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INFRASTRUCTURE Intelligence

Produced for the industry by the Association for Consultancy and Engineering

Thames Tideway Tunnel

The capital's next big adventure

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INFRASTRUCTURE
Intelligence

Produced for the industry by the Association for Consultancy and Engineering

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MESSAGE FROM THE EDITOR

As described in the pages of Infrastructure Intelligence this month, the prospects for a busy 2015 across the built environment are looking very good indeed.

Despite the obvious political uncertainty thrown up by a General Election, continued investment in infrastructure is clearly locked into all major party plans as a robust strategy for vital economic growth.

Yet as we look forward to projects such as Thames Tideway Tunnel, Crossrail 2, High Speed 2 and new airport capacity making headway in 2015, it remains impossible to ignore the constant challenge to progress that still besets the UK infrastructure planning system.

Certainly the system has moved forward in the 20 years since a four year public inquiry scarred Heathrow Terminal 5. But a quick look at the work currently underway to winapproval for HS2, is still going on to clear Thames Tideway Tunnels for a start and that is about to start on Crossrail 2 and you clearly see that the UK is far from an easy place to invest in infrastructure .

And let's not get started on the Davies Commission, and its ability to finally decide where to build new runways in the south east.

It is, of course, unlikely that solutions to our planning problems will feature as politicians jostle for votes in the four months leading to the Election. However, giventhat infrastructure is critical to all party plans, it must remain central to thinking as a new government is formed.

Labour's Armitt Review has already proposed an infrastructure planning commission to embed long term thinking into the short term political cycle. Now writing in this month's magazine, former Tory minister Stephen Hammond sets out plans for a Department for Infrastructure to provide similar long term investment focus.

And there are certainly many alternative ideas out there.

The good news is that the momentum behind investing in infrastructurecontinues. The challenge, if this is to continue, must now be to find a system which allows sensible decisions to be made in sensible timeframes. Seeking a solution must be a task for 2015.

Antony Oliver,
editor, Infrastructure Intelligence

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News roundup

RAIL

Failure of new but untested plant and equipment used by Network Rail and contractor Amey Rail during renewal work at Holloway Junction north of King's Cross Station has been identified as a central cause of rail chaos witnessed in the capital over Christmas. Network Rail's report into the reasons why hundreds of thousands of passengers were left stranded on 27 December has also identified insufficient contingency in the project plan for this work and insufficient planning to ensure that alternative routes for passengers could cope. Problems at Paddington were blamed on the Balfour Beatty/ Alstom Signalling Solutions joint venture. It took ten hours to complete the planned two hour safety validation, testing and sign off as testing work had to be redone or rechecked.

Proposals for HS3 have undermined confidence in planning for HS2 the Public Accounts Committee has suggested in its report on "Lessons from major rail infrastructure programmes". It questioned why there had been no assessment before the go ahead of HS2 as to whether better rail services in the North were a greater priority. The PAC also queried whether Department for Transport has in place a proper strategy for major rail project development.

The first battery-powered train to run on Britain's rail network in more than half a century carried its first passengers in January. The Bombardier Class 379 Electrostar battery powered train also known as an Independently Powered Electric Multiple Unit (IPEMU) – is running during weekday timetable service for five weeks between Harwich International and Manningtree stations in Essex. Potentially a fleet of battery trains could run on lines too difficult or expensive to electrify and help Network Rail cut its carbon emissions.

Michele Dix becomes Transport for London's project chief executive for Crossrail 2 in February. She was formerly managing director for planning and was awarded CBE in the Queen's New Year honours for services to the industry. Four design teams have also been appointed to make the case for project funding. The winning bidders and project areas are: ARCADIS Hyder (in partnership with Weston Williamson, Vinci Construction, Interfleet and First Class Partnerships and Dr Sauer & Partners) – engineering/technical aspects; CH2M Hill/Atkins (CAST) – strategic modelling, route development, planning, appraisal and evaluation; MTEW (Mott MacDonald Ltd, Temple Group Ltd, ERM, and WSP Ltd) – environment and sustainability; AECOM, Weston Williamson and Turkington Martin – town planning, economic development, socio-economic and urban design (See opinion p7).

