure that no matter what happens, our

communities continue to thrive and succeed."

Mike Haigh, global managing director of Mott MacDonald and chairman of ACE, said: "Our industry builds tomorrow's future, daily turning dreams into reality, but to do that we must continue to have individuals and companies like those that have been shortlisted; people and companies that push beyond what was, to what will be."



The awards were presented by BBC news reporter Clive Myrie.

The awards were presented by BBC News journalist Clive Myrie, continuing the tradition of leading reporters who have hosted the awards. The 'winner of winners' or Diamond Award went to Ben Freedman from MLM, who also won the coveted Young Professional Award.

The full list of winners of the Consultancy and Engineering Awards 2017 is listed below and covered in more detail over the following pages.

The winners

● **Best UK Business Performance – SME**
Winner – IMC Worldwide

Highly Commended – Geo-Environmental Services

● **Best UK Business Performance – Large Firm**

Winner – Curtins

Highly Commended – BWB Consulting

● **Apprentice of the Year** Winner – Jordan Laraway from Arup

● **Young Professional Award** Winner – Ben Freedman from MLM

Highly Commended – Tahira Newaz from MWH

● **Collaboration Champion of the Year** Winner – IMC

Worldwide for their Rural Access project

Highly Commended – Hoare Lea for the RNLI slipway

lifeboat station at Porthdinllaen

● **Inclusion and Diversity Champion of the Year**

Winner – Max Fordham

● **Sustainability Champion of the Year** Winner – Mott MacDonald

● **Technology Champion of the Year**

Winner – BWB Consulting

● **Training**

Initiative of the Year Winner – Troup Bywaters + Anders

Highly Commended – BWB Consulting

● **Ambassador Award**

Winner: Professor Roger Flanagan, Reading University

● **Diamond Award (Winner of Winners)**

Ben Freedman from MLM



ACE chief executive Nelson Ogunshakin.

Best UK Business Performance – SME

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Winner: IMC Worldwide

IMC Worldwide won the prize for Best UK Business Performance – SME, after being described by the judges as “being fully committed to what they do and believe in”. An already high-performing company, IMC’s business model has enabled the firm to manage international political uncertainty as they work in over 40 countries.

In 2014, the company met and exceeded its growth targets for 2012 to 2016 two years ahead of plan, with a £1m profit on a £25m turnover. In 2015 profit increased to £1.6m on turnover of £28m and during 2016 IMC grew its profit to £1.8m on a turnover of £53m, an 89% increase compared to 2015. Permanent staff has increased to



100 (86 based in the UK and 14 overseas) and the company has achieved a 50:50 gender balance. Staff retention has improved, with only 1.1% leavers.

The scale and scope of the firm’s work is positioning IMC as

a leading international development consultancy and differentiating it from competitors.

The judges said that IMC were “an exemplar of a business exceptionally well placed to develop post Brexit”.



Highly Commended: Geo-Environmental Services

The judges praised the management of Geo-Environmental Services for enabling the firm to develop the skills of their staff alongside an impressive rate of business growth.

Best UK Business Performance – Large Firm

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Winner: Curtins



This year’s winner of the Best UK Business Performance – Large Firm Award was Curtins for their excellent all-round financial performance, commitment to its people and willingness to innovate to win new work.

The company increased its staff numbers by 22% in 2016, grew fee income from £19m to £23m and opened two new offices. As well as enjoying significant business success, Curtins has also shown a commitment to raising its profile

and that of the industry by launching a thought leadership platform, Podium, which showcases short technical videos on its website promoted via social media.

The judges were particularly impressed with Curtins’

commitment to diversity, their active encouragement of women to join the firm and how they have provided apprenticeships with an alternative route to qualifications other than university.

Explaining their decision, the judges said Curtins were “an exemplar in investing in and developing its people, receiving excellent client reviews and commendations amidst strong business success. The winner truly understood the need to improve retention of staff through achieving a work-life balance, seizing the innovations that come through a diverse staff to work on projects that will set the standard for tomorrow.”

Highly Commended: BWB Consulting

BWB was highly commended by the judges for an impressive rate of growth particularly their work developing strong digital services.

Apprentice of the Year

Winner: Jordan Laraway from Arup

The Apprentice of the Year Award recognises an apprentice who has shown outstanding progress, and commitment within a recognised learning scheme. The award, which specifically recognises an apprentice that has made a tangible positive difference to their company, was won this year by Arup's Jordan Laraway.

