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# I INFRASTRUCTURE Intelligence

*Produced for the industry by the Association for Consultancy and Engineering*



# 6 BIG

transport questions

# for 2016



## INFRASTRUCTURE Intelligence

Produced for the industry by the Association  
for Consultancy and Engineering  
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Produced by Victoria Street Capital on  
behalf of the Association for Consultancy &  
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The views expressed in Infrastructure  
Intelligence are not necessarily those of the  
Association for Consultancy & Engineering.

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2016 subscription rates: £80 a year.

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### MESSAGE FROM THE EDITOR

Our first issue of 2016 provides a road map for the 12 months ahead, identifying the major obstacles facing the engineering profession and highlighting areas where progress can be made. Political potholes are everywhere: from the on-going indecision over airport capacity, to infrastructure funding, to the fallout from flooding. Then there are the roadblocks, like skills shortages and fee levels.

Some of these are not within the gift of the sector to resolve. Others are, and here one of the biggest challenges that only the profession itself can solve is how to increase diversity throughout its ranks. It's a massive problem, but it needs to be tackled if engineering is to attract the brightest and best from across the social and ethnic spectrum. To this end, the ACE has published the first blueprint of its kind, aimed at helping firms, big and small, to rethink or redouble their efforts. It's an invaluable and important guide – and deserves the widest readership (see inbound supplement, *Diversity & Inclusion – Marginal or Mandatory?*, pages 13-28; plus viewpoint from ACE chief executive Nelson Ogunshakin, page 34).

Standing back a little, it is interesting to speculate how much easier and less challenging the landscape might be if engineers and their clients were able to sell projects better to the public at large. It's a point well made by Thames Tideway Tunnel chief executive Andy Mitchell (on pages 3-4) who says that infrastructure needs to promote not only the technical prowess of the project but also its wider benefits to society. Choosing a name that reflects a project's wider benefit might be a good place to start, he suggests.

Speaking on Radio Four over Christmas, the Duke of Edinburgh seemed to have the correct idea. "Everything not invented by God is invented by an engineer," he said, and went on to maintain that engineers hold the key to the future of humanity and its very ability to continue to thrive on the planet. How right he is. So when it comes to dealing with the public, let's try for bolder imagery and a little more flamboyance, and see how many hearts can be won.



**Denise Chevin,**  
editor, Infrastructure Intelligence

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# Rejoining London to the Thames

The £4.2bn Thames Tideway Tunnel is the largest infrastructure project ever undertaken by the UK water industry and will tackle sewage pollution in the tidal River Thames. Infrastructure Intelligence caught up with chief executive Andy Mitchell to take stock of its progress, and get his take on the industry – including why engineers need to be more imaginative in naming projects

## Are you on track to deliver?

Yes. I keep on having to pinch myself that as a company and a project we're only a few months old. Coming out of Thames Water, there was a huge amount to do just to set the company up, and that happened on 24 August. It was the same day we awarded the £2bn-worth of construction contracts. The challenge for us is that we're both a business and a regulated water company, and we've got investors who together have invested over £3bn.

We're building a big tunnel, but we see this as an opportunity to transform the Thames and London's relationship with it. Additionally, we are a going concern, so it would be a mistake to think we're just here to dig holes and then go away.

## Community relations: talk us through your approach?

We're trying to be friends with everyone and setting up community working groups. We've got to make it clear we're in listening mode. The legislative process can be very bruising. It's argued in legalistic terms, engineering terms; it has to be. But that's not the same as bringing people with you. We now have a job to do to establish a new, more productive relationship.

## Do civil engineering projects have trouble communicating their worth?

Civil engineering and infrastructure have to explain about more than just the product, i.e. the tunnel. We need to do a much better job helping our neighbours – and society – understand the broader benefits of what we're doing. But, of course, your immediate neighbours have their own concerns, and telling them how wonderful the world's going to be doesn't address that.

So you've got to do both. And we've got to say to our neighbours: what can we do to be the least nuisance, the least blight possible? It's important to admit we are a worry for them, and that we are going to affect their lives.



## How do you describe the project?

We did a lot of work on this, and we summarised it by saying we're reconnecting London with the Thames.

We're doing something quite special – it's a once-in-a-generation opportunity to fix things, for us and the people that follow: providing a river that can and should do an awful lot more for London, and the economy more broadly. Our success, and how we're viewed, will be on that outcome. Calling it "the tunnel" was probably giving it the wrong name.

Engineers are very good at naming/describing what we're building (HS2, Terminal 5), but that's not good when trying to describe an outcome, and why society should feel good about it. It's something we need to get better at.

## You've been chairing the Infrastructure Client Group for a year – how's it going?

What is clear, after five years of the ICG, is that we keep turning up, and we do that because we're getting a lot out of it, talking to each other. As time goes by, people are much more candid, and we can talk about the cock-ups.

What's exciting about the environment we're in now is that there's a government/pan-party appreciation of the value of investing in infrastructure – for the short-term

economic stimulus and also for its part in creating a better future. That's been growing over recent years, thanks to infrastructure projects being successfully delivered. And we find ourselves now with an infrastructure commission, which isn't something we had a while back. So we've got a really good opportunity to have a look as an industry at what we've been doing – but there's no doubt in my mind there are far too many groups in this industry all chasing the same list of projects.

## Which one should go, then?

All except mine! Seriously, what I hope will come out of this is a greater focus in parts of the industry on issues they're best placed to deal with, a recognition by the groups that their role is to support and complement rather than replicate.

And if that's all we achieve this year, as we see the National Infrastructure Committee being defined and developed and the new Infrastructure & Projects Authority getting greater clarity on its role, there's a real opportunity for industry to step up to that and try to speak with fewer voices.

## A whole-life agenda: how do we get the industry to accept that?

The encouraging thing is that this is now a more common question... and



## News interview

when we talk about outcomes versus outputs, you don't get the glazed look you might have done five years ago. So it's positive that we should be talking about outcomes, for two reasons – one is we need to do a better job of explaining to society what the outcome and what the benefit is. I am convinced that if we did that better, we'd spend less money getting the job to planning permission acceptance. Secondly, if we were clearer on what the outcome was, we'd stand a better chance of enlisting the huge capabilities of the industry to deliver a solution that works, and one that could be radically different.

Take highways: the answer to more road capacity used to be more tarmac; now it's technical solutions. And the roadbuilder's biggest rival is now Google. So the more we understand outcomes, the more we're going to see technology deliver answers that five years ago we might not even have thought of.

**“The answer to more road capacity used to be more tarmac; now it's technical solutions. So the more we understand outcomes, the more we're going to see technology deliver answers”**

**Andy Mitchell**

**But no one's making enough money to invest in this kind of technology.**

No, they're not. There's got to be a model that allows contractors and consultants in this space to invest in the things we all want them to – training and development, research. It's extraordinarily hard to do that when you're billing at two or three per cent.

Look at the automobile and aerospace industries: they wouldn't get out of bed for that. Their 30 per cent markup allows them to invest in all these things that make them better.

While we are in single-digit territory, I don't think we're going to have an industry that's fit and capable of taking us anywhere. And it's only the clients who can get us there. As long as we preside over a situation where it's the lowest price that wins the job, we can't be surprised when we don't get the kind of capabilities we're after.

Wherever the money is coming from, we've got to have a way more grown-up conversation about where this industry is going. The horse we've been flogging is not getting any faster.

*Andy Mitchell was interviewed by Infrastructure Intelligence's former editor, Antony Oliver, in the Straight Talk series, filmed by ACOonAir. The video is available at [infrastructure-intelligence.co.uk](http://infrastructure-intelligence.co.uk).*

## News roundup

### WORKFORCE DIVERSITY

**ACE has launched a report outlining strategies to spur progress towards diversity and inclusion.** Based on interviews with 30 industry leaders, *Diversity & Inclusion – Marginal or Mandatory?* is full of best-practice advice and suggestions for driving diversity and is accompanied by a new online hub with case studies and other resources. Dr Nelson Ogunshakin, ACE chief executive, said: “Our industry can, and must, embed a diverse as well as an inclusive culture for positive, sustainable change within our workforce. Otherwise it will falter under the magnitude of challenges ahead.” For full report see page 13; also viewpoint, page 34.

### PEOPLE

**Former ACE chairman Rod MacDonald, a founder of Buro Happold, has been awarded an OBE in the New Year honours list.** During his

35 years at Buro Happold, for six of which he was chairman, MacDonald took a leading role on the firm's energy projects, including the low-energy strategy for London's Olympic Park. Meanwhile, CBEs were awarded to Renewable Energy Association chief executive Dr Nina Maria Skorupska and HighSpeed 1 chief executive Nicola Shaw, while OBEs went to Highway Term Maintenance Association (Northern Ireland) executive director Geoff Allister and Transport for London director of asset management Dana Skelley.

**A civil servant from the Department for Transport has become the first chief executive of the National Infrastructure Commission.** Phil Graham takes up the role after making his name on several key infrastructure projects, including the 2012 Olympics and the high-speed rail strategy. NIC chairman Lord Adonis said: “Phil Graham is supremely qualified to be the first CEO. He has done brilliant work on a wide

range of nationally significant projects.” The appointment comes as the government launches a consultation exercise on how the commission ought to operate. Infrastructure experts and investors have until 17 March 2016 to submit their views.

### FLOOD DEFENCE

**The government is under pressure to increase flood-defence funding following the recent inundations in the North of England and Scotland.** Downing Street has already announced an extra £40m to rebuild and improve defences in Yorkshire, following similar pledges for Cumbria and Lancashire. But the environment, food and rural affairs committee has warned that earlier cuts in DEFRA's budget threaten flood protection. Chairman Neil Parish said: “DEFRA's budget reduced by around a quarter in the previous parliament and the department now faces a further 15 per cent cut by

2020.” His committee says the flood-protection programme depends heavily on funding from the private sector, most of which has yet to be secured.

### MAJOR PROJECTS

**A National Audit Office (NAO) analysis of 106 projects in the government's major projects portfolio has rated eight of them ‘amber’ and 28 ‘amber/red’, indicating concern they may not be ready by their 2020 completion date.** The analysis also revealed that, of the 56 projects remaining on the portfolio since the last audit in 2012, 17 were still in doubt or unachievable. The NAO said departments can't prove they have improved the success rate of project delivery. It added: “It is also a cause of concern that so many projects are due to be delivered within this parliament but have been initiated without any process to assess whether such a scale of delivery is achievable across government.”

# Six big transport questions for 2016

Will Gatwick or Heathrow get that runway? Is Highways England on the right road? What will the rail review bring? And which projects will suffer to fund better flood defences? *Jon Masters* ponders the transport talking points for 2016



## Is the policy mix right?

**M**any in industry building the infrastructure of transport may answer “yes” to this question. Both roads and railways in Britain are likely to receive significant sums of government investment over the next five years and more, giving the impression of a good policy mix. But expanding the question beyond roads and rail might change the picture.

Traffic congestion on the roads is not going to go away. Neither is air pollution, without some bolder action to change transport in cities.

Mobility is recognised politically as an intrinsic part of the economic growth agenda. Access to jobs is as important as creating them. But transport is also about quality of life – and making cities attractive places to live. Many of the best places to visit in Europe have banned vehicles (deliveries to businesses

“Mobility is recognised politically as an intrinsic part of the economic growth agenda. Access to jobs is as important as creating them. But transport is also about quality of life – and making cities attractive places to live”

excepted) from their centres and put really good public transport, cycling and pedestrian infrastructure in place. The EU Environment Bureau and Germany’s

environmental agency Bund are conducting the Soot Free for the Climate campaign and the Clean Air project. Their latest city ranking puts Zurich top of a league of European cities.

Switzerland’s largest city – with 1.3m people – offers a very high quality of life, according to Bund. It also scores high on air quality, not by having a low-emissions zone or a congestion charge, but by having a comprehensive strategy on reducing pollution, very good public transport, high parking fees and strict regulations on public-sector fleets.

Car use can be gradually deterred from city centres, but such measures will not be popular, at least not until populations have adjusted.

The devolution agenda will continue to take shape this year. Eventually, the bigger question may be whether elected mayors will make the big decisions.



### What impact will the rail review bring?

A root and branch review of the structure and financing of Network Rail is being carried out for the government by HS1 chief executive Nicola Shaw. Her full report is imminent, due in early 2016. Its conclusions at first seem unlikely to bring much change.

As Shaw acknowledged in her scoping report, published in November last year, Britain's rail industry is a very big machine. Network Rail employs over 35,000 people. Thousands more work for the companies of its supply chain and the train operators, and there are numerous contracts, regulations and licences governing operations on the railway. Network Rail is now nearly two years into its £38bn Control Period 5 investment programme.

The Shaw report was commissioned partly in response to problems with Network Rail's cost estimates

for electrification work, which has required significant extra finance and reprogramming into the next control period. The Public Accounts Committee has reported on Network Rail's cost escalations. Its recommendations include a fundamental review of the role and effectiveness of the Office of Rail & Road in rail infrastructure planning. As Shaw's scoping report made clear, Network Rail had little choice but to accept the regulator's assumptions on electrification renewal costs. Reclassification of Network Rail as a public body has also created difficulties for its financial planning.