Transport for London's proposals to extend London Overground services to Barking Riverside received overwhelming support in the recent public consultation with 90 per cent of respondents in favour of the extension. The Barking Riverside development is the largest housing development site in east London with planning consent for up to 10,800 homes but development can only be realised if the railway line is built.

A Costain and Skanska joint venture has won the last Crossrail tunnelling contract, worth £40M, to build the Paddington Link Tunnel between the Bakerloo Line Underground platforms and the new Crossrail station at the London main line terminus.

ENERGY

Longbay Seapower has notified the Planning Inspectorate of its intention to submit a planning application to construct a 21km tidal lagoon covering 72 square kilometres off the coast of West Somerset in the Bristol Channel in 2018. The lagoon, which will be a Nationally Significant Infrastructure Project (NSIP), involves building a continuous breakwater wall spanning from Culvercliff in Minehead to Lilstock (approximately 21 km long) to create a tidal lagoon and associated electricity generating infrastructure with a generating capacity of circa 2.8GW per annum.

The Nuclear Decommissioning Authority is to take direct control of Sellafield. Government has said that its decision to terminate a £9bn deal with Nuclear Management Partners to deliver decommissioning at Sellafield and put the Nuclear Decommissioning Authority in direct charge was the result of "technical uncertainties that made the transfer of responsibility unsuitable". The move follows intense criticism of the private sector arrangement with NMP which is made up of AECOM, AMEC and Areva by the Public Accounts Committee (PAC) and the National Audit Office.

A joint venture of Atkins, Mace and Areva has formally signed the £1.72bn contract for the silos direct encapsulation plant project at Sellafield. The AMA joint venture was selected as preferred bidder in April 2014. The silos direct encapsulation plant project involves processing intermediate level waste recovered from one of the oldest nuclear waste silos on the Sellafield site, the Magnox Swarf storage silo, then packaging it for long-term storage.

POLITICS

A potential block on progress of the Infrastructure Bill into law was overcome as government has agreed to exclude Scotland from laws making it easier for fracking firms to drill for shale gas. Fracking is part of the bill which also includes legislation to create Highways England. The Scottish government, the Scottish Labour Party and the Scottish Green Party had opposed the bill but with the fracking exclusion the Scotland Office said "the opposition was content to withdraw its amendments".

REGIONS

First meeting of Transport for the North took place in Leeds on 12 January, chaired by leader of Manchester City Council Sir Richard Leese and with Transport Secretary Patrick McLoughlin in attendance. The meeting was the first step on the way to drawing up a comprehensive transport strategy for the North covering rail, roads, ports and airports. TfN is led by the city regions that made up One North: Greater Manchester, Liverpool, Leeds, Sheffield and Newcastle, together with Hull and the Humber, working in collaboration with other northern authorities, the Department for Transport, Highways Agency, Network Rail, and HS2 Ltd. A joint interim report will be produced in March 2015.

ROADS

The Development Consent Order for the A14 Cambridge to Huntingdon improvement scheme has been submitted. The project, valued at approximately £1.5billion, is the largest road improvement project in Britain and will address the problems of congestion and delay on the 40km stretch of trunk road between Cambridge and Huntingdon. Construction is expected to start in 2016.

AECOM has been appointed by Transport for London to take the Fleet Operator Recognition Scheme (FORS) national. The contract has an initial term of five years with the option to extend by a further two years. FORS is an accreditation scheme that delivers safety, environmental and efficiency benefits for fleet operators by encouraging the adoption of best practice industry standards including air quality and safety. Chartered Institute of Logistics and Transport (CILT) and specialist fleet services support organisation Fleet Source are also involved in the deal.

Plans for a trans-Pennine road tunnel along with an upgrade in east-west road links are to be drawn up as part of the strategy to develop the North. Highways Agency chairman Colin Matthews will oversee the proposals. A tunnel, according to initial government initial figures, could cut journey times across the Pennines by up to 30 minutes.