The judges were impressed with Laraway's involvement in a number of high-profile projects, including Crossrail, and his leading role at the heart of some of the company's internal initiatives. One particular initiative

is Digital Design Tools, which entails collating various automated tools that Arup staff have created for different pieces of software, grouping them into relevant categories (e.g. project management, CAD etc.) and then sharing them around the office for others to use.

Commenting on their decision, the judges said that Laraway had achieved far more than his years let on. "From scoring straight distinction in college work, to helping others use digital tools across the firm and running a number of small projects, this individual has a strongly apparent passion for the industry," they said. "As an apprentice, this individual has already made a tangible and positive difference firm wide," the judges said.



Young Professional Award

Winner: Ben Freedman from MLM

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

Freedman was selected by the judges for being an accessible role model for the future of the industry. "There is something very human about Ben," they said. In his interview he described his career as being about caring about people and doing the best

for them. "He is an all-rounder and a real role model for the industry who is passionate about achieving sustainable development goals," said the judges.

Freedman impressed with his passion for what engineering can do for people and for getting that message across and enabling people to understand how infrastructure works and benefits their lives. A brilliant communicator, he understands the commercial value of technology and is committed to innovation, the judges said.

They concluded: "Ben is a future industry leader and there is no doubt that the industry will be different as a result of his impact on it. Charismatic, he has a natural ability to collaborate with people and instinctively values everybody's viewpoint. He leads through empowerment."



Collaboration Champion of the Year

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**PENNINGTONS
MANCHES**

Winner: IMC Worldwide for their Rural Access Programme

IMC Worldwide won their second award of the evening, claiming the Collaboration Champion of the Year Award for their work on the Rural Access Programme (RAP).

Since 1999, through the programme, IMC Worldwide has built 1,000km and maintained 2,000km of roads connecting Nepal's poor rural communities to services such as market, healthcare and education. RAP's economic development component, CONNECT, aims to boost the economy in the remote mid and far west of Nepal by making roads work for the poor. IMC have done this by building partnerships between divergent



interest groups including banks, multinationals, micro, small and medium enterprises and farmers, focusing on empowerment of people who are poorly represented on the entrepreneurial landscape, such as women and youth.

It was this partnership work that so impressed the judges and IMC's work has been

instrumental in creating financially independent empowered women who are making a real difference to their communities. The impact of the CONNECT project will be completed in 2019 but its impact on Nepal's economy and lessons for policy-makers will be long-lasting and transformative.

The judges commented: "This is a truly inspirational project that has delivered long-lasting

benefits to some of the poorest communities in the world. Collaboration within their road development projects have enabled new partnerships that created a platform for the development of sustainable microbusinesses, helping to recognise the key role of women within such ventures."

Highly Commended: Hoare Lea

for the RNLI slipway lifeboat station at Porthdinllaen

The judges were impressed with a project that galvanised businesses, the voluntary sector and the local community in an environmentally sensitive location.

Inclusion and Diversity Champion of the Year

Winner: Max Fordham

Max Fordham has won this year's award for Inclusion and Diversity Champion of the Year for addressing the issues with a refreshingly honest and open approach.

The judges said that other SMEs could learn a lot from the practical and bottom up way the firm has dealt with challenges, which has delivered impressive results in a short period of time. Refusing to be complacent, despite their above average diversity indicators, the company has delved under the surface to identify and address a range of problems such as equal pay, lack of women in senior positions and racism on site.

As an SME, without access to a large HR department, it is not always easy to apply elements of the industry advice and toolkits that are available and some companies rarely go beyond average diversity indicators. However, Max Fordham impressed the judges by developing an open and responsive culture that has enabled them to address key issues early in an engaging, thoughtful and effective way and the firm has made real progress as a result.

The judges praised the firm for a straightforward and honest approach that has yielded results.



Sustainability Champion of the Year

Winner: Mott MacDonald

The Sustainability Champion of the Year Award recognises an organisation that shows both consistency and leadership in achieving environmental sustainability, through business practices as well as projects delivered. This year's winner was Mott MacDonald.

The firm impressed the judges for embedding sustainability at every level of its business. "With clear and strong leadership at CEO level, the company is committed to reducing its own carbon footprint and also that of its clients," said the judges.