Government's response to recent problems has created a significant agenda of change to which the industry must adapt, Shaw's report said. It also seemed to suggest that too much should not be expected, given everything else that's going on within the rail sector.

A further series of recommendations will now come out, possibly calling for a gradual return to privatisation and more devolved regional management structures, all of which will take considerable time to come about.



### Has Highways England made a difference?

Highways England (HE) will be a year old in April. In December 2015, the Office of Rail & Road (ORR) regulator reported on HE's first six months of operation. It found the new body to be doing well in meeting its key performance indicators, though it needs to do more on road safety: numbers seriously injured on the strategic road network increased last year.

ORR and Transport Focus – the new road and rail user watchdog – have also noted that HE is doing a lot to build a better understanding of its customers.

However, the new government-owned company has a long way to go in raising public awareness of its existence, role and key messages. Furthermore, all this could have been done under the previous Highways Agency structure. Introduction of a go-co detached from the Department for Transport was



# Aviation: how long must we wait for more capacity?

Heathrow or Gatwick, this year or next – when will the aviation sector get a proper government decision on where to expand airport capacity in the South-east? The latest expectation is for an announcement in the spring, which could actually mean just before the government's summer holidays.

Clearly, there is a very tough decision to be made here, but the Davies commission supported expansion at Heathrow, and if additional evidence clarifies how noise and air pollution

**“A network of airports – and not just around London – is vital, serving the needs of customers, driven by competition”**

**Andrew Harrison, managing director, Stansted airport**

limits can be met, the safer bet looks like a third runway in west London.

But when will it be built? Heathrow's target before the latest delay was to start construction in 2020, with completion in 2025. Realistically, getting to site is going to take longer given the project's controversy, likely legal challenges and navigation of the planning and development consent process.

Meanwhile, Manchester airport has a £1bn, 10-year expansion programme mapped out, and London City airport is hoping for £250m of investment to accommodate larger planes and more flights. Its chief executive, Declan Collier, says: “I don't think we'll see a new runway commissioned in the South-east much before 2028-30. That means we must make better use of existing infrastructure.”

Stansted managing director Andrew Harrison also expects 10-15 more years to pass before a new runway is built. “What is important is competition,” he says. “It drives better standards, better prices for airlines and customers, and it makes everyone raise their game. A network of airports – not just around London but across the UK – is vital, serving the needs of customers over the longer term, driven by competition.”

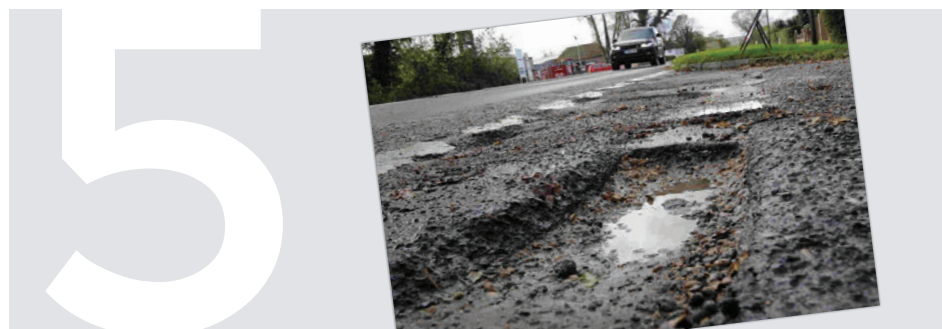


**“In terms of ‘fleet of foot’, the industry generally still finds Highways England cumbersome and expensive to do business with”**

**Director, tier-one contractor**

intended to create an organisation better able to deliver programmes quickly in collaboration with its supply chain and stakeholders.

The health check here reads: “no change so far”. HE is still only nine months old, but it needs to get a move on. It has a £15bn programme to deliver, and tier-one and -two suppliers report projects “moving to the right” already. According to the director of one tier-one contractor, “There is a clear message of the three key priorities of safety, customer and delivery, but in terms of ‘fleet of foot’, the industry generally still finds the HE cumbersome and expensive to do business with.”



## Is the pothole crisis beyond repair?

Yes, under the current broken funding regime and unrealistic expectations of what is affordable, believes Mouchel's public services director Matthew Lugg.

The pothole issue has risen up the political agenda as local highway authority roads have continued to deteriorate under the pressure of decreasing maintenance budgets.

The ALARM survey of the Asphalt Industry Alliance brings considerable exposure to the problem in March of every year, drawing attention to an overall £12bn backlog of maintenance last time around.

The figure is somewhat hypothetical because it is based on authorities' responses to the question of how much money they would need in order to bring all their roads to a good standard immediately. This is an unrealistic expectation, according to Lugg.

“The pothole problem can be solved if the right service levels are set for particular roads,” he says. “A constitutional change is needed: the Highways Act requires authorities to maintain all roads to a good condition, but some roads could be allowed to deteriorate to tracks and then maintained appropriate to that use.”

A radical solution is also needed to fix the funding problem, according to Lugg: “The answer is hypothecation of fuel duty for road maintenance. We were told by the Treasury that this would never happen, but it's being done with vehicle excise duty for the national strategic road network.

“We now have an imbalance of funding in favour of national roads, when all roads are seen by the public as parts of the same journey and of equal importance,” Lugg says.

He adds: “We want to see hypothecation taken to the next level, and road maintenance responsibilities should be taken away from local authorities and given to new, dedicated regional and local public-private partnerships. It's radical but necessary.”



### Will the weather change everything?

All bets are off for infrastructure if the climate sends weather even more extreme than that seen in recent years. Network Rail, for instance, may find that available funding for improvement projects changes considerably if sections of main line are having to be rebuilt every year due to flooding.

Planning and designing for resilience may become much more important. Or maybe the critical task will be keeping government's attention focused on the issue when the weather is good. Cutting funding for maintenance of flood protection, then throwing money at recovery, certainly seems unsustainable.

Costs will inevitably rise if infrastructure is to be more robust for resisting heavier rainfall, colder winters and warmer summers. More open discussion may be needed with the public on realistic expectations and how to manage risk – this is just one of many solutions that industry and flooding experts think should be part of the mix.

"More joined-up land management is part of the solution," says WSP Parsons Brinckerhoff's head of water development, Hamish Hall. "DEFRA is involved at one end of this, working with farmers on land management issues; the Environment Agency is at the other end working on flood risk. Could the government do a lot more to join it all up, to manage uplands and reduce surface water run-off?"

Another part of the answer has to be more serious funding for flood defences. Estimates of the clear-up costs of large-scale flooding events in the UK have ranged from £2bn to £4bn per year. Government's current flood-protection programme pledges £2.3bn to fund 1,400 river and coastal flood-protection schemes over the six years to 2021.

## No time to delay for Crossrail 2

The project needs a green light now if it's going to get commuters to work in 2030, says *Michele Dix*

THIS is a vital year for the future of Crossrail 2. Lord Adonis's National Infrastructure Commission (NIC) is at present considering the evidence it has gathered on three nationally important projects: these include not only the electricity supply, and connecting Northern cities, but also the future of London's infrastructure – especially Crossrail 2.

Crossrail 2 will connect together national rail networks in Surrey and Hertfordshire via a new tunnel between south-west and north-east London. A third public consultation on the project has just been completed, and it is ready to move to the development stage. Following Crossrail 1 and HS2, it is the next transformative engineering project for London and the South-east, and one affecting the wider UK economy too.

The NIC's report will inform the chancellor's decisions in his March Budget on which projects get crucial development funding.

The UK capital's population has already hit 8.6m; by 2030 it will be around 10m. Crossrail 1, the Northern Line extension and other projects will make a difference. But all the projections are that without additional, transformative infrastructure, the system will be severely congested by the early 2030s.

Unless we commit ourselves firmly now to decisions on infrastructure investment for the next decade and a half, parts of the wider South-east's transport system risk grinding to a halt. When it opens from 2018, Crossrail 1 will have taken in total a full 10 years to construct. A massive project such as Crossrail 2 needs to be given a green light now if it is going to get commuters to work in 2030.

Crossrail 2 will bring 270,000 people into central London every day during the morning peak period. It will create new connections across the region and take pressure off congested rail lines connecting into London, especially from the South-west. In this

way, it will speed up journeys right across the wider South-east region: the benefits should be felt as far away as Southampton and Peterborough.

Crossrail 2 is also vital to the UK because it is not just a railway. It will drive increases in housebuilding – in total, 200,000 new homes. Moreover, KPMG's analysis shows it could add £102bn to the UK's economy.

Crossrail 2 will play an important role too in the future of Britain's engineering and civil engineering industries. Without a steady pipeline of infrastructure projects, we risk losing the skills and capacity built in recent years, for example through Crossrail 1's impressive apprenticeship programme. It is estimated that Crossrail 2 will make a similar investment in skills, training and apprenticeships – and in improving the diversity and inclusivity of the industry.

Crossrail 2's supply chain will also bring orders to engineering firms across the whole country, both while in construction and when in operation. Crossrail is already supporting tens of thousands of jobs throughout Britain, producing everything from switchgear in Telford, to cable in Middlesbrough, to test equipment in Ayrshire. It is estimated that Crossrail 2 could support around 60,000 full-time jobs across the UK through its supply chain, in addition to the 18,000 people who would be employed on it directly during construction.

With a positive decision in March to invest in the project's further development, we can complete the work needed on design and environmental impacts, prior to seeking powers to build the railway – most likely via a hybrid bill in parliament. Investment now is the only way for construction to start in 2020 and for a completion date of 2030.

But to achieve that, we need to move up a gear this spring and get this crucial infrastructure project on track.

*Michele Dix is chief executive of Crossrail 2.*



# Westminster's diary: the big political decisions for 2016

ACE's senior policy manager *Peter Campbell* and director of policy and external affairs *Julian Francis* highlight the political crunch points for the coming year

**P**olitics is the show that never ends. No sooner are we done with one decision, one Budget, one year, than the next begins, bringing new challenges – some foreseen, others less so – with little time to remember, let alone celebrate, the victories recently won. And so it is, as we say goodbye to 2015, a surprising year in many ways, and bid hello to 2016, with the hope that it proves a little more conventional.

**The rise of the SNP:** First of all, the things we know about. May 2016 will see a swathe of elections across the regions of the UK, with London, Wales, Scotland and Northern Ireland all going to the polls. The Labour Party looks set to repeat its 2015 general election performance north of the border by losing out in an enormous way to the SNP, although talk of it finishing behind the Tories may be an exaggeration.

It's a similar story in Wales, where the governing Welsh Labour Party looks set to lose seats and will need a coalition partner or two after the assembly elections. Plaid Cymru seems the obvious choice, having been the bedfellow of choice in previous administrations. Meanwhile in London the government will be hoping that the traditionally Labour city will once again elect a charismatic Conservative mayor.

All sides will be placing housing and infrastructure at the forefront of their manifestos, as we have already seen with projects such as Crossrail 2 and new government powers to directly commission housing developments. ACE has already begun working with all the players to ensure our messages about certainty and stability are engrained in the thinking of the candidates, their teams and their parties.

**Housing revolution:** As for the political agenda, there is much to keep an eye on during 2016, especially for those interested in infrastructure. The Housing and Planning Bill will receive royal assent in the coming six weeks or so, which will change planning consents, encourage more consideration to be given to starter homes, and formalise the government's powers to



The tardy decision on a third runway for Heathrow will be resolved only after Londoners decide on 5 May whether to choose Zac Goldsmith or Sadiq Khan as their new mayor

commission housebuilding directly. Everyone will be monitoring the implementation of these provisions to see if the country can finally deliver the number of houses it needs.

**Rail in the spotlight:** The rail industry will be eagerly awaiting the recommendations of the Shaw review into the future of Network Rail, keen to find out whether the government will choose to restructure the organisation and its operations. This follows hot on the heels of the Bowe and Hendy reviews, which were all announced in the wake of a disastrous year for the nation's rail infrastructure custodian and its Control Period 5 programme.

**The third runway and a new mayor:** If we are all very lucky, we might also get to see a decision made by the government on the thorny question of UK aviation capacity. This has been rumbling on since the establishment of the Davies commission and suffered its latest setback when the prime minister deferred a decision until after the London mayoral election. Clearly, this piece of political chicanery is far from ideal, and so the ACE will be pressing for the decision to be made as early as possible on the morning after the election, Friday 6 May. The good news is that all the leading mayoral candidates are putting housing and transport at the

top of their agendas, and infrastructure will play a leading role in the election campaign in the capital.

**EU referendum:** There is also a decent chance that the country will be going to the polls to decide on what its future relationship with the EU will look like. The prime minister and the chancellor have set the terms for the renegotiation with our European partners, and they may feel that a deal can be reached that will allow for the referendum to be held at least a year earlier than necessary.

