



ANALYSIS
Science in
the City
Page 19



DISCUSSION
Technology in
infrastructure
Page 22

FORUM
Future
Procurement
Page 14



I INFRASTRUCTURE Intelligence

Produced for the industry by the Association for Consultancy and Engineering

Meeting future growth ambitions in the rail sector

Rail Minister Claire Perry
on delivery needs
Page 10





INFRASTRUCTURE Intelligence

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MESSAGE FROM THE EDITOR

Rail minister Claire Perry is absolutely right when she says Network Rail faces its greatest ever challenge as it battles to transform the rail network and meet the ballooning demand for passenger and freight services (*see interview page 10*).

As the numbers demonstrate, rail is a success story without which the nation's transport system would have long since ground to a halt. But the numbers also show that the system is struggling to cope.

Yet while Perry is keeping her powder dry when it comes to precisely how the government intends to respond to the clear on-going underperformance by Network Rail – underperformance graphically pointed out in this month's quarterly Office of Rail and Road monitor report - it is equally clear that her answer will not be to do nothing.

A year into CP5 and the industry seems to agree and now appears comfortable talking about the elephant in the room of missed milestones, over spent budgets and under-delivery, as we heard at the recent Railway Engineers Forum Technical Seminar. There is perhaps real post-Election fear that without fundamental change and transparency the industry risks a severe loss of confidence.

Such a loss would be catastrophic across infrastructure, a sector which has spent so long building up the confidence of government and investors through projects such as the Olympics and more recently Crossrail, to the position that it can now be relied upon to deliver.

As Perry points out, infrastructure has positioned itself well as the solution to the nation's economic woes, and proved that it is a sector worthy of precious and well-guarded public investment.

This must continue. Green light for the Swansea Tidal Lagoon project signals the start of a potential £30bn world leading industry. The transformational impact of long term investment in UK highways and a move towards world leading digital asset management techniques really do offer the opportunity for the UK industry springboard off its success. But only if we are organised to get the basics right. This parliament is about delivery, says Perry.

It would be a good idea to embrace that ideal.



Antony Oliver,
editor, Infrastructure Intelligence

Contents

| | | |
|--------------|----|--|
| News roundup | 5 | This month's top infrastructure stories |
| Opinion | 6 | Comment from Malcolm Bairstow, Dani Fiumicelli, Tony Hansen, Nick Roberts, Sheena Sood, Beth West, Mark Whitby and Murray Rowden |
| Interview | 10 | Rail Minister Claire Perry on delivering UK rail growth ambitions |
| Analysis | 12 | Bentley on a Year in Infrastructure |
| Forum | 14 | SME procurement forum with David Hancock, head of construction at the of the Cabinet Office |
| Science | 18 | Arup's Jennifer Di Mambro on how design is shaping UK scientific research |
| Round table | 22 | How technology is shaping the future of the industry |
| ACE news | 24 | ACE seeks your views on the EU, Queen Birthday Honours for ACE members and the benefits of membership |
| ACE news | 26 | Engineering Excellence Awards recognise the best UK talent |
| EIC news | 27 | Matthew Farrow on a critical five years for waste management |
| Online | 28 | Best read stories from www.infrastructureintelligence.com |

News roundup

BUSINESS

Kier has completed its £265M cash purchase of infrastructure and business services organisation Mouchel.

Key attraction for Kier was access to the £21bn strategic roads market in the control of Highways England via Mouchel's maintenance deals which covered around one third of the English strategic network. With Kier's contracts with local authorities, the combined group is now looking after 44,000km of roads, including 28% of the strategic network.

Consultant WYG has rejected offers to buy the business after it put itself up for sale as part of a strategic review in January.

The decision was announced when the group reported its financial results to the end of March 2015. Bids had been received but did not value the organisation highly enough, it was stated. The company has now taken up a new £25M committed facility with HSBC to enable investments in the future. And it announced that it has bought the 17 strong, £1.6M turnover FMW Consultancy which specialises in transport planning. Revenues at WYG were up 3% for the year to £130.5M, with pretax profit up 3.4% to 5.7M.

Swedish consultant Sweco has announced the acquisition of Netherland's based Grontmij in a deal worth £257M (Euro 354M). The new combined business will have 14,500 employees and a £1.24bn (Euro 1.7bn) annual turnover. Following the deal three current members of Grontmij's executive committee, Ina Brandes, John Chubb and Ton de Jong, will be members of the existing Sweco executive team.

US consulting giant CH2M has agreed a \$300M investment partnership to secure its financial position.



Ben Ainslie Racing revealed its new America's Cup team base in Portsmouth this month just twelve months after Britain's top sailor formed his team to challenge the US for sailing's greatest prize. McLaren did it in Formula 1. Team Sky did it in cycling. Now with the opening of his new racing centre Sir Ben Ainslie has set out his intent to dominate the yacht racing world with a new level of professionalism. That intent started this month as the construction team prepared for formal handover of the £15M team base for boat design, racing command and commercial preparation ahead of the 2017 America's Cup. The build, led by former Capita Symonds boss and one time pro-sailor Jonathan Goring, has moved at speed from a planning application in June 2014 through design, procurement and construction to deliver a BREEAM excellent structure to meet the team needs.

Investment management specialist Apollo Global Management has agreed to invest \$200M in CH2M stock and will then plough a further \$100M investment into the business during the next 12 months in return for two positions on the CH2M board.

Wates has reached a preliminary agreement to buy Shepherd Engineering Services, and Shepherd FM. It will also acquire a significant number of contracts and frameworks from Shepherd Construction, which last year had losses of £8.2M on £240M turnover.

In a survey of 1211 Institute of Directors (IoD) members an overwhelming majority (85%) supported plans to run a budget surplus by the end of the Parliament. Business leaders thought deficit reduction should be achieved primarily through spending cuts rather than tax rises. Infrastructure and education were ranked as the top issues for businesses who want the

government to make them an immediate priority, with over half strongly opposed to spending cuts in these areas.

HS2

Secretary of State for Transport Patrick McLoughlin is seeking to accelerate construction of HS2. A new Hybrid Bill for phase 2 of the railway will be prepared in the current Parliamentary sessions. "I want to see if we can bring HS2 to Crewe faster than planned, subject to further analysis and a decision on the preferred route," he said addressing an audience in Leeds. "The argument's been won. HS2 will be built. The full 'Y' network from London to Birmingham and Birmingham to Manchester and Leeds," he said. "I'm determined to deliver the benefits to the north as fast as possible. So I'll prepare a dedicated Hybrid Bill in this Parliament. And we're not forgetting the eastern leg either," he continued.

"We'll make our Phase Two announcements this autumn." McLoughlin also confirmed that construction of Phase 1 for HS2 would start in 2017 and said that the Hybrid Bill was the number one Bill for the current session.

HS2 Ltd is not convinced the business case is strong enough for line to go to Scotland, according to the Independent on Sunday. The railway promoter is instead reported to be considering "enhancements" of existing lines.

ENERGY

Areva, the French firm charged with designing Britain's Hinkley Point, has received a Euro 2bn approach for its reactor business from EDF. The French government owns 84% of EDF and 87 per cent of Areva and will have the final say on whether any deal will pass.

Magnox has said it plans to cut up to 1600 jobs across 12 of its nuclear power sites by September 2016. Eleven of the plants have already stopped generating power, while the plant at Wylfa on Anglesey in North Wales is due to close next year.

HOUSING

The housing industry needs 120,000 extra workers to build the amount of new homes the country needs, according to new research by EC Harris. And the labour shortage could push the industry to adopt new methods of housebuilding, it claimed. Current home construction figures stand at 140,000 a year. That needs to be ramped up by another 80,000 to even start to deal with the shortfall in accommodation for the growing number of UK families said the "People and money – fundamental

to unlocking the UK housing crisis” report.

PROFESSIONS

Built environment professionals must embrace regular TripAdvisor style feedback from clients to guarantee their professional standing, former government chief construction adviser Paul Morrell has said. To “close the gap”, between design promises made by industry and outcomes delivered, institutions must boost the level of direct response from clients and the ultimate users of infrastructure. And while precise details of how such a system might work had yet to be discussed, he urged the professional institutions to take the lead and work together to set up, embrace and administer this new “body of knowledge”. Use of a public feedback system similar to that offered by TripAdvisor to travellers, is a key recommendation of the recent “Collaboration for Change” report produced by the industry-backed Edge Commission last month under Morrell’s chairmanship.

ENVIRONMENT

Government has been urged to use changes in building regulations and planning standards to focus thinking on the need to adapt new and existing buildings to a changing climate. A new industry-backed report produced by Innovate UK urges clients to invest to manage the growing risk to building and asset users and highlights that the current approach to climate change adaptation was perhaps a decade behind mitigation policies and warns that “left to market forces as recommended in [government] current policy, adapting the UK’s built environment is likely to be reactive and possibly too late to avoid the downside risk”.



Tunnel boring machine Victoria broke through at Farringdon Station in London in June to complete the 42km of tunnelling work on the £14.8bn Crossrail project. Prime Minister David Cameron hailed the achievement as “an incredible feat of engineering that will help to improve the lives of working people in London and beyond.” And London Mayor Boris Johnson used the underground celebration to call for a quick start on Crossrail 2. Attention now switches to fitting out the tunnels and stations to create an operational railway. Crossrail will add 10% capacity to London’s rail network. It will serve 40 stations, connecting Reading and Heathrow in the west with Shenfield and Abbey Wood in the east. TfL-run Crossrail services through central London will commence in December 2018. An estimated 200 million passengers will travel on Crossrail each year.

Businesses must plan for the escalating risk of climate change and invest in protection measures in order to survive in the future says new research from Mott MacDonald and the Anglia Ruskin University Global Sustainability Institute (GSI). The report entitled “Climate change and business survival” projects that by 2035 investment of \$200bn per year in resilience measures will be needed to combat losses worth \$1trillion. However the gap between current investment levels and the cost of climate change related damage is widening, finds the research, and by 2035 there could be an annual shortfall of \$130bn meaning that new financing methods must be found.

WATER

Economic development agencies Scottish Enterprise and the Highlands and Islands Enterprise have launched a new initiative aimed increasing innovation within the water sector.

The Hydro Nation Water Innovation Service will build more effective links across wider industry and stakeholders.

ROADS

Motor vehicle traffic is the highest it has been since 2008 according to the latest Department for Transport statistics. In 2014 all motor vehicle traffic in Great Britain was 311 billion vehicle miles. This is 2.4% higher than 2013, and represents the fastest annual growth since 1996.

The Midlands Highway Alliance (MHA) has awarded AECOM and its supply partner Waterman Group a £30M Professional Services Partnership (PSP) contract to deliver multidisciplinary professional design services. Under the three-year contract, which has the option to be extended by an additional year, AECOM and Waterman will support the 20 councils that are members of the MHA on highway projects across the

Midlands.

Costain Skanska Joint venture has won the £600M job to construct two packages of the A14 upgrade in the east of England; package one, covering the section from the A1 at Alconbury to the East Coast Mainline; and package two, covering east of the East Coast Mainline to Swavesey. The third package, to widen the A14 from Swavesey to Milton, is being rebid as Highways England works to get the most from its collaborative delivery framework. The fourth package, for reconstruction of a viaduct over the East Coast Main Line, will be awarded in 2019. The detailed design contract has been awarded to Atkins CH2M joint venture at a total cost of £35.3M. The initial design award is for the development phase at a value of £19.6m.