Mott MacDonald has not only co-authored an industry carbon reduction standard, but they have also continued to host



industry conferences on the issue of reducing carbon. The company has taken a leadership role and been instrumental in developing a range of carbon assessment tools to help clients reduce their carbon footprint.

With a network of 400 Project Sustainability Coordinators, Mott MacDonald ensures that sustainability and environmental risks are managed throughout the project lifecycle in each of the 16,000 projects on which they work every year. Part of the company's brand proposition is centred on creating sustainable solutions for clients and the environment and this ethos is shared across Mott MacDonald staff worldwide.

Technology Champion of the Year

Winner: BWB Consulting

The Technology Champion of the Year Award recognises an organisation that has accomplished exceptional advancements and new developments, leveraging technology and big data to maximise success and this year's worthy winner was BWB Consulting.

The company has taken an innovative approach by setting up a new company to deliver digital solutions in the construction sector. "BWB has impressively created a successful start-up company, Deetu, within the group to work across the business to provide digital and data solutions for the built environment," said the judges.

BWB's use of gamification

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technology and social media to demonstrate infrastructure designs in a virtual world greatly impressed the judges. Deetu has developed new technology-based products and successfully delivered them to multiple clients, creating new business opportunities for the company using cutting-edge technology.

Judges were impressed by the firm's significant investment in digital technology and its strong belief that the future of engineering consultancy is dependent on effectively harnessing the analytical and simulation/visualisation opportunities being created by rapid progress in digital engineering.

That investment and foresight seem set to position BWB at the forefront of the profession alongside similar businesses with the vision and the capability to evolve into successful enterprises 'fit for purpose' in the 21st century.

Training Initiative of the Year

Winner: Troup Bywaters + Anders

The Training Initiative of the Year Award recognises an organisation investing in training and continual development of their workforce; with clear aims, measurable outcomes and positive impact on staff as well as clients.

This year's winner, Troup Bywaters + Anders (TB+A), impressed the judges for seeing apprenticeships as a way of tackling the growing skills challenge within their firm. They have built relationships with local schools to provide work experience placements and support with events to broadcast the message. The firm provides permanent employment and



opportunities to gain recognised and credible qualifications through to chartered status. This is fully funded by TB+A without a requirement to make up time or repay any part.

The TB+A apprenticeship scheme has delivered some big rewards for the company. With

an objective of delivering 25% of the workforce as apprentices, TB+A has embraced the talent that is available with young apprentices and is building its business model around them.

Judges were particularly impressed by the aspirational targets set by the company, including having 30% of women in the business by 2020 and the firm's commitment to providing opportunities to NEETs. This initiative has seen some impressive results with an 85% reduction in agency recruitment fees, doubling the female apprenticeship ratio and a wealth of recognition across the industry.

Highly Commended: BWB Consulting for their Management Insights Programme

The programme has equipped managers with the skills and confidence to handle a wide range of people issues. This has improved staff retention rates and staff progression within the business, including above average promotion of women within the firm.

Ambassador Award

Winner: Professor Roger Flanagan, University of Reading

Professor Roger Flanagan is this year's recipient of the Ambassador Award, which is presented to an individual who has made an outstanding contribution to the industry. Previous recipients have included Terry Morgan, Sir John Armitt and Sir Michael Latham.

Flanagan (pictured right), a professor at the School of Construction Management and Engineering at the University of Reading, received the award for his consistent industry work over many years and for his help and support as ACE has become a

leading voice in the industry.

A member of the ACE's Advisory Board, Flanagan is also a visiting professor at universities in China, Malaysia and Australia. His industry

experience includes previously being a member of the board of Skanska and a non-executive member of the board of Halcrow Group.

He has also undertaken studies on

the development of the construction industry in ten countries across the globe.

With Roger Flanagan unable to attend the awards event,



Dilek Macit, director of technical cooperation at the European Bank for Reconstruction and Development, collected the award on his behalf.

The URS Building, an icon to 1970s architecture, sits at the heart of the University of Reading's Whiteknights campus.

Diamond Award (Winner of Winners)

Winner: Ben Freedman from MLM

Every year as the awards judges receive the entries and go through the judging process there are key projects, individuals or companies that stand out beyond just winning in a category – these entries are the winners of winners.