**The set pieces:** Naturally there will also be the usual diary items, such as the Budget, which will be delivered at 12.30pm on Wednesday 16 March; the state opening of parliament and the Queen's Speech will take place some time in May. Additionally, there will be an Autumn Statement some time during November or December.

Needless to say, ACE will be pushing to position itself at the forefront of these and all the other political issues that we in the infrastructure sector face in the coming year. There are still a mountain of decisions to be made that will fundamentally affect our industry and how delivery of the vital infrastructure we need is to be achieved. If 2015 was the year of promises, 2016 will be the year of delivering on them.

# Devolution good, dithering bad

As the year begins, we ask some leading industry figures which three things they are most excited about for 2016 and what they see as the biggest risks



Mathew Riley, strategy and development director, Arcadis

### The three things I'm most excited about are:

**Devolution** – given my role as ACE's regional chair for London and the South-east, I'm focusing on the capital. With the devolution agenda, it feels that London is on the cusp of being able to come up with a plan to deliver its ambition, albeit within a government framework, and make real progress – in particular on the provision of housing and infrastructure. A new mayor will clearly want to shape this agenda, but the desire and momentum to make this happen are already there from both the public and private sector. This will require a different way of working, with new solutions to complex problems – it will be tremendously exciting.

**Crossrail 2** – the opportunity to secure the funding to take Crossrail 2 forward to complete the planning process, and the wider momentum that this would create. We must avoid a repeat of the Crossrail 1 process.

**Transport** – I hope to see Transport for London taking a more holistic approach to leveraging the value of its asset base. It is encouraging to hear the language changing about how they plan to maximise the wider development opportunities that, say, station upgrades can bring. This will bring real innovation and value to London.

### The biggest risks as I see them are:

**Political change** – if a new mayor decides to review the London Infrastructure Plan, then we will lose momentum.

**Bureaucracy** – if the National Infrastructure Commission becomes another layer of governance for Transport for London, and indeed for Transport for North. The commission needs to be additive to the investment process and not a potential constraint.

**Procurement** – the existing approach to procurement will need to adapt and use different models for assessment of the value and capability required to deliver this investment.



Jeannie Edwards, HR director, MWH

**“An increasing focus on diversity and inclusion. Hopefully, this is beginning to get some genuine traction, instead of mere lip service being paid to it”**

Jeannie Edwards

### Looking ahead to 2016, I'm most excited about:

**Flexible working** – the change in working habits; working from home or flexible ways to accommodate personal as well as professional ambitions are becoming more acceptable.

**Diversity** – an increasing focus on diversity and inclusion. Hopefully, this is beginning to get some genuine traction, instead of mere lip service being paid to it.

**Being more sustainable** – climate change is bringing new challenges to companies, but also new opportunities.

### While the biggest risks are:

**Internet** – cyber-attacks on the rise.

**Salaries** – the culture of engineering preventing an increase in salaries; we will continue to lose good people to higher-paying industries.

**Industry representation** – further consolidation of companies may influence larger companies to rely on internal resources rather than turning to external bodies such as ACE for support. ACE needs to increase its lobbying and other services that larger companies require, as well as continuing to provide a service that the smaller companies need.



Patrick Flaherty, chief executive for UK & Ireland, AECOM

### We're excited about:

**Infrastructure certainty** – the Conservatives' re-election last year should lead to greater continuity for the UK's major infrastructure programmes. Creation of the National Infrastructure Commission recognises the long-term nature of infrastructure planning – underlining the importance of cross-party consensus-building – and should create greater certainty for our industry.

**Energy** – a similar approach to energy generation that shields it from the electoral cycle should be developed. The challenge is to address the energy gap while balancing affordability and security of supply.

**Housing** – the government has shown its commitment to tackling the UK's housing crisis with initiatives such as unlocking packages of public land and easing planning constraints for brownfield sites. The focus must be on continuing to identify larger-scale development opportunities, underpinned by transport and social infrastructure.

### And the risks:

**Flooding** – the need for infrastructure is best shown when it fails. Resilience against flooding will be an on-going challenge, requiring a combination of national and local solutions. DEFRA recently funded local-scale flood resilience implementation to existing housing stock in flood-prone areas. This quick-win approach recognises that not all areas can be affordably protected by flood defences in these times of changing climate patterns.

**Politics** – decades of decision paralysis over aviation capacity are negatively impacting business, with more than 50 per cent of firms in London affected by the indecision, according to the recent CBI/AECOM infrastructure survey.

**EU referendum** – uncertainty diminishes business confidence and stifles growth. Implementation of a long-term infrastructure strategy is critical to the UK's future competitiveness.



Paul Hamer, chief executive, WYG

**The three things we are most excited about at WYG in 2016 are:**

**Northern Powerhouse** – helping the government to define, programme and commence the overarching creation of a Northern Powerhouse that brings together the strength of the region from the Humber to the Mersey and delivers benefit to the UK economy as a whole.

**Our international role** – playing a leading global role in helping the international development community create stability across fragile states and provide solutions to the humanitarian and refugee crisis while supporting the eradication of poverty and disease.

**Growing the business** – building on our success to date as we look to grow our business further through key and focused acquisitions to supplement our organic growth plans; retaining, developing and harnessing talent.

**In terms of key risks to the sector and our marketplace, we will be watching:**

**Politics and the economy** – the overarching geopolitical situation and the UK's role in the global marketplace.

**Funding** – stasis of funding and lack of true political will to make critical investments in UK energy, transport and infrastructure, which will also support the creation of Britain's Energy Coast and the Northern Powerhouse.

**Global finance** – the potential for weakness in global financial markets to affect the US, Middle East and China, and any impact the EU referendum may have on the wider UK outlook.

**Skills** – the future pipeline of talent.

**“The potential for weakness in global financial markets... and any impact the EU referendum may have”**

Paul Hamer

## Recharging energy generation

Energy is set to be one of the biggest issues for the industry – and indeed the country – during 2016, writes *Andy Walker*

While the government's recently proposed decommissioning of coal-fired power stations by 2025 and its commitment to nuclear new-build supports the UK's COP21 climate change commitments, the increasing challenge is to address the energy gap while balancing affordability against security of supply. Indeed, keeping the lights on will be one of the top priorities for the National Infrastructure Commission.

Demand management will also be a crucial issue; specifically, how can demand be reduced? The renewables sector will grab the headlines, but will this be the year it finally goes mainstream and receives the government investment it needs? Can wind power be profitable without subsidies? And, crucially, does the industry have the skills to deliver on the major energy investments the country requires?

Many in the industry want to see the government develop a policy that shields energy from the electoral cycle and looks to the long term. Is this realistic in the increasingly politicised national climate?

The four primary concerns of the government's new energy policy, as announced in November 2015 by

Amber Rudd, the secretary of state for energy and climate change, are:

- consultation on ending unabated coal-fired power stations by 2025
- investment in new gas-fired power stations
- promotion of offshore wind power (without subsidies)
- moving towards a smarter energy system.

The emphasis is therefore on securing future power generation to meet anticipated demand, with a focus on nuclear, gas and wind. Exactly what progress we will see in 2016 towards these aims is unclear.

Following the chancellor's 2015 announcement that the government would put on hold its commitment to zero-carbon building, it remains to be seen whether the government will ease or strengthen regulation in efficiency measures. Regardless, engineers and other infrastructure professionals will have a key role to play in designing and constructing energy-efficient buildings and infrastructure, with or without regulation and financial incentives.

*We take a closer look at some of the big energy questions for 2016 – and their solutions – in a special feature on [infrastructure-intelligence.com](http://infrastructure-intelligence.com).*





# Margins on an upward trend as economic omens bode well

The fortunes of our industry are inextricably linked to the strength of the economy. ACE economist *Bill Simpson* considers the trends, challenges and risks

### The trends

Economic indicators reveal many positive trends for the year ahead – and some surprises. Company profits have been rising year-on-year since late 2012, but fell slightly in the third quarter of 2015 when compared against high marks a year earlier. This year-on-year increase should resume for the fourth quarter, when the data is revealed.

Company profit margins in our sector, based on UK firms participating in ACE Benchmarking 2015, improved from 5.4 per cent in 2013/14 to 7.2 per cent in 2014/15, and are forecast to continue growth to 8.3 per cent.

Thanks to the rise happening in real wages, consumer spending – the largest share of national expenditure – should see strong growth in 2016.

Additionally, corporate investment, which has grown steadily for two-and-a-half years, should continue to rise.

Economic indicators for 2015 reveal increasing scarcity of labour as well as the need to boost output per head, which together signpost an increased capital intensity.

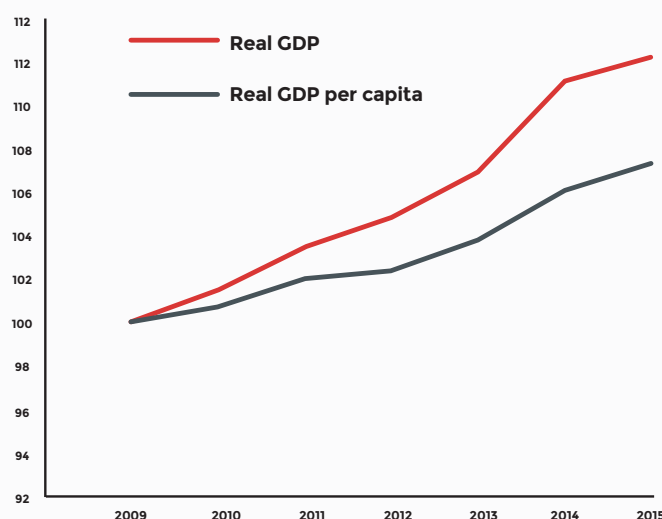
Net trade in 2016 – exports minus imports – will lessen economic demand as many European trading partners are growing at a slower rate, while UK imports are likely to be buoyed by an increasingly strong consumer spending.

UK inflation is zero, balancing slightly over 2 per cent for the rates of both deflation in goods and inflation in services. Yet it should be noted that at present the international economy is helping to bear down on these prices.

Surprisingly, the 18-to-64-year-olds labour force inactivity rate – numbering those not active as workers or job seekers – was in 2015 the lowest since the late 1980s, reinforcing that the UK economy now has strong employment and a competitive environment for firms that are recruiting.

Analysis reveals another surprise, in that productivity growth is seen to have become separated from what it normally drives – economic growth. Real economic growth per head has been rising at a rate about 0.6 per cent

Real GDP and real GDP per capita indexed to the end of recession (2009)  
Annual averages (2015 = Q1 to Q3 inclusive)



slower than the rate of real economic growth over the past four quarters. While people have been added to the production process, now the emphasis must shift to producing more per head.

### Challenges

Skills shortages are the big worry that will carry over from 2015 to 2016. While this is already a serious concern in our sector, the worry is spreading across other sectors. In order to monitor this, the Bank of England will watch earnings growth and be prepared to nudge interest rates higher if the shortage of labour spurs any acceleration in wages.

### Risks

Insolvency trends for 2015 provide positive news for the UK economy. The DTI Insolvency Service reports the lowest level of compulsory company liquidations since 1989 and the lowest percentage ratio of company liquidations in comparison with the register of active companies since records began in 1984.

Late payment continues to be a risk as a predictive factor for financial difficulties. However, ACE Benchmarking showed improvements,

as year-end debtor days for all firms fell from 78 in 2013/14 to a still-high 75 in 2014/15, and the yearly average slid from 79.5 to 74.7. It also showed the share of trade devoted to a firm's three largest clients averaged only 15 per cent, which does not flag up insolvency risk.

Annual growth in productivity for the whole economy rose to 1.1 per cent in the second quarter of 2015, from 0.4 per cent a year earlier, and should continue to improve in 2016. However, this brings potential risks. In particular, as the UK runs low on the skills needed to fill vacancies, productivity will have to improve or else growth in real GDP will at some point start to slow.

### A fair wind

The ACE Benchmarking report for 2015 revealed positive improvements for ACE members' revenue per fee earner and staff number measures of productivity, fostering an expectation of growth.

Despite the challenges and potential business risks in the UK's economic landscape, I believe productivity and investment will strengthen: the outlook is good for continued growth in 2016. We should see the economy grow by about 2–2.5 per cent in 2016 and 2017.



# Diversity & Inclusion – marginal or mandatory?



**January  
2016**



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# Diversity & Inclusion – marginal or mandatory?



**Dr Nelson Ogunshakin OBE**  
President & CEO, ACE

Companies no longer have any excuses not to implement a diverse and inclusive culture in today's modern work environment. Our industry can, and must, embed a diverse as well as an inclusive culture for positive, sustainable change within our workforce. Otherwise the industry will falter under the magnitude of challenges ahead.

Recently, we have seen the publication of a wide range of reports on diversity and inclusion, with most shining a high level of scrutiny into the current state of affairs. This scrutiny has led the industry to develop an awareness of the positive business case that is essential to the prioritisation of diversity and inclusion, particularly the positive correlation between diverse teams and increased productivity, as well as retention. Upcoming challenges such as the skills gap, low retention, and an ageing workforce forms an imperative for the potential pool of recruits to be expanded, to satisfy not just an HR need but to foster a forward looking business strategy.