DIGITAL INFRASTRUCTURE

Consulting engineers, lawyers, accountants and actuaries could be replaced by artificial intelligence by as early a 2025 according to futurologist Graeme Codrington of TomorrowTodayGlobal. “Any professional that is mainly involved in dealing with information is going to be replaced by algorithms and AI,” he said. He also predicted that private bankers and wealth managers will be replaced with algorithms.

PEOPLE AND CAREERS

Balfour Beatty’s Nick Pollard has stepped down with immediate effect from his position as chief executive officer of UK Construction Services, a role which he has held for two years. In a statement the contractor confirmed the move. “After two years of leading the UK Construction business, Nick Pollard is stepping down to

pursue opportunities outside Balfour Beatty. Dean Banks, who recently joined Balfour Beatty as chief operating officer for the Regional and Engineering Services businesses, is taking over with immediate effect as managing director, UK Construction Services, encompassing the Regional and Engineering Services businesses.”

There were 1.8 million applications for apprenticeships, but there were just 166,000 apprenticeship vacancies advertised last year, according to the Local Government Association. Two thirds (67 per cent) of intermediate or advanced level (Level 2 or 3) apprentices were already employed by their company. Since 2010, 42 per cent of apprenticeship starts have been over the age of 25 rather than young people entering work. In 2013/14 under 19s made up 56 per cent of applications but only 27 per cent of starts, whereas people aged over 25 made up 7 per cent of applications, but accounted for 37 per cent of starts, the LGA said.

AIRPORTS

The row over the closure and sale of Manston Airport on the Isle of Thanet in the Thames Estuary in Kent, has been revived with the decision by the new UKIP led Thanet District Council to reconsider pursuing a compulsory purchase order for the site. The previous administration, which was then controlled by Labour, voted in December not to implement a compulsory purchase order after it claimed prospective indemnity partner RiverOak, which had wanted to keep the airport open, had not passed due diligence. On 5 March, the DfT announced that it will “appoint a consultant (PWC) to review the process so far on decisions about the future of Manston airport.” The report is due.

The owner of Manchester Airport plans to invest £1bn over 10 years to upgrade Britain’s third largest airport and help it compete harder with Heathrow for passengers. “Over the next 10 years, the airport will continue to develop as a global gateway for the UK,” said Manchester Airport Group chief executive Charlie Cornish. The upgrade will involve expanding the main terminal building and improving another terminal.

EDUCATION

University of Manchester has announced the appointment of Balfour Beatty, Laing O’Rourke and Sir Robert McAlpine to deliver the bulk of its £1bn capital programme through a partnership framework agreement. The University of Manchester’s Campus Masterplan is the largest capital programme in the institution’s history and one of the largest currently underway in the higher education sector.

DESIGN

A new parliamentary-led inquiry has been launched to investigate how greater use of design techniques in the planning and construction of the UK’s built environment may help foster positive behaviour change in local communities. The eight-month inquiry is being conducted by the Design Commission, a cross-party group of parliamentarians and leading representatives from business, industry and the public sector.

Repairs to the Palace of Westminster and Houses of Parliament and upgrading of life expired mechanical and electrical services could cost over £5.7bn and take 32 years, according to an options assessment report prepared by AECOM/HOK/Deloitte for MPs and Peers.

INTERVIEW: Andrew McNaughton, engineering and construction director of Tidal Lagoon Power



As engineering and construction director for Tidal Lagoon Power, former Balfour Beatty chief executive Andrew McNaughton plans to start generating power at Swansea in 1300 days to kick start a £30bn zero carbon tidal power industry for the UK.

Government’s consent for Swansea is a massive step forward for the project and the business. So what happens now? We are in negotiations with government for a CfD [Contract for Difference, to set the price per unit of electricity generated] and have local arrangements to agree with the local planning authorities particularly around the public amenities. We also need to agree a financial close with our investors. Every single piece of that is doable but it is now work that must be done.

Could anything still stop this project at Swansea? The consent order means that we have a project that is real. Until then it was all still up in the air. It allows us to implement a power generating plant off Swansea Bay with the ability to generate 320MW of power. It is now over to us to get the other elements out of the way so we can get out there and start construction in Spring.

So next Spring is a realistic start date? We need to use the marine season so we are focusing on a Spring start - that is our aim. We have a planned advanced works phase to develop the designs and to develop the procurement plans and an integrated schedule between all the

different [contract] packages. Ultimately we have to get to a position of having a robust cost plan that we can put to financial close.

What is your role on the Swansea project? My main focus is that in just over 1300 days we want to be a power generating company - to ensure that we can deliver power to the grid in the Spring of 2019. I have people absolutely focussed to move from a development company to an owner and operator of a power company in that time.

Your marine works preferred bidder is China Harbour Engineering Company. Were there no UK based skills available? My honest answer is that there is no UK company that has the skills, capability or equipment to deliver the marine works for Swansea Bay or any of our other lagoon projects. Significant marine craft are needed and they don’t exist in the UK so we had to run a global competition to find the people capable of delivering it. The Chinese were able to demonstrate not only their skills and experience but also the way that they were going to operate. It reflects the reality that across Europe there has been an absence of major marine work. I wanted to ensure that we were minimising the risk.

While Swansea is a world first and in many ways a pilot for the next five lagoon projects planned. What progress is being made with this bigger plan? We are already underway with the early phases for the Cardiff and Newport projects and we are aiming to be on site at Cardiff [with an 1800MW capacity plant] before we finish at Swansea.



Nick Roberts, chief executive officer, UK & Europe, Atkins

Solving the deliverability challenge - focus on outcomes rather than outputs

Deliverability is a term that is often used to describe one of the most important challenges we face in our industry. But despite Google providing 561,000 search results for the word, none actually defines what it means.

It would be too simple to think that deliverability simply means saying what you're going to do and then doing it, although that's always good place to start.

There are a number of factors affecting the deliverability of a project: The skills, scale and mobility of resources; limited budgets; time constraints; competing priorities of clients and the supply chain; or the fact that the technology or solution doesn't currently exist. The answers for dealing with these are all different and we often have to face several of them on each project.

In addition to the ability to deliver from a technical perspective, making sure we don't lose sight of why we're delivering these projects in the first place is key. Putting the outcome at the centre of the challenge rather than the output allows us to solve the deliverability challenge in a completely different way.

I'm not convinced we do this often enough. Regardless of whether you're

looking at outcome or output, good planning underpins every successful project. I do wonder whether we have the proportions right between time and resources spent on planning and design and time spent on delivery.

I'm keen to have more outcome driven engagement between clients and the supply chain throughout the project, but particularly right at the start. I believe we should be relentlessly dissatisfied with the status quo.

It's not about saying that we can't be proud of a job well done. However it is saying that we can't just do things the way we always have done, there has to be some improvements we can make next time. How often do all parties carry out a thorough review of what went well and what lessons can be learnt before we all move on to the next project?

You may have seen Sir Bradley Wiggins break the UCI Hour Record at Lee Valley Velopark. I'm a huge fan of Sir Brad and what Team Sky has done over the past few years with marginal gains and incremental improvements. As human beings, we get used to "the way things are" really quickly. But for designers and engineers, the way things are is an opportunity, we should always asking: Could things be better?



Malcolm Bairstow, Senior Partner, EY

The next chapter? Digital and big data, creating infrastructure that is out of this world

With the recent political uncertainties behind us (at least until the country is asked to opine on the question of Europe) and business confidence on the rise, now is the perfect opportunity to fix some of the fragilities inherent in the infrastructure sector.

Without change, there is a risk that businesses may be prevented from grasping the enormous opportunities that come with the new digital era, enabling the international competition to steal a march on UK based firms.

The economist E F Schumacher asserted that 'Small is Beautiful' and the majority of our infrastructure supply chain operates comfortably in a stable local market.

However, some consider that the inevitable consolidation of the UK's construction sector will leave no more than a handful of the country's major players sitting comfortably when the music stops.

Nobody is suggesting that there shouldn't be an ecosystem of many and varied SME's to provide inspiration and entrepreneurialism. But it is naive to believe that any sub-scale business can afford to make the required investments in training, technology and business development to match those global players.

One encouraging aspect of the recent closely fought election was the high degree of importance given to infrastructure by the politicians, the press and the public.

However, in stark contrast to this halo effect, our disaggregated and dispersed trade bodies, professional institutions and lobby groups seem to be light years behind other industries such as automotive and aerospace.

The infrastructure sector is still struggling to speak with one voice and to influence longer term policy decisions.

There is a case for investment. Whilst the arrival of Business Information Modelling (BIM) has only proceeded at a pace that the lawyers would allow, the impact has already been transformational.

The next chapter is digital and big data. This truly offers the industry the opportunity to use data to massively simplify processes and to embed digital technology to create infrastructure that is out of this world.

Yet in the absence of businesses with the sufficient scale to invest and without a coordinated voice for the infrastructure sector, could the ability to exploit these opportunities potentially be a stretch too far?



Beth West, commercial director, HS2

How do we attract your daughters into infrastructure?

There is now a substantial evidence base – such as McKinsey's report from January 2015: Why Diversity Matters – that demonstrates that companies who have a diverse workforce outperform those who are less diverse in most performance indicators. The infrastructure industry has been relatively slow to pick up on this, but the good news is that we are now starting to have the conversation about why diversity matters.

As an industry based in engineering, we obviously need more women engineers. But infrastructure is not just about the people on site wearing hard hats, as only 50% of people working in the industry are on site. The sector as a whole needs more diversity.

I'm not an engineer – but I've worked in infrastructure for the past 20 years. I'm passionate about how access to good infrastructure can boost economies and change lives for the better. But unfortunately we can't do this to the best of our ability if the industry doesn't reflect society as a whole.

Things are changing; unlike at the beginning of my career, I'm usually not the only woman in the room anymore. At HS2 Ltd now 33 per cent of engineers

we employ are women and a third of our Executive Directors are women. But change is slow and there is still a lot more to do across the industry to train, recruit and retain more female staff.

Too many of our best and brightest young people, women and men, are being attracted to other sectors so we need to be better at setting out our stall to this next generation. It is particularly important to show girls successful female role models in senior roles to which they can aspire.

We know that 75 per cent of students have a better idea of what they want to do for a career after they've had the opportunity to talk to employers, so we need to work together to collaborate with schools and get the message out there that the engineering industry is a great place to work – and a great place for women to work.

There are many future opportunities, and with a significant population working in infrastructure nearing retirement, we need make sure that we're attracting large numbers of talented young people into our industry. And for real success, that's a group of young people that reflects our increasingly diverse society.



Mark Whitby, chairman, WME Consultants

Greening the Grid

News that the Swansea Tidal Lagoon project has won planning consent and is up and running under the leadership of Andrew McNaughton, is great for the UK's challenged electricity power supply sector and balance of sources

But to gauge the real impact it needs to be seen in the context of falling demand for electricity that is now seen across the UK together with the way that other conventional renewables are reshaping our energy industry.

Government statistics show that in 2014 our electrical consumption fell by 4.2% while the amount of electricity the UK's generated also decreased 6.7% to the lowest for 18 years.

The 2.5% difference is now being made up by increasing imports from our European neighbours in countries with higher reserve margins such as France and the Netherlands.