And amongst these standout entries, there is one that has struck the judges as ‘THE’ winner of winners. This winner of winners receives the Diamond Award, and this year’s recipient, Young Professional Award winner Ben Freedman of MLM Group, was honoured by the industry as a truly passionate future leader and an inspiration to professionals everywhere.

Chartered civil engineer Freedman is director structures (infrastructure) and international, at MLM and all the judges were enraptured by his charisma and a rare ability to break down the benefits of infrastructure into tangible terms. He was chosen to receive the Diamond Award as he displayed a genuine care for the entire project process and in the opinion of the judges was an individual who empowers those around him, seizing upon opportunities to innovate to meet differing client needs.

Last year Freedman took on additional responsibilities within the wider management structure of MLM following the merger with Fluid Structures. He has been extensively involved in the integration process as part of the steering group and provided leadership for staff and engagement in the day to day communication process. He has also been appointed as MLM’s innovation director and a current initiative is to drive efficiency of the company’s internal business systems through deployment of a new enterprise resource planning platform.

Freedman is passionate about bringing civil engineering



‘out of the ground’ and to the forefront of the project process. He has pioneered sustainable civil engineering design services in a number of sectors and is recognised by colleagues and clients as a creative and innovative problem solver.

“My hope and aspiration is to develop an outstanding design practice delivering excellence through innovation concentrating on infrastructure both in the UK and overseas,” said Freedman. “To achieve my aim I strongly believe that leadership is born through the cultivation and development of those around you. I am fortunate in having built a happy team, who all pull together for deadlines and I have been lucky enough to have no attrition of the team. I have fostered a working environment which engenders the value of ownership and we have a lot of fun along the way with sporting events and team dinners,” he said.

Freedman is someone who takes a rounded view of the industry in which he works and the people he works with. “Young engineers need satisfying opportunities to

continue professional development with a maintained interest which leads to their retention within the business and industry,” he said.

“I passionately believe that my role is to provide the direction and energy to facilitate this objective. My current aim is to link important charitable work of the medical profession with engineering expertise. I have started to develop a CSR programme for MLM having previously delivered a pro-bono school and sports academy design for the street-children charity, Future Hope, in Kolkata India,” said Freedman.

When Freedman won this year’s Young Professional Award, he was described by the judges as “an all-rounder, a real role model for the industry, a brilliant communicator and a future industry leader”.

It’s clear that the judges expect great things from Freedman and they say that there is no doubt that the industry will be different as a result of his impact on it. He is a very worthy winner of this year’s Diamond Award.

With Ben Freedman (second left) are ACE chief executive Nelson Ogunshakin, ACE Chairman Mike Haigh and Clive Myrie.



Up to £1bn a year is to be ring-fenced from vehicle excise duty for councils to spend on local roads as part of the government's new transport investment strategy, writes *Andy Walker*.



Government announces boost for local road construction

Local roads will benefit from a share in a multi-billion pound improvement fund as part of a new investment strategy unveiled by transport secretary Chris Grayling. The Transport Investment Strategy sets out a new long-term approach for government infrastructure spending to target cash at projects that help rebalance the economy.

At the heart of the proposals is the creation of a new national Major Road Network, combining Highways England's 4,200 miles of strategic roads with 3,800 miles of council-controlled 'A' roads. This will see a share of the annual National Road Fund, funded by Vehicle Excise Duty, given to local authorities to improve or replace the most important A-roads under their management. Up to £1bn a year is expected to be ring-fenced from the near £6bn raised annually from vehicle excise duty.

The plans are aimed at improving productivity and connectivity of towns and cities across the country, tackling bottlenecks and traffic jams for road users and removing lorries and through-traffic thundering through rural villages. The strategy sets out why investing in transport infrastructure matters and the priorities for future investment.

Four key themes will guide future transport investment decision making:

- Ensuring investment consistently meets the needs of users and helps create a balanced economy;
- Getting best value out of the network and investment;
- Maintaining a resolute focus on delivery;
- Adaptability in the face of change.

Launching the plans, transport secretary



Chris Grayling:
"This government is taking the big transport decisions for Britain's future."

Chris Grayling said: "The Transport Investment Strategy sets out a blueprint for how we can harness the power of transport investment to drive balanced economic growth, unlock new housing projects, and support the government's modern industrial strategy. This government is taking the big transport decisions for Britain's future like HS2 and Heathrow, while delivering the biggest

investment in roads and rail for a generation. At the heart of our approach is a plan to make transport work for the people who use it and for the wider economy."