While the level of awareness has been raised, many companies have now started or are contemplating the implementation of a business strategy that fosters diversity and inclusion. Yet, many are caught at a crossroad, wanting to make a difference, but not knowing what actions to take.

The current report set out by the Association for Consultancy and Engineering (ACE) intends to provide the consultancy and engineering sector with tangible recommendations that can be incorporated in full, or in part, by all companies regardless of size. These recommendations are derived from one-on-one interviews conducted with over 30 leaders in the field. They explore different experiences within the industry in order to isolate those trends and initiatives that achieve targets for diversity and inclusion most effectively, and those we can learn from.

This report will focus upon 10 tangible and realistic strategies that could be adopted to foster diversity and inclusion through topics such as benchmarking, the implementation of best practice, upcoming procurement needs, ACE actions, and the 10 key strategies.

Amongst the best practices examined are those of transformational leadership, business foundations, staff wide knowledge, flexible work parameters, as well as sourcing recruitment and nurturing career progression.

The strategic insights and subsequent 10 strategies recommended are a result of feedback from individuals and companies who participated in one-on-one interviews, for which ACE is incredibly grateful. I am honoured that these 30+ leaders from micro-businesses to corporates, realise the need for industry-wide guidance, as well as the importance of best practice sharing in order to develop this report.

I invite all within our industry to start their journey towards better diversity and inclusion in partnership with ACE, because all of us have positive contributions that can be made, and results that can be achieved to move the agenda on.



<sup>1 2</sup> Engtech Now & ACE (2015) The Retention Gap: What it is and how to tackle it. <sup>3</sup> McKinsey (2014) Why Diversity Matters Report.

<sup>4</sup> Robinson, M., C., & Buccigrossi, J. (2003) Business Case for Diversity with Inclusion

# Benchmarking

*'Like any business strategy there are three stages. The first stage is to develop awareness, the second stage is to develop an acceptance that this is an issue, and the third stage is to actually take actions on these issues. We, as an industry, are at the first stage of awareness.'*

**Keith Howells, Group Chairman, Mott McDonald**

Many assume that their company and industry are diverse as well as inclusive until numbers to the contrary are presented. Until the Autumn of 2015 there was no available engineering specific benchmark against which to measure.

The Royal Academy of Engineering's Diversity Leadership Group made significant strides in November 2015 by creating a benchmarking tool to provide measurable insights on diversity within engineering; as well as producing 2015 analysis across the engineering sector. With a template now available to all, this allows a comparison of efforts within the engineering industry as a whole; revealing if efforts are below, on par with, or exceeding industry norms.

Collecting and tracking data on a regular basis is essential, no matter what tool is used, as long as it is used consistently. Only through regular tracking and target fulfilment can inclusive corporate strategy and diversity initiatives be developed.

Targets are vital in order to increase diversity within any workforce. They are important as a business catered mechanism over the long term that tracks improved leadership initiatives and also the standards upheld or corporate goals achieved.

*'A more diverse workforce is a business imperative. We have to explore and find innovative solutions to inspire, recruit, retain and motivate the best talent from across the entire population. Through encouraging our industry and sharing good practice, we will be able to move together towards a more diverse and inclusive future.'*

**Allan Cook CBE, Chairman, Atkins**

Participants gave the following target setting tips for increasing diversity:

- 1) Be realistic about what is achievable with current resources and staff turnover. For small companies with lower staff turnover less year on year progress is possible, while for large organisations targets can be met. The most common target seen for large corporations is a 2% diversity increase per year.
- 2) Diversity targets should be set for shortlisted recruits, and those hired. While there is a correlation between the two, a target for the presence of diverse individuals on the shortlist helps in the medium term to counteract unconscious bias.
- 3) Ensure leaders know, embrace and spread word of targets to all employees. To become embedded into company culture, all management levels need to believe in and help disseminate information on company targets. The biggest risk for neglecting the importance of these targets lies with middle management, who may not be engaged with the process.

*"In my experience, explicit targets and tracking against those targets is key to delivering any kind of step-change in an organisation's performance. Diversity is no exception."*

**Isabel Dedring, Mayor of London's Deputy Mayor for Transport**



Photograph credited to Royal Academy of Engineering

## ACE Recommends:

- Establish yearly targets for improvement in at least one area, including but not limited to: diversity of shortlisted and new recruits; staff resources; employee retention; flexible working or staff satisfaction.
- Company targets and efforts to achieve these should be known company-wide, disseminated by engaged senior leadership, and regularly raised by all management.
- Conduct a regular anonymous survey for staff satisfaction, covering topics such as manager satisfaction, likes and dislikes of current position, as this may reveal issues in establishing inclusive culture – namely employee retention and manager disconnect.
- Use external tools, such as the Royal Academy of Engineering toolkit, to track progress.

# Best Practice - Transformational leadership

While company initiatives vary with availability of resources, the incorporation of diversity and inclusion in business strategy is chiefly a leadership prerogative. Without leaders fully believing in the need for a diverse and inclusive workplace, the objective will not be achieved.

*'I don't think this is a resource issue. It is a leadership issue. The values of a good business are at the heart of good D&I and those values need to be addressed at the very top of the business. If any business is not delivering D&I then the leadership team needs to act.'*

**Graham Nicholson,**  
**Executive Managing Director, Tony Gee**

A true leader must believe in, inspire and build the abilities of those around them to achieve a common goal such as diversity and inclusion.

*'We face a real crisis of talent and capability and diversity makes perfect business sense and is a real challenge which requires leadership.'*

**David Waboso, Director of Engineering,**  
**London Underground**

A group of company leaders are, themselves, instrumental to fostering diversity and inclusion, as role models for the workforce. Without such role models, many may not believe the company's views on diversity and inclusion are more than just talk.

Company leadership must tap into the enthusiasm of other key individuals throughout the company that are able to support efforts for the senior leadership's diversity and inclusion plans. Many companies have diversity or inclusivity champions to increase support from the middle or lower levels of the company hierarchy. Interviewees for this report identified such individuals as **'vital'**.

Participants identified the midlevel within corporate structure as the largest risk for not relaying strategy. Ensuring all managers are capable of embodying corporate decisions regarding diversity and inclusion is absolutely fundamental, as only then will employees believe in the objectives set.

*'People are our business' cornerstone. While our entrepreneurial culture attracts top talent, we equally strive to support all employees through flexible working, mentoring, training, and providing resources. Senior leadership must lead by example, and we recognise diversity isn't just an end in itself, but a part of how our business helps future industry leaders.'*

**Mark Naysmith, Chief Operating Officer &**  
**Managing Director in the UK, WSP | Parsons**  
**Brinckerhoff**



Photograph credited to Royal Academy of Engineering

## ACE Recommends:

- All diversity & inclusion strategy should be spearheaded by senior leaders. Any senior leadership group should be reflective of the workplace as a whole, leading by example.
- All management levels should be appropriately prepared to manage employees as people, not just for their work output, but also fostering employee strengths.
- Develop mentorships, not just vertically but also horizontally, so new employees receive support from both leaders and peers.
- Confidence building training for employees was found to correlate with companies that have underrepresented groups at management level and above.
- Follow a principle of transformational leadership, fostering others to be leaders, as well as embedding diversity and inclusion throughout all levels of the company by ensuring all managers understand its importance.
- Gather "D & I Leaders" to drive forward the call to action, aiming to increase an industry-wide best practice for diversity & inclusion.

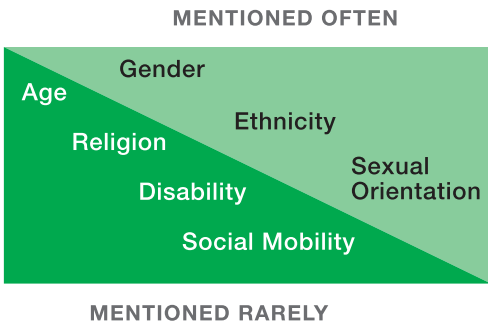


# Best Practice - Build a foundation for both diversity & inclusion

Industry wide, the emphasis is to achieve gender balance. 'Solving' gender imbalance may yield tools to increase other forms of diversity, yet isolating any one protected characteristic may be self-defeating for diversity or inclusivity overall.

Addressing the needs of a specific protected group, there is a fine line between recognising need and creating animosity amongst the remaining workforce. If done incorrectly, individuals within protected groups can feel patronised, discouraged due to perceived tokenism resulting in the remaining workforce becoming potentially discontent. A balance is needed between a group receiving particular attention, and inclusivity being cultivated.

## SEVEN COMMON DIVERSITY CATEGORIES



While organisations may have employee support systems for protected groups in place, this may risk dividing the workforce, with many not receiving the attention of a support group, as they are not considered 'diverse'. Without a general support group for employees, dividing the workforce is a risk.

A company strategy based on inclusion tends to focus on developing the whole person, building every individuals' strengths, whilst putting initiatives in place to foster a trusting team.

'As a small company, creating a personal development path alongside our career development path is effective at fostering staff satisfaction, fairness and improving retention. Particularly as an SME it is about willingness in developing and maintaining the whole persona, and not necessarily monetary resource'

**Nick Langdon, Company Chairman & Director of CGL, Card Geotechnics (CGL)**

A link exists between isolating protected characteristics and developing a company strategy based on diversity. Likewise, addressing all employees together is linked with a company strategy based on 'inclusion'.

Use of diversity or inclusivity within corporate strategy varies with the company size, location, leadership, and current diversity levels. Diversity strategy, centred on year-to-year improvement is more common in large companies with allocated resources, and a high staff turnover. Inclusivity strategy, is centred more on staff satisfaction, teamwork and workplace appeal, and is more common in SMEs with limited resources and low staff turnover.

'It is no more challenging for small businesses to create an inclusive environment than it is for large businesses.'

**Ben Pritchard, Consultant, Invennt**



## ACE Recommends:

- Given the correlations above, companies should examine, based on headcount, turnover, location, and resources, if the business strategy should contain diversity and/ or inclusivity approaches.
- As a minimum, companies should foster inclusivity that supports varied needs.
- Those companies that focus on diversity without also fostering inclusivity should consider the risks mentioned above and look to incorporate inclusivity within current initiatives.

# Best Practice - Staff knowledge of support available

As with all forms of business strategy, employees' sentiment depends upon an understanding of company actions.

Medium to large size firms identified raising staff awareness of company views or actions as particularly challenging. Without this awareness, distrust or disconnect between team members and managers will rise. Honesty and reassurance are essential; even if the solution has not yet been decided, employees are reassured that their managers are aware of the issues.

In management strategy, it is vital to be aware, sensitive, and communicative about a situation, without creating fear, or hypersensitivity, which only serves to make the issue worse. All those who lead or manage employees, should try to anticipate all possible issues for staff.

*'In a people-based business that creates, designs and delivers projects in communities we need to have teams that reflect those communities. So having a diverse and inclusive workforce is vital, and leaders need to ensure this is always at the top of their agenda.'*

**John Turzynski, Director, Arup**

To maintain staff awareness, many medium to large companies have developed an online portal where staff can access company resources on a variety of topics. While this may be less feasible for small companies, it is strongly encouraged that any company resource is made readily accessible, even if this is only available externally. Also, common in medium to large companies is a confidential mechanism for reporting an issue, while in small companies a more informal and open complaint mechanism is more prevalent.

All companies need contingency plans for potential situations, in order to ensure the appropriate responses, and resources are available in a timely manner. When unknown situations occur, it is vital that employees are included appropriately in the knowledge sharing or support that occurs, managed in a way respectful to all.

If a manager does not deal with a situation appropriately, the company must immediately respond, as not intervening can negatively impact the team.

*'Support and resources are available for all, raising awareness while reminding staff and clients that we value people. We also have no tolerance for inappropriate management responses.'*

**Michele Dix, Managing Director, Crossrail 2**



Photograph credited to Royal Academy of Engineering



## ACE Recommends:

- Ensure the entire workforce is aware of diversity & inclusion policies or initiatives, company-wide pride is key to changing daily culture.
- The message of diversity & inclusion should come from senior leadership.
- All managers must be equipped to further disseminate the message and appropriately handle negative situations.
- Make diversity and inclusion values known to potential recruits, clients and make them public.



# Best Practice - Flexibility for work parameters

'Modern employers need to show that they care about the whole well-being of their employees, to increase job satisfaction and output.'

**Catherine Schefer, Managing Director, MWH Global**

Currently, there is a mixture of beliefs about 'proper' work practice, which has changed to match employee preferences. Traditional offices may not believe an employee is working unless present at a physical desk during set hours, while modern offices deem an employee as working if deadlines are met to the desired quality level, no matter where or when.

This change in what an employee desires from a workplace is more significant especially considering the accruing skills shortage, ageing workforce, and retention gap. Employers must be adaptable with their work parameters, allow flexible or remote working, as well as understand that all employees may have times when more flexibility is needed.