The statistics show a vastly changing picture. Government figures highlight that coals' contribution to our grid dropped by 23.0% and nuclear by 9.7%.

Conversely, of the 337TWhrs of supply, 35.5TWhrs are being generated from wind and solar sources – a figure that has risen by 5.0TWhrs since 2013.

Also we see that bio energy power

generation was up 24% on 2013 to 20.6TWhrs.

In fact, added together these once minority renewable resources actually delivered just 1.9TWhrs short of the output from our nuclear stations.

What's interesting is to speculate where this may be leading. Solar and wind - particularly offshore wind - will, we hope, continue to prosper and in the 1300 days that it will take to complete Andrew McNaughton's tidal lagoon station in Swansea, they will have added at least another 15TWhrs. And biomass will have added possibly another 10TWhrs.

In addition we will see demand continue to fall, although most probably not quite as dramatically. Yet even assuming a 5% drop it will see UK demand fall from 303 to 287TWhrs.

Add in McNaughton's lagoon contribution of 0.5TWhrs and the other projects that Tidal Lagoon Power have planned and the picture looks even rosier for the UK renewables' contribution.

On the other hand new nuclear is at best 4000 days away.

The future is already here, it's just there is still not much of it around.



Murray Rowden, chairman,
Constructing Excellence

Collaboration: an old word but a vision for the future

After several lean years, these are brighter times for UK construction – and government figures released this month confirm the industry has posted year-on-year growth for 23 months in a row.

The industry's vision, optimism and sense of opportunity have combined to produce the Construction 2025 joint strategy, the National Infrastructure Plan (NIP) and the IUK Routemap.

But while there is broad consensus on the direction of travel, there is an important debate to be had about how the industry as a whole can improve.

The big question we face is how does government, clients (by which we mean developers, owners or operators) and the supply chain work together to move the industry on?

Technology such as BIM will play a key role in closing this circle - as a disrupter of the industry's current business practices. So too will the rise of companies offering data-led and manufacturing-led approaches.

But the solutions are not all rooted in technology, and there is an old word that is coming back to the fore. Collaboration. Constructing Excellence has championed "excellence through collaboration" for over two decades and seen how collaboration delivers better outcomes, and better value.

And Constructing Excellence's global network is reporting growing interest in collaboration - with the approach used at Terminal 5 often cited as a model. In the UK, we have client leaders who have applied the relational principles established on T5 to their businesses.

But this approach is still not applied consistently. We need an industry that fully recognises collaboration as central to business planning. We need the industry to embrace supra-collaboration. We need greater collaboration between clients in the adoption of consistent delivery and procurement systems. We need clients to adopt the principles of the NIP, and to collaborate to create an integrated master programme that smooths out the peaks.

We need a supply chain that collaborates on BIM and technology. A supply chain that integrates the "consultant and contractor" functions to provide seamless delivery and is truly rewarded for the value it creates.

Finally, we need government intervention in the labour market to create an environment that allows the industry to invest in new skills.

Collaboration may be an old word. But if we truly embrace its spirit, we will create an industry that is ready for the future.



Tony Hansen, director,
Global Infrastructure
Initiative, McKinsey & Co.

Navigating digital: Transforming transport

The GII is a community of infrastructure leaders committed to improving the delivery of critical infrastructure convened by McKinsey & Company in partnership with the Albright Stonebridge Group and Spencer Stuart. The conversation will be continued at the global GII event, to be held in San Francisco on November 18-20, 2015. For details, please visit www.globalinfrastructureinitiative.com

Twenty of the UK's transport leaders gathered for a frank and vigorous roundtable discussion on the impacts of digital on the transport and infrastructure sectors earlier this month as part of the Global Infrastructure Initiative (GII).

The context is clear. Across industries, customer experiences are being redesigned to be "omni-channel", personalised and seamless. Simultaneously, we are seeing massive efficiency gains in operations, driven by big data, advanced analytics, sensors, and hyper-connectivity.

So how can transport leaders successfully navigate digital transformation and capitalise on the opportunities, while managing the threats from new disruptive businesses? Some key themes emerged.

Optimising digital investments requires clearly defining the problems we are trying to solve. The customer is the obvious place to start by managing reputation, digitising ticket sales, and loyalty programs. However, digital can also help reduce the cost of managing assets over their lifecycle.

The bar on managing reputation and customer information online is very high. Service disruptions are tweeted and shared quickly online so staying

ahead requires significant and dedicated resources.

Digital could be powerful in smoothing peak demand. Real-time travel information can educate customers about how and when they should travel and work, but the information must be truly multi-mode and designed to the needs of passengers, not the transport providers.

The business case for digital is often negative, but companies still need to invest. Investing in well-defined digital initiatives is often a necessary cost of staying in business. Companies should think 30 years ahead to prepare for changes that are likely to play out over the next five years.

There are relatively few experienced digital managers in the UK and many are reluctant to work in 'old economy' companies. Attracting millennial staff is a challenge and linking purpose to job opportunities is worth pursuing. Transport leaders need to get digital into the DNA of their organisations by embracing a digital culture.

Finally, leveraging social media to communicate with customers and stakeholders is a massive opportunity to engage public support for projects and policies. Yet no one is doing this well thus far.



Sheena Sood, partner
Beale and Company

Words of wisdom for working in the Middle East

Despite the recent fall in the oil price, the Middle East region remains in the midst of a remarkable construction boom. The recovery of the UAE since the 2008 downturn, plus a continuing focus on development in other GCC states underpins the growth of construction across the region.

Add in increased infrastructure and social investment in Saudi Arabia and renewed investments in major construction projects in Egypt, supported by regional and international funders, and we see the region attracting developers, contractors and consultants from around the world.

Consultants went hell for leather before the crash to win work in the region. Contract terms were agreed with little or no negotiation. Many were left burnt and not by the Dubai sun!

Post crash, with demand for European and US expertise, consultants are keen to avoid the mistakes of the past and adopt better risk management to secure better profit margins.

So what words of wisdom would the stalwarts give to the new entrants to the market? We think it would look something like this

First payment practices are

improving but remain poor by UK standards - more important than the overall fee is the payment schedule. Get money on account wherever possible but pay close attention to the payment schedule in the contract. Seek to match payments as closely as possible to when the work is done. Carry out due diligence, adopt good invoicing and credit control practices to mitigate risk.

Next educate internally on the differences in the way business is done in the region so as to manage expectations back home.

Then there is bureaucracy. It is rife so the right paperwork, the right company stamp, the right power of attorney all matter. And contract wording matters.

Finally know your rights and obligations particularly when things are not going to plan. Make sure your professional indemnity insurance matches as far as possible the liabilities you are taking on. Know the position with regard to limitation under UAE law, understand decennial liability and understand the dispute resolution process embodied in your contract.

And, of course, wherever possible avoid throwing yourself to the mercy of the local courts.



Dani Fiumicelli, technical
director - acoustics,
Temple Group

Airport expansion relies on embracing 'real world' noise experience

The airport commission is due to deliver its recommendations on airport expansion soon and environmental issues have featured prominently in the appraisal process with noise a frequent headline topic.

In the past 30 years aircrafts have become much less noisy, but individual aircrafts are not yet "quiet". This means that even although individual aircraft noise foot prints and airport overall noise envelopes may have shrunk or at worst remained static as less noisy aircraft entered the fleet mix; each flight can still be perceived as noisy to some people on the ground.

For decades noise contours based on averaging noise metrics have been the only information used to assess aviation noise impacts. There is now official recognition that people do not experience aircraft noise in an averaged fashion.

Developing noise contours involves making assumptions about the aircraft flight characteristics and airport operating factors influencing noise production, with typically an average of these factors over the summer period being used in the UK.

This means that the resulting noise

contour information is a hypothetical fusion of all the potential airport operating scenarios, rather than an estimate of the actual noise conditions under specific circumstances. It can mean that some people are exposed to noise levels above thresholds for adverse effects and for noise insulation or compensation for substantial periods of time; but they are not recognised as significantly affected or qualifying for the offer of mitigation as they are outside the "averaged" noise contours.

The noise challenges facing the airport industry as it seeks to expand include recognising that the intensity and distribution of noise complex varying with how an airport operates. Assessing and communicating its noise impacts in ways that reflect the real experience of affected communities is critical. Excluding those who suffer real noise impacts from mitigation on the basis of hypothetical averaging of how an airport operates is unbalanced.

Overcoming these challenges will not be simple; but doing so is likely lead to greater acceptance of the noise that airports will inevitably generate and less resistance to change as airports seek to adapt how they operate.

Future of rail rests on delivery

Rail Minister Claire Perry explains the new government's plan to meet its ambitions for growth across the rail network. Interview by *Antony Oliver*

The 60% growth in passenger numbers and 9% increase in freight carried on the UK rail network over the last decade underlines clearly that the rail is a successful and hugely valuable national asset. Yet given the vast amounts of public money that have been, and continue to be, pumped into the railway - £38bn in the five years to 2019 - Network Rail is now under acute pressure to demonstrate value for that spend in an era of public belt tightening.

In this respect the latest quarterly monitor from the Office of Rail and Road (ORR) will make difficult reading. Is Network Rail a victim of success or a casualty of poor management? ORR said that it was launching an investigation into why the organisation had significantly underperformed against CP5 targets to date and delivered less renewal work than it planned, with track renewal 7% behind plan; signalling renewals 63% behind schedule; and overhead line renewals 77% behind target.

In a keynote delivery to the Railway Engineers Forum this month Rail Minister Claire Perry ducked questions over future restructuring of Network Rail. But she emphasised that for the new Conservative government, delivering its plans for upgrading the network infrastructure and boosting efficiency was central to its objectives over the new parliament. "Most of our railway infrastructure dates back to the Victoria age yet demand for transport increases every year so parts of our network are full and in parts the reliability is a concern," said Perry. "It is completely obvious that you cannot grow a local, regional or national economy without moving people and products effectively and efficiently."

Is Network Rail's current underperformance as reported by ORR a concern to you?

We have given Network Rail the biggest challenge it has probably ever faced in terms of the investment programme. I can't think of a time where it has been tasked with the level of investment now required. It is a challenge and I think that the company is rising to that challenge and working out what it needs to do. Because driving asset reliability as well as the renewable programmes is key. [Network Rail] faces challenges as does the whole industry - massive demand on engineering time and a massive demand for materials because we are building in the way we haven't for decades. The Secretary of State, the department and myself are all absolutely focussed on this need to deliver. And we have to deliver to earn the credibility for the next stage of investment.

But surely you must be disappointed with the performance of Network Rail given the amount of public money being sunk into the railways?

We have to step back and say when we are putting projects forward for investment at what stage are we accessing them. You could argue that perhaps some projects were put into the hopper at perhaps too early a stage. We are learning a lot. On roads, for example, the cost of delivering smart motorway is falling as we get more experienced and I suspect the same will happen with rail electrification.

Surely the ORR sets out very big warning signals to you over the ability to deliver the enhancements that you require?

I think the challenge is all about

delivery and this will be a parliament of delivery. We know that we can do it - we have delivered the Olympics and got better in this country at delivering major infrastructure - Crossrail's tunnels were completed last week and on time so we can do it. But we have to all work together to make sure that it is done.

Do you want to see a re-structured or privatised Network Rail to better manage the assets?