The new plans mean that main roads currently overseen by local authorities would share the car tax-funded National Roads Fund which was previously envisaged to be ring-fenced for national routes.

The industry reacted positively to the transport secretary's proposals. Nelson Ogunshakin, chief executive of the Association for Consultancy and Engineering (ACE), said: "ACE welcomes this announcement as it demonstrates a considerable opportunity for future investment in our road network. We have long campaigned for vehicle excise duty to be used to fund significant investment in our road network as it will re-establish trust between motorists, civic society and the government while improving UK connectivity.

"The disconnect between the strategic road network and local roads, particularly around junctions, has led to bottlenecks in the system that are not good for the productivity of the UK economy. Creating a structure that enables reallocation of funding that allows for investment in the entire road network will reduce bottlenecks and traffic jams allowing traffic to flow. The UK's towns and cities are the engine of our economy but it is only by improving the connectivity between the various regions of the UK that we can ensure the economic growth the UK needs in a post-Brexit world."

AECOM head of roads and chairman of the ACE roads sector interest group, Dave Beddell, said: "I cannot stress enough the need to ensure sub-national transport



bodies are coordinated in their approach to both network planning and delivery. We note the relationship between vehicle excise duty and the funding of the road network and feel this needs careful monitoring in order to offset any erosion of road investment which may result from improved vehicle emissions. ACE's roads sector interest group welcomes the government's continued advocacy of road investment and sees this as critical in retaining supply chain confidence in the marketplace."

Alan Pauling, UK transport market director at Ramboll, welcomed the use of vehicle excise duty to fund highway improvements. "Irrespective of whether and how much goes to either the Strategic Road Network or the local authority, controlled roads will undoubtedly be the subject of much debate," he said. "More interesting to watch will be the competition that develops as responsible authorities seek to compete for that funding, which raises the prospect of a return to a cumbersome bidding process. This will also give those paying road tax a first time opportunity to have a say in how that money is spent and, importantly, to pass comment on whether it was worth it," said Pauling.



Alan Pauling:
"This will give those paying road tax a say in how that money is spent."

Iain Bisset, divisional director of infrastructure and built environment at WYG, said: "This is a positive move that strengthens the connection between revenue generated from vehicle excise duty and highways investment needs. Including local authority 'A' roads in a Major Road Network is a logical step forward."

Stephen Russell WSP head of highways said: "This funding will help to re-balance the perceived discrepancy between local and central government infrastructure investment and will be welcome to local authorities who are balancing revenue and capital funding pressures whilst seeking to maintain and enhance their key local roads."

Russell said that it was crucial that a joined up approach was taken in order to achieve best value from the funds announced by Chris Grayling. "A key enabler to making the most of this funding will be ensuring that local road enhancements interlink with the wider Strategic Road Network plans and therefore the work of sub-national transport bodies, combined authorities and LEPs will be key to supporting the potential that is now being made available," said Russell.

David Tarrant, highways general manager at Mott MacDonald, said: "The secretary of state's commitment to a ring-fenced road fund is very much welcomed. The main aim of the Rees Jeffreys Road Fund study was to recognise the importance of a coherently planned and managed Major Road Network, which is greater than the current Highways England

(HE) network. The emphasis was never on just building lots of bypasses. The key factor was recognising that many parts of the current network, which isn't under HE's control, play a key role in the economic and social life of an area."

Jason Millett, Mace's chief operating officer for consultancy, said: "Every year, traffic and congestion costs the UK £31bn a year and anything we can do to reduce that figure will help to get the country match fit for Brexit and better placed to compete on the global stage. It will now be important to ensure that we leverage this investment as effectively as possible to boost outcomes for the people that live and work around the proposed



Jason Millett:
"Every year, traffic and congestion costs the UK £31bn a year and anything we can do to reduce that will help."

schemes. This means genuine community engagement and a real commitment from contractors to developing and using local skills."