Flexible working is key for companies to accommodate the needs of employees and enable retention. This was found to be a fundamental way that a small or medium size employer can ensure both employee needs and company output are prioritised.

'Flexible working is key for SMEs to accommodate different needs, which is particularly important during periods of life transition, like physical limitations or a spouse's job requiring family relocation. Staff brain power is vital to a company, so when possible to retain staff through flexible working, a company should do it.'

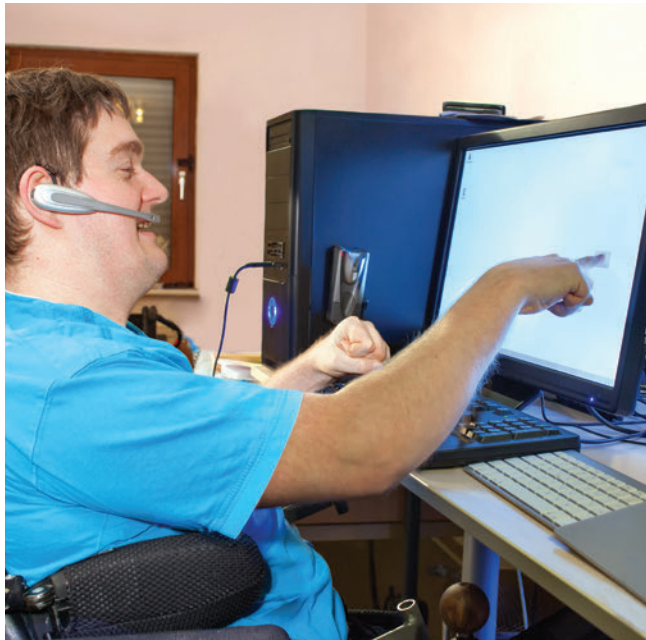
**Mike Brown, Business Development Director, Geo-Environmental Services Limited**

Increasing flexible working does have challenges, particularly in company-wide communications. Practices such as job share, alternative hours, and remote working makes it difficult to ensure diversity and inclusion messages are received by all staff.

To address this challenge, interviewees had a similar solution; team/departmental meetings occur on alternating days of the week, in addition to a 'call in' option for those working remotely, allowing regular meetings to accommodate the different work schedules present.



Photograph credited to Royal Academy of Engineering



## ACE Recommends:

- Companies to allow all employees, for which job responsibilities are appropriately suited, to have the option of flexible working.
- Companies should pursue the availability of flexible shifts or remote working as a way to accommodate staff needs, foster job satisfaction as well as include diverse individuals who would not be in the workforce otherwise.





# Best Practice - Recruitment & promotion opportunities

When sourcing candidates, it is important to consider whether or not these 'sources' are diverse. While company size and location will impact the exact ways sourcing can be done, those who recruit from only certain universities such as the Russell Group or only advertise in specific newspapers risk limiting their pool of applicants. Particularly when a company wishes to increase diversity and inclusion, ensure outreach to a diverse range of universities, wide geographical or socio-economic groups, and also include those from a variety of training platforms, such as apprentices.

The sourcing of higher level jobs should also be considered internally, as expanding or creating a call for high level positions may yield qualified candidates not considered, as well as increase the general staff appreciation of the opportunity.

Consider not only where you place the call for a new employee, but the wording that may impact the diversity of applicants. Two interviewees noted a jump in diversity figures after incorporating being an 'inclusive workplace' on promotional materials, websites, and job ads. For those with low budgets for attracting diversity, this is a simple and possible action.

Companies should take a risk on individuals due to their potential, not circumstances. To overcome the hurdles of skills and retention, employers should consider those who enter into engineering from non-traditional paths, as these individuals perform equally as well as colleagues from traditional routes.

Many of those interviewed have recently undergone, or implemented for interview or promotion panels, unconscious bias training. While not the only training or solution to address the issue at hand, interviewees expressed that this has contributed to a more equal level of opportunity for all candidates, whether or not the current workforce is diverse in age, socio-economic background, ethnicity, disability, sexual orientation or gender when compared to the majority of candidates.

'Socio-economic background is sometimes overlooked when discussing diversity. This is important to address as recruiting from across the socio-economic spectrum makes a company more likely to hire women or people from different ethnic groups. Engaging thoughtfully and with understanding for all types of circumstances will create more inclusive workplaces.'

**Roma Agrawal, Author 'Building Storeys' (2017)**



Photograph credited to Royal Academy of Engineering



## ACE Recommends:

- Apprenticeships are key to meeting the workforce challenges ahead, whilst also fostering diversity. As seen through recognised high standards of the Technician Apprenticeship Consortium (TAC), apprentices for SMEs and corporates alike are a source of highly skilled and capable individuals.
- Non-traditional paths should be embraced by companies as a viable source of high quality candidates that are driven to succeed within this sector.
- Companies should evaluate sourcing methods for recruitment, including advertisement placement, wording, and establishing diverse interview panels.
- Companies should not wait for staff to ask for promotions, but ask those with promotion potential if they are interested, particularly since many protected groups will not ask.



# Procurement

The procurement process will in the future increasingly differentiate between companies that are committed to diversity and inclusion and those that are not. Businesses need to prepare for this reality. This is a staged evolution of the procurement process through which over time bids for tender will incorporate more factors of importance to clients, of which diversity and inclusivity will be highly valued.

Successful incorporation of diversity and inclusion within the procurement process was utilised by the London Olympic Delivery Agency (ODA), as a way to both ensure quality output as well as engage the local community in the delivery of the London 2012 Olympic and Paralympic Games.

ACE is an advocate of diversity & inclusion parameters within the procurement process, as a way to encourage companies to reflect upon business strategy to ensure that opportunities for diversity growth and inclusivity are not consciously or unconsciously bypassed.

This is the next area of business critical concentration for increasing diversity and inclusion within the workplace.

Currently one of the challenges is that every procurement process varies in requirements for diversity and inclusion information. As such ACE urges all in the industry to become engaged in discussing procurement, and in helping to establish a form of standardisation for diversity and inclusion requirements within procurement.

It is only through such engagement, along with the tangible actions within this report, that the industry will overcome the challenges related to the increased need to deliver diversity and inclusion practices in business.



## London Olympic Delivery Authority

### Bid for tender evaluation criteria

*The Olympic Delivery Authority utilised an open and balanced approach to procurement. The process utilised a 'balanced scorecard' to evaluate bids for tender that balances cost, time and quality, as well as five principle components of the bidder's corporate values and objectives. This process was utilised for all ODA procurements, though each criterion is given different weighing dependent upon what is being procured.*



# What is ACE doing?

## ACE Core Agenda

### Technician Apprenticeships Consortium (TAC)

ACE advocates the positive benefits of apprenticeships through the Technician Apprenticeship Consortium, which has served 1000 apprentices over five years of existence, and has been recognised for high standards of skill development. The success of this model is the result of industry collaboration for the setting of skills standards, and is thus able to tap into a diverse talent pool that may have otherwise been overlooked.

### Code of Practice

In May 2015, ACE members approved a change to ACE's Code of Business Practice to incorporate beliefs regarding diversity and inclusion, following a Board recommendation. ACE's Code of Business Practice now contains an affirmation of a member's responsibility to understand, as well as promote the need for greater diversity and inclusion within the industry. This is applicable to all protected characteristics including gender, race, ethnicity, religion, age, sexual orientation or disability.

### D & I Hub

ACE is launching in conjunction with this report a resource hub for diversity and inclusion, to provide members with more resources on the topic. We encourage companies, particularly those who cannot provide such resources, to allow all staff access to this resource hub available at [acenet.co.uk/d&i](http://acenet.co.uk/d&i).

### Leaders Group

As a result of this report, ACE will gather leaders in a "D & I Leaders Group" in order to drive forward the present call to action, through advocating the 10 strategies within the present report.

### Benchmarking

ACE will pursue the potential of diversity and inclusion being incorporated into the European Benchmarking Survey in order to develop industry wide annual data.

## Industry Wide Agenda

### WISE

ACE is a member of and supports the actions identified by the WISE Ten Steps, as these can drive company performance and secure the competitive advantage for an organisation. Companies must provide an enabling environment so that underrepresented groups are attracted, developed, supported and retained within our sector.



[wisecampaign.org.uk/consultancy/industry-led-ten-steps](http://wisecampaign.org.uk/consultancy/industry-led-ten-steps)

### Your Life

ACE is a signatory to the Your Life action pledge, to encourage more young people to pursue careers in engineering. Your Life strives, through positive exposure and experiences, to allow young people to see engineering as a creative and desirable field of study.



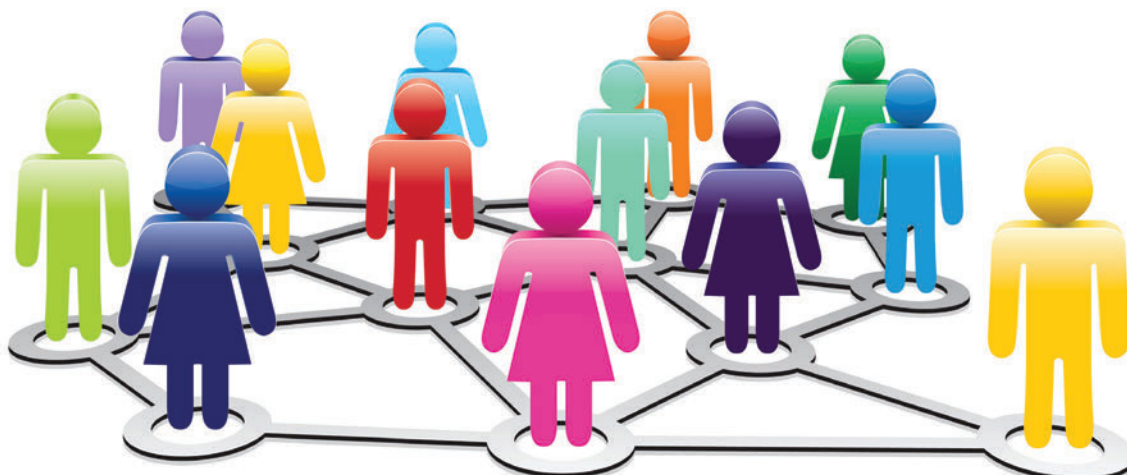
[yourlife.org.uk](http://yourlife.org.uk)

### Royal Academy of Engineering

Since February 2014, ACE has been an active member of Subgroup 2 of the Diversity Leadership Group (DLG) of the Royal Academy of Engineering (the Academy), which aims to build inclusive cultures in engineering organisations. Participating in both the development of a benchmarking tool as well as a collection of case studies, ACE remains a firm advocate of these resources, and seeks to build upon this work through the current report.



[raeng.org.uk/policy/diversity-and-inclusion-toolkit](http://raeng.org.uk/policy/diversity-and-inclusion-toolkit)



Photograph credited to Royal Academy of Engineering



# 10 Strategies for a diverse & inclusive workforce



**Foster Leadership & Good Management** – Senior leaders should look to transform employees into leaders by inspiring and building the abilities of others, as well as truly believing in the importance of diversity and inclusion. Companies must develop the ability of managers to be leaders who foster diversity and inclusion messages. Confidence training as well as vertical & horizontal mentoring are integral to fostering leadership in underrepresented groups.

Photograph credited to Royal Academy of Engineering



**Be Open About Diversity & Inclusivity Values** – Including such values externally can not only increase one's chances within the procurement process to clients who view this as important, but also increase a company's attractiveness to potential recruits.

Photograph credited to Royal Academy of Engineering



**Benchmarking & Targets** – Critically evaluate the current levels of diversity and inclusion. Set a reasonable target for at least one area impacted by diversity and inclusion, with consideration to available resources as well as average staff turnover. Ensure that benchmarking is done at least once per year, to track any changes. Benchmarking should also include a staff survey to track satisfaction.



**Build Foundations for Both Diversity & Inclusivity** - Nurturing inclusivity, alongside initiatives for particular diversity groups is ideal, yet inclusivity practices should be the minimum standard as this addresses the varied needs currently present. It is discouraging to focus on particular diversity groups without an overarching inclusivity approach.

Photograph credited to Royal Academy of Engineering



**Staff Communication of Strategies & Initiatives** – This is important throughout employment. The message regarding the importance of diversity and inclusion should come from senior leadership, with support and understanding shown from all management. Establishing diversity & inclusion champions also helps in ensuring this is disseminated throughout the company.



**Sourcing & Promoting Employees** – Regularly review where the company advertises for vacant positions, as this often corresponds to the diversity profile present for potential applicants. When searching for higher level positions, placing a call for applicants internally will likely give you a wider pool of qualified candidates as well as increase staff satisfaction. When looking to promote a well deserving employee, do not wait for them to ask, as many groups under-represented in management are hesitant to put themselves forward.

Photograph credited to Royal Academy of Engineering



**Promote Flexible Working** – Whether it is alternative hours or remote working, the various flexible options represent the most accessible ways for all companies, particularly SMEs, to accommodate employee needs



**Utilise Internal & External Resources** – While many businesses believe that they cannot support diversity and inclusion due to limited resources, they forget that there are a range of expert external resources available. Being able to point employees in the direction of these resources is a way to facilitate this specialist support.