I am going to allow the Secretary of State for Transport to make strategic decisions such as that. I want to see a highly efficient industry. So does anyone ever think we should renationalise British Airways? Or set up a government owned airline? Of course not, it would be absurd. I don't want us to have that conversation about the rail network.

I want us to recognise the benefits that have come from privatisation, the enormous increase in passenger services and passenger growth and the enormous increase in freight and work out what government needs to do better. Where does government need to intervene and where does government need to be a bit bolder and get off the back of industry? That is what I want.

Can the government do more to help to smooth delivery of infrastructure projects across the rail sector?

I think that we are delivering certainty and the political will is being bolstered by the money.

If you look at Britain's investment in infrastructure we currently rank around 30th globally. If we are serious about getting people and goods moving and decarbonising then we have to keep investing in rail and that is fundamental.

Rail freight is something of a success story but it is still something of an afterthought compared to passenger services. How can you change this?

If you look at the long term economic growth for the country we must ask what do we need to do to power up the freight network. Do we need more resources in the department? Do we need a specific budget that goes into investment for freight? But I am very keen to raise the profile of freight and to ensure that government recognises the importance of it. If there are constraints let's hear about them. [I want] to give you more freedom to carry on developing this highly successful UK industry.

What do you see holding back the growth in rail freight compared to passenger services?

It comes back to joined up thinking. We have astonishing levels of peak passenger demand and there is investment going in to try to unblock that. But we have passenger trains running around under capacity for much of the day. So is there an opportunity to mix up some of the passenger and freight thinking.

Who should drive this new thinking? It's a mix - government investing where necessary but being guided by the private sector as what it needs - to me it's a partnership.

Clearly the impact on passenger services always take priority over freight - is that limiting?

I don't see it that way - I think there is an enormous appetite for more rail freight in this country. There are enormous peaks in passenger demand particularly around London but we have thousands of km of track that is lightly used the rest of the day so there must be opportunities. Perhaps the challenge is to future proof rail for freight paths going forwards so that we are actually thinking about freight during the planning of upgrades

Getting planning decision made quickly is critical - are we creating the right environment for investors?

I am interested in government specifying what it wants not how it wants to get there and that is a very good lesson for both passenger and freight rail. I want to know where projects are stalled so that I can sit down with the planning minister and say we have made a commitment and this is the detail that is stalling it.



Rail Minister Claire Perry gave the keynote speech at the Railway Engineers Forum

Perry on the success of the UK rail freight market

"Rail's share of the freight market has doubled to 11% and productivity has increased with 70% more goods on 30% fewer train paths [since privatisation]. We know that rail freight has a clear appetite to increase its market.

The benefits are clear. It reduces road congestion, it is significantly safer and less polluting than road haulage and it is very reliable.

We now know the value of those benefits to the UK economy are some £1.6bn every year [according to figures from the Rail Delivery Group]. Forecast rail freight growth over the next five years is even greater than passenger growth in percentage terms and the longer terms forecasts are equally strong.

I would like to work cross party and across the industry to try to understand some of the barriers that might inhibit the growth in this market. We will continue the work we have started with important projects such as the Reading flyover to separate passenger paths from freight paths.

But at the same time we will look for new opportunities for carrying goods by rail. Carrying good on passenger trains is one option and we know that there is an opportunity - while there is huge demand during peak times they are often running around carrying fresh air during the rest of the day. Why can we not use that space?

Just as there are opportunities there are some significant challenges ahead. The world is rapidly changing and rail needs to evolve if it is going to retain the competitive advantage that it has enjoyed in the past.

The automotive sector for example is evolving at tremendous speed - in the lifetime of one freight train we can expect four or five generations of HGV each delivering higher performance and greater efficiency. Electrification of the road network will challenge rail's green credentials. Autonomous road vehicles and the platooning of lorries are being developed around the world. Rail needs to respond to these developments."

Bentley seals 30th year with new cloud based services

The goal of BIM compliance across the public sector by 2016 and making “intelligence asset management” the norm for engineers moves closer with new Connect Edition global launch.

Infrastructure software business Bentley Systems continued its drive to guide the industry on the road to 2016 BIM compliance and embedding BIM level 2 into public procurement by April next year with the global roll out of its latest cloud based Connect Edition product last month.

Coinciding with the firm’s 30th anniversary annual report, the launch signals a shift towards placing digital technology at the heart of “intelligent” infrastructure delivery and management.

The new so-called “common environment for comprehensive project delivery” is, according to Bentley chief executive Greg Bentley “the result of our thirty years of cumulative BIM advances” that will, he added, “lead to better performing assets through increasing depth of information modeling; and better performing projects through increasing breadth of information mobility.”

The roll out of the new Bentley Connect Edition product kicked off last month in Philadelphia, Chicago, Toronto, Oslo, Amsterdam at a series of specially devised Connection Events designed to help the industry to embrace the new software tools.

The new suite of products utilises cloud-based capability to enable users to draw down and customise the tools needed within the exiting MicroStation, ProjectWise and AssetWise products.

By giving access to the tools when they are needed to do the job, says Bentley, Connect Edition should drive Building Information Modelling (BIM) into the heart of infrastructure by making the vital software available

across infrastructure delivery and management teams “to and from the right contributors, anytime and anywhere”.

The event will reach the UK next month starting in Manchester on 29/30 June and will demonstrate its new Connect Edition software and the way that it can assist the industry towards the goal of achieving the 2016 government mandate to embrace BIM.

Meeting the challenge of the government’s mandate to embed BIM level 2 – encompassing 3D design but also a collaborative shared working environment across the supply chain from procurement through to hand over and beyond to operation and maintenance – into all public projects by April 2016 remains a major challenge for the industry.

Writing in the Bentley Systems 2014 annual report, Greg Bentley pointed out the challenge and the progress being made in moving the BIM concept from being a static fast way to produce drawings towards a truly interactive tool to drive decisions.

“Advancing from visualization into visibility, we next added analytical modelling for simulation of behaviours, to “optioneer” infrastructure improvements,” he said, highlighting the firm’s recent acquisition of SITEOPS enabling rapid site optimisation analysis to be carried out. “Our reality modelling breakthrough (led by our new Acute3D acquisition) can now perfect the alignment of the “virtual” with the physical context, continuously throughout the project and asset lifecycle,” he added.

The annual report also highlighted



the growth being seen across the sector in the use of digital and IT-based tools with the firm’s annual revenues up 7% to \$625M last year, led by business in the Middle East and Africa, Southeast Asia, Greater China, and India

The use of the subscriptions model to pay for software is also increasing and now accounts for 76% of the firm’s sales – 26% coming from business wide Enterprise Licence agreements.

The new Connect Edition was launched at Bentley’s annual “Year in Infrastructure Conference” in London last November at which a number of new developments in the use of BIM software were also revealed to the industry.

This creates a so-called “common environment” for BIM users across the infrastructure supply chain using cloud based delivery and its next generation of construction modelling tools.

“The common environment unifies work across the entire project ecosystem and over the full lifecycle of the project,” said Bentley. “The result is improved performance, with infrastructure projects being delivered on time, on budget, and with less risk.”

Bentley Systems Connection Event

29-30 June. Sign up for the free event in Manchester to hear about BIM for sustaining infrastructure. <http://connection.bentley.com/manchester>



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Head of construction at the Cabinet Office David Hancock discussed the issues with directors from SME consultants, legal experts and insurance broker and risk management specialists Griffiths & Armour

Changing behaviour

Government is attempting to become more SME friendly in its contracts with trials of new procurement methods. The moves are welcome but firms would like more focus on reducing the indemnity demands being placed on SME consultants by others in the supply chain. Jackie Whitelaw reports from the latest Griffiths & Armour and Infrastructure Intelligence risk management forum.

The clear message given to the latest Infrastructure Intelligence/Griffiths & Armour risk management round table was that change in public sector procurement and project management is inevitable.

New digital tools such as BIM, a skills shortage and perhaps most importantly a government focused on increasing the sector's efficiency as it seeks to cut the deficit, mean, finally, that an enduring ambition to create an industry based on collaboration rather than conflict could actually be obliged to happen.

Innovation is crucial to achieving that aim and also to meet government's immediate target of cutting construction costs by 20%.

Head of construction at the Cabinet Office David Hancock explained, that government recognises it needs to

“We need to push and hope demand will allow fees to go up. Low fees will restrict how we grow and our ability to train graduates”

Neil Smith, Max Fordham

collaborate and be open to innovation in how it operates as a client. “We know we need to innovate,” he said. “We know, if we carry on doing what we always did, we'll get what we've always got. We are looking for things to be different.”

Innovation could mean new techniques – why build houses out of bricks; why not prefabricate them for instance? Or outcomes – to increase road capacity such as smart motorways rather than new construction.

It could be procurement processes – trials are underway with cost led procurement, two stage open book and integrated project insurance (see box).

In order to embrace the benefits from this drive for innovation, government acknowledges that there is a need upskill and improve its performance as a client. All sponsors of major projects now have to go through the Major Projects Leadership Academy. For those on other important projects there is the Project Leadership Programme. All the training is designed in part to encourage sponsors to challenge the status quo and



Left to right: Paul Wood, Elliot Wood Partnership with Nick Russell, Thomasons; David Hancock, head of construction at the Cabinet Office; Antony Oliver, Infrastructure Intelligence with Neil Smith, Max Fordham and John Henderson, Beale and Company.

encourage collaboration with the supply chain.

“We are talking about behavioural change. The understanding that if one party fails, we all fail,” Hancock said. “We want to make the government a client of choice.”

There is recognition in government that innovation is most likely to come from SMEs with the target to place 25% of all public sector work with SMEs still very much in play. Single collaborative teams are at the root of driving innovation from SMEs particularly through early involvement in design. And the procurement trials are part of demonstrating to people operating as government clients as well as the SME sector that the innovations are there to be had and will deliver major efficiencies within a fair system.

“We have to have trials and the ones that don't work, we will learn from,” Hancock said. “We know there is no silver bullet. We are just trying to find what is most efficient and effective. And when people running Government projects start to see what can be achieved when we employ SMEs more they will ask how do I engage SMEs earlier in the process?”

It is more difficult, he said, for government to contract directly with SMEs on major government construction projects “but we will want to be able to ensure that the Tier One's have contracted with the right people and that Pre-qualification questionnaires (PQQs) are made simpler so that SMEs can be more involved.”

The conviction that has formed within the the public sector that collaboration is the way to achieve a more efficient industry was welcomed by the SMEs at the round table event. Most however were currently doing very little public sector work and were unlikely to pursue it. This was because they felt that current procurement arrangements were designed to favour bigger firms, and they were handicapped by the increasing scale of insurance being demanded.

“Construction has always had to be a collaborative industry to get anything done. Behaviours enabled and encouraged by BIM are not necessarily new”

John Henderson, Beale & Co

“I'd like to think we always collaborate,” said BWB managing director Steve Wooler. BWB does most of its work for private sector clients. “The private sector invariably recognises that the team has to succeed – projects develop at such a fast pace, and you are seeking repeat business, so there is a vested interest for all parties to make it work. Problems can arise when larger consultancies are part of the team, because most tend to be more risk averse and contractual than SMEs”

“I'd like more public sector work to give my company resilience. And I'm frustrated that government is missing a trick in not utilizing the skill and expertise in SMEs. Ironically, however we make good money redesigning for contractors the work done by big consultants. That, as a taxpayer, really annoys me. We could do it from the start and value-engineer really worthwhile savings to the project cost, of the order of 15% from experience”

Max Fordham partner Neil Smith explained that contracts with unlimited liability requirements or intellectual property rights demands make it hard to take the risk of being innovative. “The contracts, especially in the public sector, require a lot of innovation but the way the contracts are formulated means we have to be very careful about doing new ground breaking work.”