David Brown, the chief executive of Transport for the North, which represents 19 local authorities and 11 Local Enterprise Partnerships in the north, also welcomed the plans. "The fact that the government says its national Transport Investment Strategy 'sets out a new long-term approach for government infrastructure spending – meaning cash will be targeted at projects that help rebalance the economy' has to be good news for the north," said Brown. "We now need to study the report in much more detail before we give our full response. Initially, the signs are encouraging and it appears many of the recommendations we have been making will now become part of the national

agenda," he said.

Civil engineering contractors also reacted positively. Marie-Claude Hemming, director of external affairs at the Civil Engineering Contractors Association (CECA) said: "CECA believes that substantial underinvestment outside London and the South East is a key cause of everyday challenges on regional transport networks. We are particularly pleased that the government has committed to prioritising predictable funding and a stable long-term pipeline of projects, which provides the certainty our members need to deliver schemes on time and on budget."

Dougald Middleton, infrastructure partner at EY, stressed the added

advantages of roads development. "Investing in local roads will not only relieve congestion, but will open up opportunities for new housing and wider commercial development by removing through-traffic from communities," he said.

"As road users will be funding these upgrades through the income from vehicle excise duties, local authorities should follow suit and link their roads, and planning and development functions too. This will ensure that economic benefits from this investment are both maximised and shared equitably between the public and private sector, rather than concentrated on private land owners who are sometimes the greatest beneficiaries of improved access and infrastructure," Middleton said.



David Tarrant: "The secretary of state's commitment to a ring-fenced road fund is very much welcomed."

Striking a balance between local and national



Are top-tier national infrastructure projects the best solution for regional economies? There's a real need to plan better and balance national infrastructure pipelines with regional infrastructure needs, writes *Natasha Levanti*.

The south west of England, while famed for the engineering prowess of Brunel, is of late known for a plethora of transportation challenges that serve to fracture the region, including but not limited to, electrification, single carriageways, limited rail connectivity and aviation connectivity.

Yet, as the South West remains the fastest growing region after London for the last six years, there is much potential for new infrastructure projects and developments going forward.

While the costs of Hinkley Point C have surpassed the initial estimate, the project is adhering to its initial timeline, with the first pouring of concrete for the reactor galleries at the end of March. Thus far there are approximately 1,600 individuals working on the site and at the peak of its construction the site alone is estimated to employ 5,600 people. This does not include the increased supply chain demands within the local area that will be created during the construction and the lifetime asset management of the project once completed, estimated to bring the jobs total to over 26,000.

The project has committed to 500 apprentices over the next six years as well as £15m invested in the education, skills and employment of individuals from Somerset. This places the project as a skills development opportunity for local residents, through fostering skills that can then be used on other projects in the South West.

Greg Clark, secretary of state for business, energy and industrial strategy, for the South West this is an opportunity for a "long overdue wave of investment... providing a huge opportunity to the economy ... through the supply chain of firms, big or small, that will benefit from the investment."

Yet other infrastructure projects within the area have been quick to point out that these large top-tier infrastructure projects placed in regions needing an economic influx may hamper the small to medium scale regional projects, which are already facing the additional challenge of impending Brexit.



Exmouth seafront in Devon – the south west is the fastest growing region after London.

Robert Sinclair, chief executive of Bristol Airport, said: "The number of substantial infrastructure projects planned over the next ten years will have an effect on our airport's development plans. Hinkley Point C is sucking out skills and not just in the construction and infrastructure area but also other skills as well. They need hundreds of security guards, bus drivers, steel welders, concrete pourers and all sorts of people. That feeds through into shortage of people but also into costs and we are directly exposed to that especially in construction where we've seen costs running at 5% plus. And Brexit is undoubtedly going to compound the problem even further with access to skilled labour."

This begs the question, for regional growth are large-scale national top-tier infrastructure projects the best way to spur the economy?



Hinkley's slowdown may be a reminder we need more than just large-scale projects.

If Sinclair is correct in the knock-on effect of this top-tier asset on lower-tier assets that improve the lives of local residents in a more immediate way, even if only temporarily, will such a top-tier project truly benefit the region if people leave due to further electrification delays, hazardous carriageways, lack of broadband or limited aviation.

With Brexit set to hit the south west coast, as well as the rest of the United Kingdom, in 2019 and the skills gap in our industry ever looming, we need to ensure that within forward infrastructure planning we strike a balance between local and national needs.

While large-scale top-tier projects are able to foster skills with intensity, we must ensure that these skills are also deployed within lower tier projects so long awaited local projects are not sacrificed.