**Participate in Outreach** – The future of your business lies not within your walls, but within the walls of schoolrooms in the UK and beyond. As such, businesses are urged to participate in outreach efforts to young people that can expose the future workforce to engineering as a potential career. Outreach is most successful with younger students such as those at primary school age, as by secondary school many may have already ruled out engineering.

Photograph credited to Royal Academy of Engineering



**Encourage Open Dialogue** - Policies and programmes cannot stand alone – it's about culture and work environment. It is important to ensure staff know they can discuss diversity and inclusion openly, as the company regards these conversations as beneficial. Practices and procedures must be supported by training and robust internal systems.

Photograph credited to Royal Academy of Engineering



# Conclusion

A progressive diversity and inclusion agenda is undeniably imperative to the long term sustainability of the consultancy and engineering sector. This drive for diversity and inclusion within business strategy is particularly seen when one considers ongoing challenges such as the skills gap and ageing workforce, in conjunction with the increasing demand for billions of pounds worth of social and economic infrastructure UK wide.

ACE has an obligation to ensure that it represents as well as works to improve that which is in the best interest of members. With its members employing 250,000 professionals worldwide and engineering consultants contributing £15 billion to the national economy, and the wider construction market contributing a further £90 billion, ACE is challenging industry leadership to ensure that the need for diversity and inclusion is fully understood. It is within the best interest of all members that there are realistic strategies identified for implementation within company business plans, as a proactive solution to address the current and upcoming challenges.

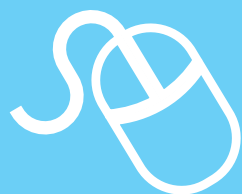
ACE's 10 strategy recommendations within the current report will help all companies overcome challenges to improve diversity and inclusion within their organisations.

While the government and other industries, such as law and accounting, have appeared largely to have already embraced the initiative there has been no significant evidence of a major improvement within our industry.

In our sector, the senior level acknowledgement and discussion of diversity and inclusion needs to transform into actions through organisations. This can be done through the incorporation of ACE's 10 strategy recommendations at every business level, and also the adoption of regular benchmarking, such as the Royal Academy of Engineering's Diversity Leadership Group's benchmarking and tool kit.

ACE leads the drive for industry wide business strategy change by example, with its new Code of Business Practice for members, as well as both board and business operatives engendering diversity and inclusion.

All within our industry have a role to play to improve diversity and inclusion across the sector. ACE strongly encourages members, as well as industry leaders to support ACE's call to action, through the implementation of effective diversity and inclusion initiatives, in order to secure the future sustainability of our workforce.



[acenet.co.uk/d&i](http://acenet.co.uk/d&i)



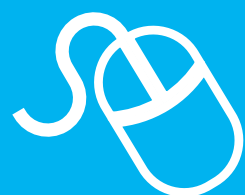


# Contributors



**Association for Consultancy and Engineering (ACE) would like to thank all individuals who voluntarily contributed their time to the creation of this report, sharing insights and personal experiences concerning diversity as well as inclusion within our sector.**

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# ACE National Conference 2016

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The annual gathering for the UK's engineering and consultancy experts and professionals to identify business opportunities and new strategies for innovating in a changing, technology driven environment.

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Non-member	£150 + VAT	£175 + VAT	£200 + VAT

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# English sets out his agenda

The new ACE chairman has made SMEs, regional members and young people's development the top priorities for his year in office

**G**avin English's CV reads like a microcosm of the engineering consultancy world. The affable Geordie has chalked up stints at both large and small companies, and spells in both private and public sectors. And there are few developing countries he's not worked in, having cut his teeth, like many an aspiring engineer, building infrastructure far afield – in his case, six bridges for the Tungku Link Road improvements in Brunei back in 1993.

English hopes that this breadth of experience will stand him in good stead in his latest role, as chairman of ACE.

"It's quite an honour to be asked to be chair, and I think I have something to contribute because of my background – from working with a county council, to operating in both large and small organisations, and working internationally as well," says English, whose day job is as managing director of IMC Worldwide, a multidisciplinary SME specialising in overseas development work that was created following a management buyout from WSP in 2011.

"I also think I have something to offer on the leadership side – having led and built up a business and carried out a successful MBO – as well as the secondary buyout last year," he says, referring to the £25m-turnover firm's buyout from its private equity partners. "So hopefully that demonstrates a vision and leadership which I'd like to use to contribute to ACE."

English stepped up to the chair having been a board member and chairman of ACE's international business group for six years. He became ACE's first vice chairman in 2015, as part of the organisation's succession planning. Two new vice chairmen have been appointed for 2016 (see panel).

The 55-year-old civil engineer is one of IMC's eight equity partners and is based in Redhill, a few miles down the road from his Surrey home. Unsurprisingly, in his year in the top role English wants to prioritise battling for SMEs, as well as to spearhead greater recognition of engineers generally. He'd also like to nurture and embed better innovative thinking in our industry and see the ACE become more engaged with



**"The UK and ACE can be seen as a bit London-centric – so we need to get the regions more involved"**

**Gavin English**

the regions. Then, of course, there are the perennial issues to contend with, such as skills shortages, low fees and increasing competition.

"The UK and ACE can be seen as a bit London-centric – so we need to get the regions more involved, which means going out visiting and listening to those concerns. This mirrors government's push to boost economic activity in the regions – HS2 is a classic example."

On SMEs, which make up nearly nine-tenths of ACE's members, he says: "They have slightly different needs and drivers compared with large businesses; both are very important to the ACE and to the UK economy. Large businesses are pretty self-sufficient when it comes to business management and administration. Smaller businesses can do with more support, including HR and legal. Some of this is already in place – so it's about making sure they know it's in place and using what's on offer."

The widespread use of suicidal bidding during the recession caused

great hardship for contractors and engineering consultancies, sending many to the wall. As workload becomes healthier, English is keen for firms to acquire greater resilience, ready for when the lean times inevitably recur.

"Businesses tend to forget the bust times when going through a boom. They tend to push out and bring people in, push systems to one side, and just get on with delivering work."

"I think we need to make sure that companies, both large and small, focus on creating a robust business so when the next downturn cycle does come they are in a much better place to survive it."

English was managing director of WSP's international development business before he and his partners bought it out. Now IMC employs 85 staff at Redhill, together with another 80 international consultants, delivering programmes across 25 countries – in Asia, the Caribbean, sub-Saharan Africa, Europe and parts of the Middle East. Its largest current programme is rebuilding 3,000 schools in Pakistan, funded by the UK government. English travels less than he used to, but still managed trips to Bangladesh, Pakistan, Nepal, Malawi and Dubai in the space of a couple of months towards the end of 2015. Cycling, running and generally keeping fit – as well as being a husband and a father to three boys – fill his down time.

The nature of his firm's work, which includes economic and social development as key elements, naturally brings an even gender split; half the employees are women. English believes it's imperative that companies grow more women into senior positions, by creating the working conditions to allow this to happen, such as flexible working. He adds: "Men want this as well. When you survey younger people about what they want from work, their priorities are training and development and flexible working; salary might be third. It's important that all organisations and leaders recognise that."

Firms also need to get their younger staff into leadership positions much more quickly, he says. "You tend to find engineers working in the UK don't take leadership positions at as young an age

as they do when working on overseas assignments. Overseas you tend to be given a lot of responsibility very quickly. And you either float or sink.”

The Manchester University engineering graduate reflects on his work in Brunei when he was just 33: “I had total responsibility leading a national consultant to design all of the bridges. I look back on that and think that was by far the most responsibility I’d had up to that point.”

Ensuring greater representation at the top for rather younger colleagues is not only a way of attracting and retaining talent, he says; it will also help galvanise the industry to be more innovative in terms of improving efficiency and value for money.

English won’t be short of things to champion in his year in office, and he acknowledges that trying to balance this with running a business will be challenging. “But if no one does it, then nothing changes,” he says. “There are very few industries that contribute significantly to society/the economy, and engineering does in tangible terms. So I’m proud of being an engineer and I want to give something back and raise the profile of what we do.”

## The big issues: English on...

### ... the profession's biggest challenge

“We’re in a boom, and finding the right people and holding on to them is our biggest challenge. So capacity-building in the industry is something we have to tackle. We have to get right down into the schools and bring young people into the industry, then help them become leaders. There are already a lot of good

things happening, such as the higher-level apprenticeship schemes, which are already having an impact. For a stronger and more sustainable industry, we must continue to build on this momentum.”

### ... more recognition for engineers

“An issue we’ve always had is raising the profession’s profile and getting the recognition we deserve for the contribution that we make. It’s about being called in by politicians when decisions are to be made or advice sought. The setting-up of the National Infrastructure Commission shows to a certain extent how we are being listened to more by government. But it needs to be built on.”

### ... management consultant rivals

“Engineering consultancies need to be looking at how we can get involved in financing of projects. We seem to stand back and let other people do that. But that’s where it all starts for projects, and we need to move ourselves further up the food chain. Management consultants do it, and meanwhile they are moving into some of the higher-level service areas that we get involved with – so we should be pushing ourselves further into the high-profile, high-fee areas where they have expertise.”

### ... low fee bids

“Engineers’ salaries are significantly lower than many other professions. The fact that we can’t charge high enough fees is part of it – but the industry is so cut-throat, so we don’t help ourselves. Yes, fee levels are improving – but not drastically, even though volume of work is increasing. There’s a culture of

clients selecting on lowest cost rather than quality. The ACE is trying to get procurement focused on value for money, and that’s clearly a good thing.”

### ... consolidation

“Consolidation will continue as companies have a natural desire to get bigger. But I think there’s a case for being smaller and focusing on quality. I think smaller businesses often have better margins because they are more nimble and agile.

“There is this drive to have a one-stop shop to satisfy all the client’s needs in one organisation. But I’m not convinced clients necessarily want that. I think what they want is organisations that can project manage and co-ordinate other organisations and people who are the best in certain areas, and connect them up to deliver best value for money.”

### ... integration with contractors

“Well, it’s happening, isn’t it?” – referring to Sir John Armitt’s suggestion that contractors could raise their profits by providing an integrated service with designers. “Some acquisitions where contractors have acquired consultants have been quite successful; others haven’t. I think we’re likely to see more management consultants buying engineers because they want to get into the so-called upper levels of engineering services. I think that is a bad thing for engineers, because it’s taking away the cream of engineering services and pushing the engineering aspect to become more of a commodity. We should be moving the opposite way and taking over some of the services the management consultants provide.

## Array of new talent as more board appointments announced at ACE

As well as revealing Gavin English as its new chairman, ACE has announced a number of other new appointments to the board, including two new vice chairmen.

Nick Taylor, chief executive of the Waterman Group, becomes a vice chairman and will also chair the newly formed ACE Building & Property Group. The Oxford University engineering graduate joined Waterman Partnership in 1982, was appointed to the group board in 2003 and became the chairman of Waterman Structures

two years later. In June 2007 he became chief executive of Waterman Group.

The second new vice chairman is Mike Haigh, group board director of Mott MacDonald. He will also chair the ACE Large Consultancy Group. Haigh is chief executive officer responsible for the consultant’s business throughout the UK, Europe and Africa, and was formerly managing director of the Middle East and South Asia region, covering all the group’s sectors and services. He joined Mott MacDonald over 30 years ago after completing his degree in civil engineering at the University of Leeds.

Other new ACE board members include: Pat Flaherty, chief executive

of AECOM UK & Ireland, who will chair the new ACE Major Design & Build Project Delivery Group; Dr Bernard Obika, chief executive of Roughton International, who will chair the ACE International Business Group; Henry Pipe, senior partner of Max Fordham, chairing the ACE Legal and Commercial Group; Tryfon Ampartzis, technical director of AECOM UK, to chair the ACE Progress Network Group; and Michael Brown, managing director of GEO Environmental Services, who will chair the ACE SME Group.

Says English: “I am looking forward to working with the existing and newly appointed board members and ACE staff to drive forward our agenda.”

# Digital technology – are we missing a trick?

Greater use of technology in infrastructure processes is a stand-out change of the past decade, but is it being embraced enough? *Jon Masters* catches the latest industry views at the Topcon-sponsored round table on digital advances

**T**he premise is that use of digital technology can drive greater efficiency; that entire supply chains can work more collaboratively if they share common design models. The BIM agenda presents an opportunity to digitalise the whole lifecycle of assets. This can include initial site surveying through design and construction processes via BIM models and setting-out and machine control on site, then with as-built data, the operation and management of infrastructure.

So how far has the industry got in realising this potential? That was the subject for discussion when industry leaders gathered for a special round table as 2015 drew to a close.

"There are significant pockets of understanding, depending on the client and the supply chain supporting them on particular projects," says Topcon's business manager David Bennett.