Griffiths & Armour chief executive Steve Bamforth said he felt the industry was at a fork in the road, with the route to collaboration being the one to take.

“But even on a job going well at the moment, the threat of being sued for millions of pounds has to be at the back of your mind.”

His colleague, director Paul Berg added: “After a recession you expect to see the volume of claims rise. We haven't seen a dramatic increase in scale in volumes. But the value of claims is far greater as a consequence of ever increasing indemnity limits applicable. It is not uncommon to see £1M claims being pursued within the construction supply chain. The client has a major part to play. Its chosen procurement models affect SMEs.”

ACE legal and compliance director Dwight Patten considered that the trend towards higher and higher indemnity was a serious risk for the sector. “We

Round table attendees

Steve Bamforth, chief executive, Griffiths & Armour
Paul Berg, director, Griffiths & Armour
Alastair Hamilton, director, Pick Everard
David Hancock, head of construction, Cabinet Office
John Henderson, partner, Beale & Co
David Johncox, director, Alan Baxter & Associates
Michael Lawson, senior partner, CampbellReith Hill
Antony Oliver, editor, Infrastructure Intelligence
Dwight Patten, legal and compliance director, ACE
Miles Penfold, director, RSA
Nick Russell, director, Thomasons
Neil Smith, partner, Max Fordham
Bob Stagg, director, Connisbee
Keith Strutt, operations director – London and South East, Driver Group
Jackie Whitelaw, associate editor, Infrastructure Intelligence
Paul Wood, director, Elliott Wood Partnership
Steve Wooler, managing director, BWB

IPI prepares to move on site at Dudley



First trials of a project operating with Integrated Project Insurance is now underway in Dudley in the West Midlands.

IPI insures project risks such as unforeseen events and project overruns rather than liabilities. All members of the project are covered – including the client – and all rights of subrogation are waived. It is intended to support collaborative working and the use of integrated teams, helping to drive out waste, deliver innovation and provide better, more cost effective solutions. Liabilities to third parties arising during the construction process are covered. There are no internal liabilities to consider and the project team operates on a completely blame-free basis.

The trial IPI project is to build a new Centre for Advanced Building Technologies (CABTech) at Dudley College. The facility will include a four storey hangar where students will learn how to fabricate and assemble buildings using the latest available technologies. There will also be a

digital centre for BIM training.

Procurement for the project has now been completed and the alliance of consultants, specialist contractors, constructors and an overall project co-ordinator has begun the process of fusing together into an integrated and collaborative team. That team is supported by a project bank account, BIM and lean design and implementation practices.

The project has undergone a review of comparative benchmarking and availability of investment funding to establish the project cost - which has been set at £11.7M. The members of the alliance take collective responsibility for creating and delivering a solution which is fit for the purpose as set out in the strategic brief, and have to meet prioritised success criteria within agreed target cost.

There is a collective commitment of the alliance members to control cost, with the objective of saving 15% - 20% by cutting out process waste. And there is collective accountability for completion by Spring 2017. There are gain share options for the team to inspire them to hit the performance targets.

The team are the client – Dudley College – and Metz Architects, Pick Everard, Fulcro Engineering Services, Speller Metcalf Construction and Derry Building Services.

The “fundamental principles” set out in the preamble to the IPI policy encapsulate the approach:

1. Alliance Members embrace fully integrated collaborative working and act in a spirit of mutual trust and co-operation at every stage of the project and comply with the Alliance Principles pursuant to the Alliance Contract.
2. there are mutual no-blame/no claim undertakings.all decisions are taken on a ‘best for project’ basis.
3. there is independent facilitation and financial/technical risk assurance at all stages
4. Performance of the Alliance Members will be measured against agreed success criteria.
5. Alliance Members will work on an open book basis and seek ways of driving down costs and maximising gain share.
6. will be no distinction or barriers between the design and construction elements of the project.

The Dudley project has been approved by Cabinet Office via its Roll Out Management Group. It is also the primary nominated project under procurement trials by Innovate UK’s Technology Strategy Board. It has the support of an industry steering group and academic partner reviewing its implementation and success.

“We know we need to innovate. We know, if we carry on doing what we always did, we’ll get what we’ve always got. We are looking for things to be different.”

David Hancock, Cabinet Office

was delivered on programme, which is very unusual in the public sector at the moment. Under the IPI model, we have created a multi-party virtual company, called the Alliance, which is contracted to deliver the new college building under an incentivised cost plus contract.

“If there is any issue with IPI, it

is that it is still in its infancy, and therefore there are a lot of lessons to be learned on how the process will work and how we will demonstrate value for money across the design and delivery of the new building at Dudley College.

“The experiences we have on this project will be vital in helping others who adopt IPI.”

Conisbee director Bob Stagg agreed this could have a major impact on how firms perceive the risks of appointing subconsultants. “The implications on our PI encourages us to avoid taking on subconsultants.”

Driver Group operations director – London and South East Keith Strutt summed up the view of the room on IPI. “Integrated project insurance could be one of the answers to getting more SMEs involved in public contracts. SMEs know how to innovate, they are small and fast moving, and IPI allows the risk to be carried by the project.”

Collaboration: Is your Professional Indemnity Insurance future proof?

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Paul Berg

Partner, Griffiths & Armour

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Science and the City



The importance of architecture, design and location is helping define the UK's path in scientific research writes Jennifer DiMambro.

Architecture and building design play a key role in defining a country's mentality and intention; just look at impressive London icons such as 30 St Mary Axe (The Gherkin) and The Leadenhall Building. Both buildings reinforce the perception of London as a major global financial centre, drawing talented professionals to the UK – so why should we not take the same approach to scientific research facilities?

Attractive facilities, which encourage collaboration and the sharing of ideas, and provide access to the latest equipment, are key considerations for professionals at the top of their game. Through creating environments that inspire and support researchers, we can attract talent and achieve the results that will keep the UK on the world research map. Aspirational, state-of-the-art environments can encourage the world's leading scientists and researchers to work in the UK and inspire school and university leavers to pursue careers in this sector.

Moving science to the city

As part of this drive to boost the attractiveness of scientific research facilities, science is moving more and more towards our cities. Buildings that would once have been located on the edge of a city or on a campus, set back from busy streets, are now being positioned in vibrant, urban neighbourhoods. International pharmaceutical giant Pfizer for example, once based primarily in Sandwich, Kent, now has a significant portion of its research activities in Cambridge, which forms a point of the "Golden Triangle" of scientific research between Oxford and London.

Like many professionals, scientists enjoy working in vibrant, urban environments. Better transport links, as well as access to a range of social and cultural activities, all play a vital role in attracting top talent. Indeed, positioning scientific research centres in influential locations, just like financial districts and grand city buildings, can play a



The Crick Institute, London will become Europe's largest biomedical research centre when it opens in September. Image courtesy of Laing O'Rourke

"The Crick Institute has worked closely with Camden Council to agree a package of benefits for the local community, including a facility, called the Living Centre, to promote healthier lifestyles."

Jennifer DiMambro

significant role in raising awareness of the importance of science and engineering.

Over the last few years, a number of new scientific and medical centres have opened in city centres across the UK that showcase the importance of architecture, design and location within science and engineering. Notwithstanding the aesthetic appeal and 21st Century engineering designs, these new facilities also reach new heights in terms of technical innovation.

Just like the research undertaken inside seeks to break boundaries, these buildings aim to challenge accepted norms - in engineering and architectural

design, and location. Whereas historically we have designed buildings to meet specific research requirements, now there is an increasing focus on creating multi-functional and flexible work spaces. This approach allows buildings to respond and adapt to change, providing a longer lifespan and improving sustainability credentials as a result. This is a design ethos that takes the function of the building into consideration, and is one we now apply to the majority of projects, including the new Cancer Centre at Guy's Hospital in central London.

Leading by Example

Set to open in September this year, the Crick Institute, situated in the prestigious St Pancras area, will become the latest facility to join central London's burgeoning research community. On completion, the facility will become Europe's largest biomedical research centre, housing 1,500 scientists working on disease diagnosis, prevention and treatments for conditions including cancer, malaria and influenza.

Positioned amid a cluster of academic, scientific and medical organisations, the facility's location is viewed as critical to its success in attracting the best research talent and



Left: Sainsbury Laboratory University of Cambridge. Image courtesy of Hufton + Crow. Right: Sainsbury Wellcome Centre

establishing the institute as a world-respected medical destination. As we have observed in the hi-tech sector, with the formation of industry hubs such as Silicon Valley and Tech City, being in close proximity to peers can be hugely beneficial. The opportunity this affords for the cross-pollination of ideas is a huge draw for ambitious individuals, who would like to work in an environment that will nurture their skills.

In addition, the nearby St Pancras International and King's Cross railway stations provide excellent local, national and international transport links for visitors and guest lecturers, as well as easy access to other national research organisations, such as the Sainsbury Laboratory, which can be reached within 45 minutes.

While the Crick Institute benefits from its location, the relationship is mutual. The institute has worked closely with Camden Council to agree a package of benefits for the local community, including a facility, called the Living Centre, to promote healthier lifestyles. In an area with a historically dense population and where local housing is in short supply, it was particularly important that the facility gave something back to the local community.

The Sainsbury Wellcome Centre (SWC) is another prime example of these emerging science facilities – both in terms of location and design innovation. Based on the corner of Charlotte Street in central London, the building sits at the heart of the University College London campus,

in close proximity to other scientific facilities and city amenities.

The SWC will be the first new-build lab in the UK to include an Aircuity system, which takes samples of air remotely throughout the facility and routes them to a centralised suite of sensors. By measuring these against critical indoor environmental parameters, the system can tailor ventilation in real-time to the requirements of the facility, ensuring optimum energy efficiency while ensuring the health of those working in the laboratories is not compromised.

Similar to SWC, The Sainsbury Laboratory in Cambridge has been designed to make the most of its location. The 11,000m² plant science research facility sits within the University of Cambridge's Botanic Gardens in central Cambridge, and has been designed to house complex scientific research within a building that responds to this environment. The laboratory inspires its 120 researchers by providing an unprecedented level of natural light and proximity to their subject, including daylight from rooflights as well as windows overlooking the Garden.

Although the majority of the building is private, the café is open to the public; the intention being to create interest in the research activity taking place inside. For example, a screen provides visitors with insight into the building energy consumption and performance of the photovoltaic array. The auditorium in the lab also holds public talks, as well as academic symposia.

Like many other new facilities, the

new Cancer Centre at Guy's Hospital in London has been designed with longevity in mind. With healthcare evolving at a rapid rate, future-proofing the facility and ensuring that it can continue to house the latest innovations in healthcare – and attract those able to deliver – has been a key aspect in its design. The demountable LINAC bunker shielding, for example, allows for this area to be re-designed in the future should less invasive cancer treatment be available. Meanwhile, the flexible building services strategy allows for any floor to be re-fitted, while the adjacent floors remain fully functional.