Hinkley Point C's potential slowdown due to cost and skills of other regional projects, from broadband to electrification, effective carriageways and aviation, may be a much needed reminder that we need to plan, secure and deliver on both national and regional infrastructure pipelines – as complementary parts of the greater whole.

For the south west, while Hinkley Point C may currently be the most notorious, it is important not to let one top-tier project cast the rest of the region's projects into shadow.



US infrastructure's trillion dollar challenge

Infrastructure in the US needs trillions of dollars of investment to repair and renew it and that brings significant challenges for government and the industry, says *Trevor D'Olier-Lees*.

Bills for maintenance, repair and renewal in the US infrastructure sector amount to the billions, and even trillions, of dollars, putting pressure on federal and municipal budgets. Yet the need for infrastructure funding, however pressing, is old news. As a recent S&P Global Ratings whitepaper, *Developing US Infrastructure in an Era of Emerging Challenges: Observations from Key Sectors*, explains, added pressures are now facing government officials. Infrastructure needs to remain competitive in an age which demands more projects that are both environmentally sustainable and digitally innovative.

The report shows that a variety of tools exist in the market that could help overcome these challenges. With a track record built across the globe, these may have the potential to help federal and municipal governments modernise US infrastructure.

Sector-by-sector observations

S&P's report took a look at a selection of key infrastructure sectors across the US, from roads, bridges and airports, to water and power, and highlighted some significant statistics. For instance, some 56,000 bridges in the country are structurally deficient. Across the transport sector, as much as \$1.1 trillion worth of funding needs are outstanding.

Even supporting that most crucial of sectors, water, seems a considerable task. The Environmental Protection Agency estimates some \$655bn will be needed on

repairs to pipelines and other facilities over the next 20 years. The American Water Works Association suggests the figure could even be as high as \$1 trillion.

Additional challenges

If finding the funds for American infrastructure wasn't enough of a challenge, new issues have cropped up.

For a start, the market may witness growing demand for environmentally sustainable infrastructure projects that can mitigate the drivers of climate change – by cutting down on greenhouse gas emissions – or at least for updates to make infrastructure more resilient to the adverse effects of global warming, such as flooding.

Developments may also need to factor new and potentially disruptive technologies into their design, so that cities might remain economically competitive in the digital age. US road networks may need to accommodate a rise in self-driving vehicles, and airports may need to modernise to account for greater traffic brought on by the growth of more fuel-efficient planes.



Download the report at <https://goo.gl/vGgtmw>

Existing tools that could help

Where will governments find the means of overcoming these challenges? S&P's report explores existing tools in the market that have been used to help channel private-sector capital to support repairs and development, as well as utilise innovative expertise to manage emerging challenges, while keeping in place public-sector oversight.

First up are public-private partnerships (PPPs). These have been used as a way for state and local governments to transfer long-term operational risks to the private sector, and to embed lifecycle thinking and technological innovation. Having already been used for the development of roads, it may be that PPPs could also apply to the water, social and airport infrastructure sectors.

The bundling of smaller infrastructure ventures into larger, aggregated assets – whether through corporate roll-ups, the securitisation of municipal assets, or the bundling of loans in state revolving funds – could provide another option. Since infrastructure is, by its nature, capital intensive, scale is an important factor in achieving cost-efficient financing.

Governments could thus use PPP bundling to help attract the attention of large, institutional investors. S&P's report notes that, having been applied to bridges, courthouse infrastructure, schools, police facilities and service stations in North America, bundling as a financing tool is gaining momentum. Yet significant room for growth remains and the water sector, for one, might be a key beneficiary.

A role for the government

Finally we have the role of government in shaping a supportive regulatory environment for infrastructure development. Tax incentives and subsidies have driven substantial private capital to the growth of the renewable energy and battery storage industries, for instance.

Since 2005, when the Energy Policy Act was passed – which created a 30% investment tax credit for selected solar units – what was then an underutilised resource in the US has achieved rapid growth. While regulation and oversight have crucially remained in government's hands, such methods have helped the power grid transform to meet the growing need to be sustainable.

New infrastructure challenges will doubtless continue to emerge. But with the right tools, the public and private sectors could work together to address them effectively.

Trevor D'Olier-Lees is a senior director in S&P Global Ratings' infrastructure practice.

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