"We've been talking about this whole agenda for a number of years now, about how the industry can use data and geographic information to manage assets. We have clients here around the table that are using this technology, and we have worked with a number of contractors on projects on the strategic road network, for example: they are using data management in taking designs out on site. It's not restricted to the roads sector, but there is not yet a lot of use to its full potential."

Is the problem its reliability and usability on the ground? Mark Lawton, chief engineering surveyor for Skanska: "Three-dimensional machine control (3DMC) has been around for 18 years or more, but has evolved from older robotic instruments to modern GNSS and optical systems that perform much better. What's really changed is the way the data is delivered out to site," he says. "It's now frequent, cheap and small. It's become integral to our business."

Many tier-one contractors haven't yet realised all the benefits of digital machine control, says Darren James,



**"The software has now truly caught up with the hardware as a management tool. It's got to be holistic, though. Everyone in the supply chain has to embrace it for it to be really effective"**

**Nick Richards, managing director, Walters Group**

managing director for infrastructure at Costain. "It's about controlling and positioning more efficiently and safely, working quicker and avoiding having anyone near the machine interface. Clients encourage use of this technology, but routinely what we've failed to do is to convince them in best-value language why to use it."

Ground improvement, remediation and earthworks specialist McAuliffe Group works frequently with the top 10 housebuilders. According to managing director John McAuliffe, machine control technology has become a business imperative: "It's about making best-value decisions. We're involved at land-transaction phases with major housebuilders, where it's about assessing the risks in the ground, then translating that into delivery."

"Housebuilders are generally working with very old technology – with bricks and mortar. It's what's in the ground and how we extract that value that's the differentiator."

Efficiencies that can be gained from the latest in machine control are "fantastic", says Nick Richards, managing director of plant, demolition and civil engineering contractor Walters Group. "The software has now truly caught up with the hardware as a management tool," he says. "It's got to be a holistic approach, though. Everyone in the supply chain has to embrace it for it to be really effective."

There is a role for clients to take in helping embed technology throughout the supply chain. "Yes, we have an obligation to ensure it's embraced, but it's got to be fit for purpose, it's got to be practical, and we need to ensure our workforce are ready for it," says Transport for London's head of asset strategy and investment, Andy Jinks.

"There's a behavioural aspect. The whole technology debate can be a double-edged sword: on the one hand, it helps us drive efficiency and increase capacity; on the other, it can drive a level of uncertainty and even fear. We have an obligation to overcome this to ensure technology is introduced in the right manner. An area of concentration for us on the Underground at the moment is exploring predict-and-prevent technology to improve our future maintenance practice."

Clients generally have no problem adopting new technology, provided the benefits are clearly articulated, says Highways England senior manager Phil Ellis. "Once it's understood, if we see the benefit, we will put it on the ground. It's not necessarily just clients or the supply chain that should be driving greater use of technology. We need to do so as a collective," he says.

This is all very well, but who should be paying for it? "I think the answer is: it should pay for itself," says Ellis.

Costain's James: "Ultimately it should become part of the cost base of what we're trying to do, but it should be at a lower cost than what we've traditionally done. Highways England is now paying



less for some items of construction work because we've invested in this technology. Of course, if we cannot see a significant cost reduction down the line then we will not make such an investment, but we're now way beyond any leap of faith with this technology."

Another aspect to greater use of technology, digitalisation of processes and data management is its demand for different skills and cultural change within organisations. Consultant CH2M has been studying these effects. "We've worked with many clients and found there is a cultural change happening; most are embracing new technology," says CH2M information management consultant Ilias Krystallis.

"Taking a step back, what clients are really focusing on is implementation of standards for use of BIM. We are doing an exercise now measuring the benefits for clients around the development of standards: so, forming a data dictionary and drawing up a picture of what areas of their business directly benefit from particular parts or layers of the technological changes occurring."

What about the cultural change down the supply chain? Is it working to good effect between interfaces, between suppliers and different processes? Yes, says Skanska's Lawton: "I sit in the middle as a main contractor. I supply data to earthworks teams, so they can have what they need. I interface with the design team to get what I need, and then I will always conduct a BIM fire drill to validate the data and whether we can use it. That is happening all the time, day in, day out, as normal activity."

"Anything we need from the flow of data, we've subtly changed so that the workflow goes from concept to construction and delivery without issues. The part about the data coming back, however, for asset management and the like – that sits in another realm at the moment."

The different cultures of the BIM design world and the site realm do not often meet, says Topcon's Bennett. "But they did at our demonstrations, where we had designers at the controls of high-tech machines" – in a safe and controlled manner, he adds. "This helped show them why surveyors and site engineers are asking for data to be supplied in particular formats, so they could make the connection between the design model and the output required."

"Collaboration may be becoming an overused word in the BIM space, but it genuinely is vital that we pull

**"The part about the data coming back, however, for asset management and the like – that sits in another realm at the moment"**

**Mark Lawton, chief engineering surveyor, Skanska**

in all stakeholders to achieve the full potential. We're not going to bring it about alone, knocking on the door as technology providers."

ACE can provide a good overview on divergence in levels of take-up. Policy and external affairs director Julian Francis says: "We see a regional divide, and one related to the scale of engineering organisations. Larger ACE member companies, particularly in the South-east, are right on top of it, pushing BIM forward as much as they can. The further north we go, the more of an issue it becomes – especially for SMEs – around who's going to pay for it, why and how they should push on with it. We're conducting a series of roadshows with our legal teams, speaking to regional firms, clients and contractors about BIM's importance."

Greater amounts of technology and data can be seen everywhere and throughout infrastructure. How can this industry really exploit the data opportunity for managing assets?

Topcon machine control business development manager Andy McCann: "We have systems where the exact position of the final pass of the cutting edge of a machine can be recorded, loaded to a web portal, and fed back to the engineering surveying team for reporting as-built information for operational and asset management purposes. This is the level of data clients are now asking for."

A good example of likely future use of "big data" in infrastructure could manifest in management of the Underground. TfL's Jinks says: "Everything's possible. How can we use our CCTV analytics to understand the wear and tear on stations, or wifi and bluetooth pings to monitor and respond to passenger loadings? How do we use intelligent train weight data to inform passengers where is best to board? We just have to join it all up."



**A lively discussion was had about how to help the industry gain more from BIM**



### **At the Topcon digital technology round table:**

- Julian Francis, policy and external affairs director, ACE
- Ilias Krystallis, information management consultant, CH2M
- Darren James, infrastructure managing director, Costain
- Phil Ellis, senior manager, Highways England
- Andy Jinks, head of asset strategy/investment, Transport for London
- John McAuliffe, managing director, McAuliffe Group
- Mark Lawton, chief engineering surveyor, Skanska
- Nick Richards, managing director, Walters Group
- Andy McCann, machine control business development manager, Topcon
- David Bennett, business manager, Topcon
- Paul Keenan, machine control business development manager, Topcon

# Leading the way through equality to superior business performance

If the industry is to embrace diversity and inclusion, then its leaders must get on board and take ownership of the challenge, says *Nelson Ogunshakin*

**L**eaders ensure through anticipation and strategic preparations that their businesses are ready to address all challenges, not only in the short term but also for the medium- and long-term business trajectory. The consultancy and engineering sector has recently seen a high number of mergers and acquisitions, so our leaders must not only make strategic decisions but also inspire and foster the leaders of the future, encouraging all employees to achieve their highest potential. Only by addressing challenges throughout the entire company, leaving no employees behind, can businesses grow and progress be continually achieved.

The industry faces many challenges, including a retention gap that it is estimated will cost the industry up to £9.5bn over the next decade, as well as a lack of skills to fulfil nearly 2m jobs.

To promote industry progression and address the above challenges and other business-critical issues, in autumn 2015 the government revised the co-ordination of infrastructure projects through the National Infrastructure Commission (NIC) and established the Infrastructure & Projects Authority (IPA). It is hoped that together the NIC and IPA will work to ensure short- and medium-term projects are followed through and streamlined within long-term project goals, to ensure the UK has the infrastructure it needs. While the combined approach seems a good move, it is too early to judge how effectively the IPA will work to progress the success achieved by Infrastructure UK.

Despite the government's new efforts to address the UK-wide requirement for infrastructure, without continuing industry engagement – particularly from leaders and existing platforms such as the National Infrastructure Plan Strategic Engagement Forum (NIPSEF) – I believe government-led progress will be slow in achieving its objectives.

Knowledge-sharing among industry leaders is also vital not only to ensure that existing expertise is utilised and government initiatives made more effective, but also to address workplace



**“Increased diversity and inclusion in the workplace directly correlates with increased financial performance, creativity and customer satisfaction”**

**ACE chief executive Dr Nelson Ogunshakin, OBE**

challenges such as diversity and inclusion. I feel this is most usefully addressed when learning from the best practice of our industry peers.

A recent McKinsey report confirms that increased diversity and inclusion in the workplace directly correlates with increased financial performance of business teams, improved creativity and ingenuity, and higher customer satisfaction. It also serves to address the retention gap and the lack of skills for the long term, by expanding the pool of potential applicants. While our industry has become aware of the importance of diversity, many businesses stand at a crossroads, looking to industry peers or government for guidance.

Government awareness of diversity and inclusion's importance in our industry is seen through the changes to

a rising number of public procurement initiatives, such as that used by the London Olympic Delivery Authority and Crossrail. These large-scale projects differentiate bids for tender on criteria including diversity, equality and inclusion. Additionally, government initiatives such as apprenticeship schemes serve to acknowledge and seek to address the workforce challenges.

Yet in order for the industry to truly embrace and make progress in diversity as well as inclusion, all industry leaders must get on board and take ownership of the challenge. Without their support no progress will be made.

While the crucial motivation lies in senior leadership, all those who lead or manage within an organisation are vital to long-term improvement. This was a key insight derived from the industry-wide interviews that informed ACE's new report, *Diversity & Inclusion – Marginal or Mandatory?* (included as a supplement in this issue). All levels of management must understand that to address current challenges, including the retention and skills gap, it must be a priority to foster diversity and inclusion. It is the responsibility of a leadership team to ensure all managers are appropriately prepared for upholding diversity and inclusion policy, as well as being capable of relaying its importance to employees.

ACE has worked with leaders – from micro-businesses to corporates – to develop 10 realistic business strategies that can be implemented in all firms regardless of size. The number of government initiatives and procurement processes that will require our industry to increase the importance of diversity and inclusion will grow, and businesses no longer have a reason not to act.

As a voice of industry, ACE challenges its leaders to become aware of the importance of their actions to foster diversity and inclusion. I encourage all consultancy and engineering industry leaders to read and implement the 10 tangible strategies in *Diversity & Inclusion – Marginal or Mandatory?*

Further information: [www.acenet.co.uk/d&i](http://www.acenet.co.uk/d&i)



# Join the conversation

By attending ACE events or joining one of its sector interest groups, you too can add your voice to the discussion and influence the policy agenda

For any membership organisation, volunteer input is its lifeblood. It is especially crucial to ACE's success in two areas: regional events and sector interest groups (SIGs). Getting involved in a group or attending an ACE event is a great way for members to keep up to date with the latest industry thinking and allows them to participate in stimulating exchanges of ideas.

With elections being held in May 2016 at devolved, regional and local level, ACE recognises it is more vital than ever to be represented in key cities across the whole UK, through holding regional events. SIGs meanwhile have a defined area of focus. These groups give members the opportunity to meet with their peer group, get to grips with topical issues, and build on shared experiences. In addition, they spend time collaborating behind the scenes and engaging with key stakeholders and influencers, who use these confidential discussions to inform opinion.

Central to ACE's ability to influence key decision makers is the need to engage as wide a membership as possible in the discussions. The SIGs are a key part of the policy development process on which ACE depends, and an important way members can directly influence its direction and play a role in industry thought-leadership.



There are seven active SIGs within ACE, covering the following sectors: energy, major projects, ports, rail, road, sustainability and water.

One of ACE's success stories has been the rapid development across the UK of its Progress Network – the community for young professional consultants and engineers working in the natural and built environment.

Run by a committee of dedicated volunteers for each ACE devolved nation or region, the groups aim to offer young professionals a place to network with their peers, develop their business skills, and get the latest industry news.

Being part of a Progress Network

group gives young professionals the opportunity to establish a strong contact base in the industry, share views and opinions, and hear from industry leaders. Its mission is to be the number one business forum for young professionals in the industry, so all groups are open to ACE members and non-members alike.

- ACE's policy and external affairs team would be delighted to hear from members interested in injecting fresh ideas and experience into sector interest group meetings. Please contact Peter Campbell, senior policy manager: [pcampbell@acenet.co.uk](mailto:pcampbell@acenet.co.uk) or 020 7222 1885.

## ACE conferences and awards

ACE's national and international conference calendar kicks off on 15 March 2016 with the national conference being held in London. This annual gathering of the UK's engineering and consultancy experts and professionals will have the theme "building teams: boosting productivity" and aims to help identify business opportunities and new strategies for innovation in a changing, technology-driven environment. The conference will offer a critical insight into:

- understanding the implications of fiscal devolution
- challenges of boosting productivity across the infrastructure sector

- building teams for future success
- identifying business opportunities and mapping new strategies.