While all of the medical and research facilities discussed sit in city locations, none of these buildings make the architectural or aesthetic compromises you might expect from a new build in a confined, highly regulated urban area. Indeed, the high profile and visibility of these institutions has actually increased pressure on design and engineering teams to develop buildings which marry architectural vision with scientific requirements. Although these can be technically difficult to achieve, the impact of architecturally strong spaces is significant. These spaces encourage researchers to join an institute by providing a more stimulating and inspiring environment once they are working. It is these buildings that will bring science to our cities, and place London and other UK cities on the world research map.

Jennifer DiMambro is director, Buildings London, Arup

**SOLD OUT
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EIC Annual Conference 2015

19 November 2015, Willis Building, London



Sponsorship Opportunities 2015

The EIC Annual Conference 2015 is expected to attract 200 attendees and will be a unique opportunity for sponsor organisations to raise their profile within the industry. There are a limited number of packages available for approved sponsors and exhibitors at this event.

For more information please contact Sally Devine
sally.devine@acenet.co.uk

The highly acclaimed EIC Conference 2014 brought together over **150 attendees** – including EIC members, influential industry clients and environmental experts. Tickets sold out 2 weeks before the event, and delegates heard from **22 speakers and panellists** including **cross party political leaders and senior industry experts**. They also enjoyed **3 hours of high level networking** during programmed breaks.

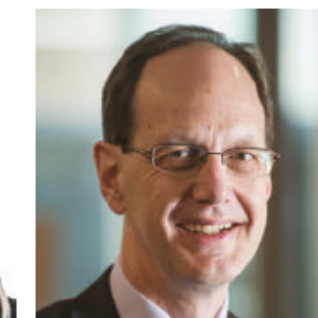
2014 Event Speakers Included:



Duncan Brack
Vice Chair
Liberal Democrats manifesto group



Maria Eagle MP
Shadow Environment Secretary



John Cridland CBE
Director General
CBI



Julia Groves
CEO
Trillion Fund



Mark Watts
Chief Executive
C40



Matthew Spencer
Director
Green Alliance

2014 Attendees

AECOM, Airport Energy Ltd, Alcontrol Laboratories, Aldersgate Group, Allan Environmental Ltd, Allenbuild Ltd, Ambiental, Anderson Group, Anthesis-Caleb, Anthesis-SecondNature, Aquarius Marine Group Ltd, ARCADIS - EC Harris, Association for Consultancy and Engineering (ACE), Atkins, Augan Plc, BASF Plc, BBC, Bird & Bird LLP, Brack Liberal Democrat Party, Business Green, BWB Consulting Ltd, C40, CBI, CEEQUAL, Celtic Technologies, Charles Maxwell Limited, CIWM, Conservative Party, Copper Consultancy, Cory Environmental Management Limited, CRB Environmental Ltd, Cromwell Wood, Cross River Partnership, Cynar Plc, Darcy Products Ltd, DEC UK Ltd (DEME GROUP), Defra, Delta-Simons, Derwentside Environmental Testing Services, Ecodesk, Ecologia, EminoX, Emission Engineering Ltd, Environ, Environment Industry Magazine, Environmental Health Sciences Ltd, Environmental Policy Consultants, Environmental Treatment Concepts Ltd, FCC Environment, Geo-Environmental Services Ltd, Geosyntec Consultants, GO Contaminated Land Solutions Ltd, Green Alliance, Green Growth Platform - Brighton University, Green Investment Bank, GreenWise Business, Hammerson, Highbury Ltd, Honeywell Building Solutions, Independent Environmental Consultant, Infrastructure Intelligence, Instinctif Partners, Jacobs UK Ltd, Johnson Matthey Plc, Johnson Matthey Plc, Labour Party, Lancaster University, Land Securities, Landmark Information Group Ltd, LRS Consultancy Ltd, Mott MacDonald Ltd, MWH, Newzeve, Nynas UK, Open Energi, PAGEotechnical Ltd, Parsons Brinckerhoff, PCME Ltd, PCS Limited, Pinsent Masons, Pryor Mourik, PURETi UK, Quidos Ltd, Redhills, Resource Association, Schneider Electric, Suffolk County Council, Sunday Times, T & P Regeneration Limited, Tazla Energy Ltd, Temple Group, Thames Tideway Tunnel, The Environmentalist, TNS, Tony Gee and Partners LLP, Trillion Fund, TUC, UK Flood Barriers, URS, Veolia, Verdantix, Waterbriefing, Waterman Energy Environment & Design Ltd, Waterman Infrastructure & Environmental Ltd, WDE Consulting Ltd, Wehrle Environmental, Western Daily Press, Willis Group, WRAP, WSP UK Ltd, Zero Carbon Hub



Embracing the Technical Revolution:

Opportunities for Infrastructure

Senior professionals from the infrastructure sector discuss the challenge of utilising technology in the infrastructure design, delivery and management sector.

about the evolution of technology and pointed to two key aspects; data that enabled better management of their own businesses and information for clients. “There is absolutely game changing stuff happening around how customers manage a portfolio of existing assets, how they infer new information about those assets and the expectations of the end user,” said Simon Harrison, group strategy manager of Mott MacDonald.

For asset management in particular firms pointed to clients that were using enterprise resource planning (ERP) management systems to drive maintenance contracts where data is being fed in to the database in real time and with investment decisions then made around the findings. At the same time however some contracts remain as they did 150 years ago with tasks carried out on certain days according to routine schedules. So why do some clients get it and some don’t? “It is less to do with the technology as that is available to everyone. It is the ability of the management and the client to change business processes to exploit available technology and to energise the people at the sharp end of delivery that makes a difference,” said Dr Mark Brown, development director for consulting and strategic infrastructure at Amey.

Internally the views reflected a spread in the industry in terms of the pace at which data driven technology is being absorbed. “You have to look at where the organisation is in terms of technical maturity. Organisations can be anywhere from struggling with the basics of understanding project profitability or unable to get a global view of their resourcing requirements; to those that are applying best practice in some areas and want to effect change across the entire organisation,” said Fergus Gilmore, managing director of Deltek.

Seeking consistency was a challenge highlighted by several firms with consolidation being a key feature of today’s market. For others the challenge is more about being able to gather the right information. “Decide on key functionalities and make sure that runs across the business before you try and get more out,” said Nick Taylor, chief executive of Waterman Group. “You get what you measure,” said Andrew Noble, financial director at WSP. You need to know what is important and how to adapt. If you ask for utilisation then you get utilisation. If you don’t balance it with how you are winning work, what you are pricing then you have an unbalanced business.

Do you feel like you are part of the UK government’s Digital Built Britain strategy and is BIM undermining the ability to think bigger?

“The government is using its weight as the country’s largest client to open up the data tap and get info out into the public realm which can only help organisations make decisions,” said Peter Campbell, senior policy manager at ACE. But he also pointed to the danger of having more data than is useful. Some firms raised concerns that being too reliant on data might hamper creativity whereas others said that the opposite was true and that BIM and data act as an enabler. “There are one or two major projects internationally that we have won where BIM and data is at the heart of the design. Industry has to get with the programme,” said Alex Tosetti, director at AECOM. “The government see Digital Britain as the next rebranding of industry. Our big clients want it, our youngsters are wanting it too. We should not be afraid of this at all.”

However some said that the label of BIM for any new digital technology in infrastructure had disadvantages. “The focus is on collaborative delivery of new assets and the opportunities around digital are around management of new and existing assets and integration of widespread data sources for new insights, managing a rapidly increasing set of expectations for end users around infra that they operate. So framing it as BIM means it stops being interesting to a lot of the actors in that so it is a bit unhelpful but clearly the underlying technology of that sits at the heart of what we want to do,” said Harrison.

The important message being taken from the industry regarding the Digital Built Britain strategy is that the government is clearly seeking a more open data rich approach as pioneered in other industries such as chemical, industrial and mechanical sectors. What this is also leading to is better information for asset owners who must also develop the skills to handle it. “Clients are now asking to have projects designed in BIM but they don’t have the models or tools to do anything with it afterwards so they don’t get the benefit and that is the next step,” said Stephen Appleton, UK head of building services, Ramboll

What do we mean by big data and does it have a place in driving your business forward?

“Big data is open data” said AECOM’s Alex Tosetti. “The more open data we can have to cross share the more efficient we become as an industry and this is the crux of the government push,” he said. A more specific definition was provided by Mott MacDonald’s Simon Harrison. “I would define big data as the collection and integration of rich data sets from disparate sources and the mining of those data sets by sophisticated algorithms to yield new insights.” And from Ramboll’s Appleton gave a more succinct example. “For me the definition is information integration and knowledge management.” Others referred to a more cumulative approach. “We consider the three Vs: volume, variety and velocity. Score high in all three and you have big data,” said Chris Gage, director at Turner and Townsend.

Firms pointed to the falling cost of managing big data coupled with more powerful processing power as having a revolutionary effect on the industry. “I believe with things like remote data monitoring and the fact that we can share data in real time, processing power is that much more powerful, the ability to handle larger amounts of data and drill down to the individual components of whatever we are designing building or maintaining, means that big data has burst onto the scene. It is going to revolutionise the way that we operate,” said Brown.

This of course has implications for clients who are set to inherit more sophisticated information. “There is an interesting issue here,” said John Turzynski, chairman of ACE and a director at Arup. “We can design a very sophisticated building management system but we don’t train the building owners how to use it. If you buy an aeroplane with Rolls Royce engines you go on a course for years, we are missing something here, we should be putting that into contracts,” he said.

At a more internal level correlation between the array of fields that big data provides is critical said Deltek’s Neil Davidson. “It is about drawing a correlation that previously you wouldn’t have been able to. For example if you are running a fixed fee engagement with your client how often do you need to measure it to optimise your margin? And that is deep in the data. It needs serious expertise to extrapolate intelligent answers that can better drive the business.”

Are we being genuinely innovative when it comes to infrastructure management?

The threat of Google was discussed by consultants along with the prospects of new disruptive technologies that could change the way all businesses operate. “Quite what Google X is up to in the construction industry – and we know it is up to something - is a really interesting challenge for us all. They have the planet better mapped than anyone else, design algorithms can be commoditised to some degree. Therefore can we press a button and get a 90% complete design from Google Construct that only needs us to check it?” asked Harrison.

Arup’s Turzynski meanwhile said he liked the idea of the industry being disrupted. “Disruption is sometimes the way to get things to move and we see that we have a bigger voice than we think. We work with lots of big organisations and it helps us see what we can learn and do better.”

Artificial intelligence too was considered with Gage from Turner & Townsend pointing to research by Oxford University replacement of the workforce by robots or algorithms in the next 10-15 years. “We have started to use machine learning algorithms to predict how much an asset is going to cost - and project controls with automated data flows and live interactive dashboards.”

Attendees:

Chair: Antony Oliver, editor, Infrastructure Intelligence
 Stephen Appleton, UK head of building services, Ramboll
 Mark Brown, development director, Consulting and Strategic Infrastructure, Amey
 Peter Campbell, senior policy manager, ACE
 Neil Davidson, vice president for enterprise, Deltek
 Chris Gage, director, Turner & Townsend
 Fergus Gilmore, managing director, Deltek
 Simon Harrison, group strategy manager, Mott MacDonald
 Andrew Noble, finance director, WSP
 Drew Ritchie, managing director, Capita
 Helene Sourdeau, Deltek
 Nick Taylor, chief executive, Waterman Group
 Alex Tosetti, director, AECOM
 John Turzynski, director, Arup and ACE chairman

In a globalised world what is the business view on Europe?



Think local, manage global is the modern way. So where does consultancy and engineering stand on Europe. ACE chief executive Dr Nelson Ogunshakin OBE wants to know your views.



Panelists at the ACE International conference discussing the EU referendum. John Horgan, Aecom, Mike Haigh, Mott MacDonald, Malcom Bairstow, EY and Baroness Lynda Chalker, Africa Matters

As I sat in the middle of ACE's 2015 International Conference in May, listening to the leaders of our industry explain their views on the future, it became clear that globalisation has made our world a little smaller. It has created more opportunities for us to work on more projects in more parts of the world than ever before, but it has also overturned old certainties and established western engineering firms can no longer rely on past glories to win future work.

To compete in this new world engineering companies must have a truly global outlook that allows them to recruit talent wherever it can be found and to build partnerships in a wide range of local and regional markets. Some firms will choose to expand and provide a corporate global presence to meet this challenge but this is not the only way to thrive in this new market as alliances with likeminded companies can be equally effective.

As in all things, knowledge is power. Engineers need certainty due to the long timescales of the projects that they work on and so an understanding of the political and legal environment, cultural framework and business practice of a particular market is vital.

This can only be gained from local practitioners and so companies need to ensure that they have ways of accessing this information before they enter a new market. Think global and manage local seems to be the key strapline for any successful business.

The irony of all of this was that as we all sat listening to this vision unfold the UK had just emerged from the most uncertain election in modern British history. No sooner, however, did one uncertainty fade with the announcement of a referendum on the future of the UK's membership of the European Union by 2017.

How are we to interpret the conflicting views that the globe is increasingly integrating with the

political currents pushing the UK to the European exit? Political uncertainty and risk seem to have gone up and will not come down again until the results of the referendum are known.

Building alliances of likeminded stakeholders and seeking to influence governmental actors will be vital in the coming years and ACE has begun the process.

I have recently asked ACE members to take part in an EU survey so that we can understand the importance of EU membership to their businesses as the first stage in developing our position on the referendum. We as an industry must decide how we will approach this important issue.

HOT TOPIC: Two of the world's leading international consultancies had contrasting views on whether it was vital for the UK to vote yes to stay in Europe in the forthcoming referendum. Bosses of AECOM and Mott MacDonald gave their opinions at the ACE International Conference last month. "We work in partnership all around the world and often with European partners - for instance French partners," said AECOM managing director for Europe the Middle East Africa and India John Horgan. "The uncertainty of our position in Europe following the election is a bad result. We need to put that certainty back," he added. "Our global clients see us as part of greater Europe and we are there or nowhere. We have no chance as a country unless we stay in Europe." For Mott MacDonald regional managing director for Europe, UK and Africa Mike Haigh things were not quite so clear cut. "As long as we stay in under renegotiated conditions that will bring stability and be good for business," he said. "Having said that I do believe we have the skills in our organisation to be able to deal with whichever way it goes. It won't be disastrous for us as a business if we left."

Former ACE chairman awarded CBE



Geoff French, Former ACE chairman

Former ACE chairman Geoff French was awarded a CBE in the Queen's Birthday Honours. French was also the chairman of FIDIC from 2011 to 2013; has been ICE president; and is currently the chairman of the Enterprise M3 LEP. He was also chairman of consultant Scott Wilson for eight years until 2010 when the firm was sold to URS which itself has since been subsumed into AECOM.

"Geoff French has really risen to the global challenge," said ACE chief executive Nelson Ogunshakin who himself has an OBE. "Not only was he ACE's chairman but he became the first British president of FIDIC for the last two years and on finishing in that role, he immediately took on the challenge of being president of the world's leading civil engineering institution - the ICE. What a marathon performance. His CBE honour is very well deserved."

French was joined in the CBE list by fellow engineer and chief executive of Thames Tideway Ltd Andy Mitchell. Mitchell won his award for services to civil engineering in his role as programme director of the £15bn Crossrail project in London.

In the OBE list Ogunshakin highlighted the honour given to CITB vice chair Judith Lowe. "Having spent a number of years across the corporate world breaking all glass ceiling challenges and the last five as an advocate for skills development and shaping the future of the construction industry, she is a good role model for our sector and the OBE is a well deserved award for her contribution," Ogunshakin said.

Developing the diversity and inclusion agenda

ACE has taken a lead in the drive for diversity and inclusion by updating its Business Code of Practice to contain an affirmation of a member's responsibility to understand and promote the need for greater diversity and inclusion in the industry. This applies to all areas including gender, race, ethnicity, religion, age, sexual orientation or disability.

At the AGM on 19 May 2015, ACE members approved the changes to the Business Code of Practice to ensure that the wider association is engaged in and committed to the issue.

Moving forward ACE will be engaging with a wide range of stakeholders across the supply chain with the purpose of benchmarking the various initiatives and identifying best practice. This will culminate in ACE making clear recommendations to the industry on how to incorporate diversity and inclusion commitments into their recruitment and procurement activities.

ACE recognises that diversity and inclusion is not only a social and cultural priority for the UK, but is also a business imperative in the marketplace by ensuring talent is drawn from the widest possible field. The ACE initiative is intended to identify those taking the lead in diversity and inclusion, learning how they affected change in their own company environment to develop and retain the individuals and teams of the future.

BIM - presenting risk and opportunity

ACE will be helping members to prepare for the challenges of working on BIM enabled projects, in terms of the challenges set by the government. In response to requests from members to have a dedicated area on the website to go to for advice on the wide ranging topics involved, ACE has launched a BIM Resource Centre covering a range of subjects from BIM introduction and scope through to key contractual issues. All information is available on ACE's website www.acenet.co.uk/bimengagement

Suggestions are welcomed on how to improve the Resource Centre and ACE

would be delighted to hear from you. Contact ariding@acenet.co.uk to share your ideas.

Summer reception will see launch of new procurement report

Come along to the ACE Summer Reception on 8 July and find out about the ACE's new procurement report - 'Procurement landscape - wider, challenging, and in need of reform'. This important document has been researched and prepared by ACE to respond to the opinion frequently voiced by the construction sector about how efficiencies could be gained through procurement reform.

The Summer Reception is held in an informal alfresco setting at the The Courtyard, Taj Hotel, St James's Court, London SW1 from 6pm. Please register at <https://goo.gl/ht7bZg>

ACE - why it matters to members

Over recent months SME engagement in ACE events and activities has considerably increased, the most recent being BIM seminars in London and Manchester. Progress Network (ACE's group for the under 35's) continues to blossom throughout UK with recent events held in London, Manchester, Birmingham and Edinburgh. ACE's auto enrolment scheme for pensions - a huge benefit for SME's - continues to attract interest. Combined with a subsidised mentoring programmes, ACE's business helpline, the Technician Apprenticeship Consortium, guidance notes on best business practice, free room hire, a number of very active sector interest groups, industry recognition through ACE's awards, and many opportunities to promote your company, there has never been a better time to engage with ACE - or if you are already engaged, to persuade others to do so. A full list of membership benefits plus an easy to navigate ACE tube map that shows how they relate to each other can be found at www.acenet.co.uk/whyjoinace/73.

If you would like to share an idea that may benefit your company and with which ACE may be able to help, please contact consult@acenet.co.uk

BWB wins Diamond Award as best of the best



BWB staff Simon Hilditch, Mark Jones, Steve Wooler, David Stairmand and Stephen Grindley receive their award from ACE's chief executive Nelson Ogunshakin and comedian Matt Forde

Nottingham based BWB Consulting swept the board at the 2015 ACE Engineering Excellence Awards, winning two category awards plus the overall Diamond Award for winner of winners to seal celebrations for the firm's 25th anniversary.

The evening of celebration also recognised the industry's individual emerging talent and named WSP engineer Michelle Hicks as Engineer of the Future, with AECOM's Karol McCusker and Mott MacDonald's Victoria Sutherland highly commended.

The awards celebrate and reward the very best performances of the year from across the UK consultancy and engineering community.

Judges highlighted BWB's innovative sustainable model of best practice across a range of disciplines, distinguishing its businesses as a trailblazer in careful and sensitive design to bring the natural and built environments together.

Winners were announced at a gala dinner in London last night (Wednesday 20 May 2015) at the Grand Connaught Rooms, London - see below for the full list - at which ACE chief executive Nelson Ogunshakin challenged the industry to continue to lead the UK into growth with innovative solutions to the nation's infrastructure challenges.

"Once again the standard of entries was extremely high and dominated by engineering projects that showcased the ingenuity and innovation of UK

engineering companies and the amazing inventiveness shown by their teams in delivering solutions to complex and ambitious projects," Ogunshakin told the gathered industry leaders. "Tonight's theme was 'ACE - the future: Be who you want to be' and all our winners are excellent ambassadors for the sector and all demonstrated exceptional team work."

ENGINEERING EXCELLENCE AWARDS - WINNERS 2015:

ACE Diamond Award - the overall 2015 winner of winners BWB Consulting

Building Services (over 250 employees)

Sponsored by Beale & Company and Griffiths & Armour



WINNER: Hoare Lea
Highly Commended: AECOM

Shorlisted
● Ramboll

Building Services (up to 250 employees)

WINNER: Skelly & Crouch

Highly Commended: Hurley Palmer Flatt



ACE chairman John Turzynski, with Engineer of the Future Michelle Hicks, WSP and comedian Matt Forde.

Shorlisted
● BWB Consulting
● Clancy Consulting

Building Structures (over 250 employees)

Sponsored by Beale & Company and Griffiths & Armour



WINNER: Ramboll

Highly Commended: BDP

Shorlisted
● Capita Property and Infrastructure
● Pell Frischmann

Building Structures (up to 250 employees)

WINNER: BWB Consulting

Special Award: Engineers for Overseas Development

Shorlisted:
● Clancy Consulting

Engineering Professional of the Year
Sponsored by Mott MacDonald



WINNER: Matthew Browell- Hook, Atkins

Shorlisted
● Brian Brett, Hurley Palmer Flatt

Project Award Design (up to 250 employees)

WINNER: BWB Consulting

Highly Commended: Skelly & Couch

Research, Studies and Consulting Advisory Award

WINNER: IMC Worldwide

Highly Commended: AECOM

Shorlisted
● Jacobs
● Roughton

Utility Infrastructure Award
WINNER: Pell Frischmann

Highly Commended: Royal HaskoningDHV

Shorlisted
● GHA Livigunn
● Waterman

Transport Infrastructure Award
WINNER: AECOM

Highly Commended: Mott MacDonald

Shorlisted:
● Capita

Progress Network Award - Engineer of the Future
WINNER: Michelle Hicks, WSP

Highly Commended:

Karol McCusker, AECOM
Highly Commended:
Victoria Sutherland, Mott MacDonald

Shorlisted
● Chris Walker, Flint & Neill
● Divindy Grant, Mott MacDonald

Judges

● Geoff French, Immediate past president, Institution of Civil Engineers (chair of judges)
● Steve Tarr, Balfour Beatty
● David Waboso, London Underground
● Malcolm Bairstow, EY
● Paul Berg, Griffiths & Armour
● Antony Oliver, Infrastructure Intelligence

Is the circular economy in danger of flat lining?