ACE is excited to be launching its new and innovative Consultancy & Engineering Awards, with categories open to the wider industry, including four Champion of the Year awards in the areas of: diversity and inclusion; sustainability; technology; and collaboration. The aim of these new awards is to recognise and reward inspirational companies and individuals that are leading the field with dynamic, creative and motivational business best practices that separate them from their peers, breaking new ground in establishing excellence in the industry

Now in its third year, ACE's

international conference on 15 June will capitalise on previous successes in attracting key business leaders, influencers and thought-leaders from across the globe to discuss important topics affecting consultants and engineers who operate in international markets. With recent developments in the western world's involvement in the conflict in Syria – and many African countries taking strides to implement fairer and more transparent processes to attract foreign investment – the 2016 event will be an important arena in which to share and learn from the experiences of those operating in international markets.

**FOR DETAILS ON ALL ACE EVENTS VISIT: [acenet.co.uk/events](http://acenet.co.uk/events)**



## Pension provision – now's the time to act

SMEs employing 49 or fewer staff have only until April 2017 to put the necessary pension provision in place, but ACE can help

Since new duties arising from the Pensions Act 2008 were introduced over a five-year period that began on 1 October 2012, employers – regardless of the number of individuals they employ – have been grappling with the implications to their businesses. At the heart of the reforms are two new responsibilities on employee pension provision. For the first time, employers will be obliged to enrol most of their workforce into a pension scheme; in addition, they must also make employer pension contributions.

Each employer has been given a “staging date” on which each of the new duties will first apply to them. For ACE's SME membership, 2016 will be a particularly important year as those employing 49 or fewer staff have until April 2017 to put the necessary processes in place.

ACE undertook extensive research within the automatic enrolment market



in order to deliver a dedicated solution for its members. ACE's Complete Pension Trust is provided in partnership with Charles Stanley Financial Solutions, a specialist in the automatic enrolment market.

The key to managing any change, pension or otherwise, is good planning. Crucially, ACE's online planner takes you step by step through the key decisions you'll need to make. As there are over 50 planning stages, the planner allows you to work to your overall timeframe and at each stage of the journey will remind you of the actions

you need to take and allow you to record the completion of those actions.

As a further support, the online auto-enrol service for employers helps you to meet your compliance responsibilities. You will get access to a system designed to perform the checks required to prove you have met your legal responsibilities. There are over 100 checks required, and they need to be repeated every pay reference period, so if you pay your employees weekly then this means 52 compliance checks a year. It is therefore vitally important that the process is as automated as possible.

Safe, simple and secure, ACE's online system helps you plan ahead, set yourself up for auto-enrolment and keep on top of your on-going responsibilities.

*ACE members are guaranteed acceptance on to the Complete Pension Trust, so don't delay any further. Take action today by visiting [acenet.co.uk/pensions](http://acenet.co.uk/pensions).*

## Are you ready for the BIM deadline?

The deadline for firms that win government contracts to incorporate level 2 BIM is fast approaching – make sure you aren't caught out in April

In 2011, the government set forth an ambitious plan for the integration of building information modelling (BIM) within the UK construction sector. Set out within the government's Construction Strategy, it states that all central government departments will be adopting a fully collaborative 3D BIM, with level 2 BIM as a minimum requirement by April 2016.

Now at the beginning of 2016, achieving this goal within four months looks like quite a feat, in addition to the regional implementation of specific BIM strategies.

In order to ensure the achievability of BIM objectives, the government-sponsored BIM Task Group has endeavoured to increase understanding of BIM needs. These sector collaborative efforts included the creation of a number of British standards, PAS specifications and ISOs to accommodate BIM implementation. Also developed through the government's strategy was

**“Achieving this goal within four months looks like quite a feat, in addition to the regional implementation of specific BIM strategies”**

the April 2015 launch of a RIBA E/NBS Digital Plan of Work as well as an associated classification system.

Leading the regional-specific implementation strategy, in October 2013 the Scottish government set out the recommendation that Scottish public-sector projects should adopt level 2 of BIM by April 2017, a full year after the deadline in England.

With a strategy guided by the review of Scottish public-sector procurement in construction, the Scottish BIM Delivery Group has been set the task of ensuring firms are fully prepared for BIM incorporation. Included among these tasks is the development of a BIM decision matrix for procuring authorities, to enable them to determine if a project is appropriate for BIM adoption, as well as supplementary guidance for Scottish firms.

In future the use of BIM will continue to increase, with government support to achieve level 3 through the initiative

## Environmental pressure points for 2016



Restructuring the responsibilities of the Environment Agency should be on the government's to-do list, says *Matthew Farrow*

### Other benefits for SMEs

ACE's Complete Pensions Trust is just one of the crucial benefits for SMEs. Also provided are:

- SME benchmarking, helping firms optimise business performance
- SME forum and events to provide networking and peer learning
- Publications providing valuable business and industry intelligence
- Legal agreements and resources to help businesses to protect themselves and their clients
- Adjudication services giving essential expert advice when it is needed most
- Free listing on Find a Consultant – the definitive “Who’s Who” for consultancy and engineering
- Regional/ local authority liaison – helping get your voice heard locally
- Business helpline

Digital Built Britain, which was launched in February 2015.

ACE has seen an upward trend for the general incorporation of BIM in the sector, but with the April deadline swiftly approaching, many firms have lingering questions on how BIM will impact their business.

The ACE BIM Engagement Group, formed of sector BIM leaders, is striving to provide resources and events, as well as support for firms of all sizes, throughout all regions, to help them with BIM concerns in the accelerating run-up to the level 2 deadline for central government projects.

For more information, visit: [acenet.co.uk/bimengagement/972](http://acenet.co.uk/bimengagement/972). If in Glasgow, make sure to sign up for ACE's BIM event due to be held on 24 February, at the following: <https://goo.gl/he98IT>.

In the last month of 2015 environmental topics had an unusually high profile in the UK news agenda. Two stories in particular stood out – the Paris climate change summit in early December and the widespread UK flooding that continued through to the year's end.

Both topics are likely to continue to be prominent in 2016. Indeed, the link between them will be a news story in its own right, given the prime minister's announcement that we must go back to the drawing board in predicting the future scale and impact of flooding.

In the wake of the Paris deal, now the initial excitement is past and the flags have been taken down, the story during 2016 will be the extent to which the agreements made in Paris start to affect business and policy decisions. In the UK, a key factor in determining this will be what flows from the climate change committee's announcement that it will review UK carbon budgets and policy plans in the light of the commitment made in Paris to limit climate change not just to 2 deg C but to 1.5 deg C. This is because the present UK target of an 80 per cent carbon reduction by 2050 is based on a UK contribution to a 2 deg C limit, so targets and policies will need toughening up.

Flooding, meanwhile, is a topic we need to get used to. In the past a surge of media and political interest during actual floods would quickly dissipate as the waters receded. Now there is a growing realisation that catastrophic flood events are happening repeatedly and current policies and flood defences are proving ineffective. For example, DEFRA has in vain sought effective ways to encourage householders in flood-risk areas to take some personal responsibility for property-level flood protection – schemes such as the repair and renew grant, which provides match funding for householders' own spend, have seen little take-up.

The Environment Agency has also come in for heavy criticism but has had its own resources cut back. In my view, its remit is too wide and its flood responsibilities should be divorced from

its remit to regulate industrial plant emissions – a completely different job, requiring different skills and people.

What else will push green issues on to the news front pages? Air quality is one topic – I anticipate a further legal challenge to the government's air-quality plans in the spring, followed by a London mayoral election in which both Sadiq Khan and Zac Goldsmith will want to be on the front foot on air pollution. The endless Heathrow debate will also focus attention on this topic, as opponents of a third runway have realised that air quality around the airport is a promising line of attack.

Much of the political agenda in 2016 will be shaped by the EU referendum. Here, green issues are noticeable by their absence. The prime minister used to include environmental legislation in the list of issues where the EU had got too big for its boots, but it no longer features in the headline UK negotiation position for EU reform, and I expect the government will not want it brought up in the referendum campaign. The Brexit campaign, though, may flag up alleged problems caused by “green red tape”.

A final green topic for 2016 is brownfield development. Housing is a major political issue, and the strength of the CPRE has pushed George Osborne to emphasise increasingly that he wants houses built on brownfield land. The Housing and Planning Bill contains a proposal for a brownfield register, and there is also a £1bn clean-up fund for brownfield sites – which was promised in the Conservative manifesto but the details of which ministers are (I'm told) yet to decide. It will be the headline housing numbers and targets that make the news, but there will be a lot of developments in these technical brownfield policy areas that are significant for any company involved as contractor or adviser on brownfield development.

*Matthew Farrow is director-general of the Environmental Industries Commission, the leading trade body for environmental firms: [www.eic-uk.co.uk](http://www.eic-uk.co.uk).*

# Consultancy & Engineering Awards 2016

**Grand Connaught Rooms**  
**24 May 2016, London**

ACE is delighted to announce our new annual awards in 2016 – showcasing success and best practice for the engineering and consultancy community globally.

## The Highly Regarded Judging Panel Includes:



**Mike Brown MVO**,  
Commissioner,  
Transport for London



**Sue Percy**, Chief Executive,  
Chartered Institution of  
Highways and Transportation



**Kate Hall**, Director of  
the Built Environment,  
HS2 Ltd



**Dilek Macit**, Director, European  
Bank for Reconstruction and  
Development



**Roma Agrawal**,  
Design Manager,  
Interserve Building Ltd

## 11 Categories to Enter:

1. Best UK business performance – Small firm (less than 50 staff) – ACE Members only
2. Best UK business performance – Medium firm (50 to 250 staff) – ACE Members only
3. Best UK business performance – Large firm (250+ staff) – ACE Members only
4. Best international business performance (any size of firm) – ACE Members only
5. Young Professional (under 35) of the year
6. Apprentice of the year
7. Training initiative of the year
8. Inclusion and Diversity champion of the year
9. Collaboration champion of the year
10. Sustainability champion of the year
11. Technology champion of the year

**Submission Deadline: 8 February (12:00 GMT)**

## What's new for the 2016 awards?

- Individuals and companies from the natural and built environment can enter the awards **both within and outside the ACE membership community**
- **Exclusive categories for ACE members** – 4 new categories that focus on best business performance
- **5 new champion categories have been selected on emerging priorities in the sector** for Training Initiative, Inclusion & Diversity, Collaboration, Sustainability and Technology
- As well as the very popular 'Young Professional of the Year', ACE have **introduced a new 'Apprentice of the Year' award** for the up and coming talent in our industry

Media Partners:



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# Career path: Peter Caillard

The Cadogans director and civil engineer unfolds his journey from the garden sandpit to the expert witness box, building orphanages in Africa along the way

## Describe your job

As well as being a director of Cadogans (part of Hill International), I am head of civil engineering and infrastructure expert services at Cadogan Consultants. There are two aspects to my job: the provision of expert advice on highways design, construction and transportation planning, and the development of Cadogans' expert witness business.

## Why did you go into engineering?

As a small child, I was happiest playing in my garden sandpit, where I delighted in creating roads, hills, bridges and lakes. This developed into a love of all things construction-related, and civil engineering seemed the obvious choice.

## Who was your first employer?

East Sussex County Council. Local authorities provided excellent training schemes, furnishing young engineers with a broad-based knowledge of their profession early in their careers.



## What made you join Cadogans?

I joined in 2015, after gaining 32 years of experience on infrastructure projects throughout the world. I was attracted by the nature of the work, the company's ambitions for growth, and its strong reputation in expert witness services. We're involved in projects as diverse as fractured pipelines, infrastructure for a uranium mine, a racecourse grandstand and an offshore umbilical carousel.

## Who most influenced your career?

If I have any heroes it is Brunel and his contemporary Victorian railway engineers, who created marvels of

infrastructure with only a fraction of the knowledge, technology, and resources that we have today.

## What keeps you interested?

Engineers created the world in which we live; civilisation developed through the endless quest to improve the physical world around us. Being a small part of that process is exciting enough to get me out of bed in the morning!

## What single thing you've done has been fundamental to your career?

I spent a short period in Rwanda as project manager for the design of a street children's village. This demonstrated the power of our industry to improve lives and inspired me to seek further opportunities in Africa.

## What advice would you give your younger self?

Take opportunities as they arise; move on if they don't. And enjoy what you do!



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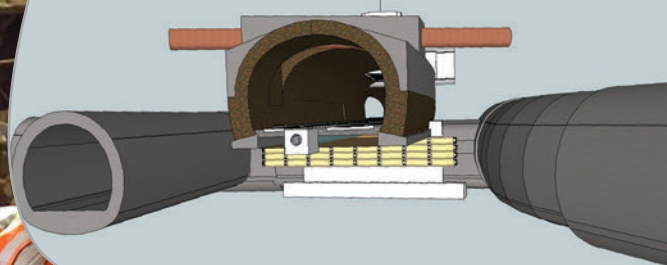
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