Politics has lost its enthusiasm for waste recycling, says Matthew Farrow. The next five years are critical.

For much of the past 20 years, there has been a good measure of consensus on the direction of travel in waste and resources policy.

The mid-90s saw the adoption of EU legislation such as the Landfill Directive and the original Waste Framework Directive.

The late 90s saw the introduction of the landfill tax and then its 'escalator' - often regarded as the most effective green tax ever, and in 2002 MORI reported that 'the public is supportive of recycling, re-use and composting and recognises that these are 'good' activities'. Policy innovations such as recycling reward points schemes were developed while devolution added an element of friendly competition between policy makers.

The recycling rate surged from a derisory 10% back in 90s to over 40% - a significant achievement.

This consensus lasted roughly until the first year or so of the Coalition Government. New Environment Secretary Caroline Spelman announced a review of waste policy on the basis that the Labour Government had not been ambitious enough. When it came though, the Waste Review was more a fine-tuning of existing policy than a ratcheting up of ambition. Spelman's successors left waste policy alone, and it was striking that by the 2015 election, while both the Greens and Lib Dems has lengthy manifesto sections on waste policy with a further upping of targets and vision, the Conservative and Labour documents were largely silent.

Meanwhile, the European Commission was also abandoning its leadership role in this field. The original 2014 'circular economy package' was green business as usual - higher targets (70% recycling by 2030), landfill bans and reuse aspirations. But with the Eurozone economies still stagnating the new Commission was looking to establish its pro-business credentials and this policy area took the hit.

Within the waste and resources world itself, it seems to me there has also been a divergence of views. The think tanks and seminars are still abuzz with thoughtful analyses of the

"By the time of the next Election, it should be clearer whether 50% represents the summit of UK (waste recycling) ambitions, or is a staging post towards a decisive break with the linear economy of the past"

scope for a truly circular economy, how we make eco-design the rule not the exception. On the frontline though, across the transfer stations, MRFs, and reprocessing facilities, more focus is on sorting out the messy regulatory implications of 'loss on ignition testing' of waste samples, definition of Refuse Derived Fuel and other policy interventions.

All of which makes the next five years a critical time for waste and resources policy. Cities like London and Cardiff have seen recycling rates dropping (albeit marginally) for the first time for decades, and it is not clear (at least in England) where leadership to wrestle with these challenges will come from. The European Commission may recover its circular economy mojo, but even then the EU Referendum will create uncertainty. Liz Truss has not so far shown much appetite for this agenda, though the new Waste Minister Rory Stewart certainly has the chance to make a mark here if he wants to.

The UK is currently struggling to stay on track to meet the 50% recycling target for 2020 set out in the Waste Framework Directive. By the time of the next Election, it should be clearer whether that 50% represents the summit of UK ambitions, or is seen as a staging post towards a decisive break with the linear economy of the past.

Matthew Farrow is director general of the Environmental Industries Commission, the leading trade body for environmental firms. www.eic-uk.co.uk

This article first appeared on Business Green.

Swansea’s Tidal Lagoon, lessons for graduates, CH2M gets a cash injection and Sweco acquires Grontmij

All articles can be read in full at www.infrastructure-intelligence.com

TOP STORY: Swansea Tidal Lagoon power plant wins planning permission

This month’s best read story was the news that Tidal Lagoon Power had been granted planning consent for its £1bn “world first” 320MW station at Swansea.



The Swansea Tidal Lagoon Power station will spearhead a £30bn investment

A new era of reliable, zero carbon base load renewable energy was promised today with granting of planning permission for the Swansea Tidal Lagoon Power plant.

The 320MW installed capacity project, developed by Tidal Lagoon Power, will have a design life of 120 years and a net annual power output of over 500 GWh - enough to power over 155,000 homes, or 90% of homes in the Swansea Bay area.

“What a day for Wales and the building of a Welsh Powerhouse!” said Mark Shorrocks, chief executive of Tidal Lagoon Swansea Bay, clearly very pleased with the planning outcome.

“We are now entering the era of the climate change revolution – decarbonising our world in time to avoid two degrees of global warming.”

He added: “We now have some further permissions to secure and must successfully conclude CFD [Contract for Difference] negotiations on our way to financial close, but the vision is now closer to reality than ever before and our delivery team is readying itself to start on site and start delivering for Swansea Bay next spring.”

The decision came after inspectors carefully weighed 5000 pages of evidence on the impact on the natural habitat of the Swansea Bay Tidal

Lagoon over its 120 year life against the zero carbon infrastructure, delivering a net annual output of over 500 GWh.

The project is expected to now pave the way, via this “scalable blueprint” pilot project, to a fleet of lagoons at Cardiff, at Newport and at other sites in the UK and overseas also being promoted by Tidal Lagoon Power.

And while each must make its own social, environmental and economic case for planning approval, the Swansea decision is seen as the vital step towards a circa £30bn investment in a fleet of up to six stations over the next few decades to eventually generate 8% of the nation’s electricity needs.

This programme is being overseen by Tidal Lagoon Power construction and engineering director Andrew McNaughton, former chief executive of Balfour Beatty.

To date key delivery partners for the project include Atkins as client’s engineer, General Electric and Andritz Hydro as turbine preferred bidders, Laing O’Rourke as turbine housing preferred bidder, Alun Griffiths as public realm ancillary works preferred bidder; China Harbour Engineering Company as marine works preferred bidder.

(Interview with Tidal Lagoon Power’s Andrew McNaughton - page 5).

CH2M secures \$300M investment



Apollo Global Management steps in as investment partner to help company grow

US consulting giant CH2M has agreed a \$300M investment partnership to secure its financial position.

Investment management specialist Apollo Global Management has agreed to invest \$200M in CH2M stock and will then plough a further \$100M investment into the business during the next 12 months in return for two positions on the CH2M board.

CH2M said that proceeds from the deal will fuel the \$5.5bn turnover business’ “growth initiatives, market leading positions, and integrated client service capabilities” and enable the business to take advantage of the growing global market for its infrastructure services.

“This investment will add to our financial strength and is the right next step toward spurring CH2M’s continued growth,” said CH2M chairman and chief executive Jacque Hinman.

“The financial and strategic benefits from Apollo’s investment and partnership will help us accelerate our growth, deepen our partnership with clients, push the limits on innovation, increase opportunities for our employees, and provide additional liquidity to our shareholders.”

The Apollo deal, which is expected to conclude during the second quarter of this year, will mean the business is no longer wholly owned by its employees.

Manston Airport DfT review due on



Thanet District Council is to reconsider plans for the airport site ahead of PwC report

The row over the closure and sale of Manston Airport on the Isle of Thanet in the Thames Estuary in Kent, was revived with the decision by the new UKIP led Thanet District Council to reconsider pursuing a compulsory purchase order for the site.

The previous administration, controlled by Labour, voted in December not to implement a compulsory purchase order.

The decision had left the developer, regeneration specialists Trevor Carter and Chris Musgrave, who purchased the land last year from the previous airport operator, free to press ahead with a housing and business park development until the Department for Transport stepped in last March to order a review of the council’s decision, led by PwC.

According to the Isle of Thanet Gazette, councillor Iris Johnston said at last week’s council meeting that at the time the CPO decision was made in December, important information had not been made available to the Council but had since been released. “financial information which led to an independent report tasked to auditor PwC - the results of this are due this month,” the paper reported.

The developers remain adamant however that talk of a CPO by the UKIP led council is a “red herring” and that development is the best option for benefiting the area.

13 Things I wish I knew as a graduate



Chief executive of Atkins North America L Joe Boyer offered his advice to graduates

Your early career can be an intimidating time, with a whole new set of rules in play. The behaviours and skills that may have helped you be a standout at university or school may not necessarily make you a leader at work. For what it may be worth to you,

I am sharing what I believe to be critical bits of life experiences I gained over the last 28 years, which may be beneficial in the infancy of your career.

1. Keep your ego in check.
2. For as many times as you state your opinion, ask twice as many questions.
3. Be bold—you can afford early mistakes.
4. Cherish your client relationships.
5. Watch the balance in your life.
6. Realise you are in competition with your peers.
7. Grab onto a mentor or two.
8. Be brave enough to collaborate.
9. Seriously consider your image and don’t overlook its impact.
10. Focus on what you like to do, but remember the things you hate to do.
11. Don’t be afraid to take on a difficult job.
12. Know who you are and what you stand for.
13. Perfect your people skills.

Transport Secretary pushing on HS2



A new Hybrid Bill for phase 2 of HS2 will be prepared in the current Parliamentary session

Secretary of State for Transport Patrick McLoughlin has announced the acceleration of HS2. “I want to see if we can bring HS2 to Crewe faster than planned, subject to further analysis and a decision on the preferred route,” he said addressing an audience in Leeds. “The argument’s been won. HS2 will be built.

The full ‘Y’ network from London to Birmingham and Birmingham to Manchester and Leeds,” he said. “I’m determined to deliver the benefits to the north as fast as possible. So I’ll prepare a dedicated Hybrid Bill in this Parliament. And we’re not forgetting the eastern leg either,” he continued. “We’ll make our Phase Two announcements this autumn.”

McLoughlin also said the government was looking at ways to use HS2 to introduce faster regional services and that £13bn would be invested on northern transport initiatives during the current Parliament.

Plans for high speed rail links across the north, often referred to as HS3 were also reconfirmed. “We’re moving forward with plans for a new high speed rail links, running right across the north.

From Liverpool in the west, to Hull in the east,” he said explaining that the links would slash journey times, boost capacity and help bind the north into a single, powerful economic force.

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Amey technical director Christina Jackson has been awarded the 'Lifetime achievement in engineering' at the Women in Construction and Engineering Awards.

Why did you decide to go into engineering/infrastructure?

When I was at school (an all-girls school) there was very limited information on career choices. My education was quite liberal with few boundaries so when I was told by one young man "You can't be a civil engineer – girls can't do that" – I thought – "Of course I can!"

What did you study? How did that lead to this career?

I studied Civil engineering at Leeds University which I chose for its positive attitude toward female undergraduates.



Christina Jackson receives her award for lifetime achievement in engineering

After graduation I joined a design consultancy in a structural group, but had so enjoyed engineering geology at university, I wanted to try Geotechnics and went to Cornell University in the US to do a research MSc in Geotechnical Engineering.

Who was your first employer and why?

Interviews for jobs after university were really varied, with many intrusive questions (and even hostile silences), and as with the choice of University, I went where I was made to feel welcome and joined Arup. After gaining my MSc in the US, I returned to Arup.

Women in civil engineering are sometimes reluctant to enter/be part of "Women" awards? What is your view?

We really need a big and diverse talent pool to develop the engineers and technicians who can respond to the rapidly changing demands of our society. Having diverse role models is an important part of that. So women who are prepared to put themselves forward as role models are needed.

Who has had the most influence over your career and why?

I could list inspirational female engineers such as Jane Wernick and Jean Venables, or alternatively mention those who have obstructed my career, but the genuine answer is my two daughters. They are at the centre of all the choices I have made.

What advice would you give your younger self?

Hang on, it's going to be a roller coaster ride!

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