The Science Museum exhibition "Engineering your future" has now opened. The show is designed to persuade 11-15 year olds to become engineers of tomorrow. The exhibition includes a game to design a Mars rover, Futureville (above) a 3D printed city onto which a game is projected and there are challenges to deliver luggage in an airport and run trains on time. Videos and information cards help to explain the exhibition, with advice also available about how to pursue a career in engineering or take up further studies. Objects on display include a model of an Americas Cup yacht, a bionic hand and a tsunami simulator. Mott MacDonald is one of nine organisations supporting the exhibition which runs for three years.

Edinburgh is to be Scotland's first 20mph city. Over 80% of Edinburgh's roads, including the city centre, will be included in the council backed scheme.

According to the the Highways Agency, 85% of drivers using the Dartford Crossing have paid the remote toll, introduced in November. But 15% or 300,000 journeys did not pay the toll before the deadline of midnight the day after crossing. The Agency is giving each driver contacted for the first time an extra 14 days to pay for trips made without penalty.

English Councils are to have around £250M a year more money for capital investment in local roads from April 2015 to March 2021, Department for Transport has said. Cloaked in an announcement suggesting that £6bn was being set aside to fill potholes, Government did in fact reveal the local government capital road maintenance budget and unusually laid it out for the six year period to allow road engineers to plan proper maintenance regimes. For the next three years it has confirmed that the budget will be £976M a year compared to around £720M in 2014-15 and £840M in 2010-11 which was the most generous allocation of this Parliament. And for the three years from 2018 the budget is indicative "to allow for changes in circumstances", a DfT spokesman said.

A consortium of Balfour Beatty, Carillion and Galliford Try, known as Connect Roads, has reached financial close on the £550M Aberdeen Western bypass – one of Scotland's biggest transport infrastructure investments.

The Highways Agency has decided to rebid Asset Support Contract deals for Areas 4 and 12 because of "concern arising from elements of the pricing of the bids that in the view of the Agency will not support the delivery of the contract over the next five years." Existing incumbents Balfour Beatty/ Mott MacDonald on Area 4 and Aone+ on area 12 will have their managing agent contracts extended for 18 months while the ASC bids are resolved.

Highways England, the Government-owned company which will replace the Highways Agency from next April, has set out its first ever five year plan to modernise, maintain and operate England's 6900km network of motorways and major A roads. The plan puts puts at its core improved customer service, better planning and stronger relationships across the supply chain.

Plans for the road tunnel under Stonehenge have been slammed by archaeologists who fear it could damage the oldest encampment yet discovered near the monument. Charcoal, flints and animal bones dug up from the Mesolithic encampment at Blick Mead in the world heritage site, 2.5km from the stones, has been tested and dated to around 4,000 BC, archaeologists said.

BUSINESS

New draft regulations for the third update in the CDM regulations have been published by the Health & Safety Executive. The Approved Code of Practice has been simplified; the CDM Co-ordinator role is being replaced with principal designer; written health and safety plans for all construction phase projects will be required, but projects lasting less than 30 days and with less than 20 workers at any one time will not need to notify HSE. The updated regulations come into force in April.

ARCADIS' International Construction Costs report, which benchmarks relative building costs in 43 countries across the globe over the past 12 months, has found that the UK is now the eighth most expensive country for building in the world. Construction costs in Central London are currently higher than Switzerland, the most expensive country in the world for building.

Measures to support housing, shale gas, small businesses, training and research and development, alongside the £15bn roads programme were revealed in the Autumn Statement in December and were broadly welcomed by industry. But concerns about a hiatus in investment created by the forthcoming General Election and lack of enough real meat around the Northern Powerhouse concept for growth in England's northern cities tempered enthusiasm.

According to the National Infrastructure Plan 2014, released in December, 60% of projects and programmes in the pipeline are now in construction or part of an active programme compared with 45% in 2013. Overall the infrastructure pipeline is worth an estimated £466bn with £277bn of projects currently under construction and a further £189bn of future investment proposed. Energy projects make up almost half of the investment for 2015/16 at £25.7bn, followed by transport (£17.7bn), communications (£5.4bn), water (£4.7bn), waste (£0.7bn), science and research (£0.5bn) and flooding (£0.4bn).

PEOPLE AND CAREERS

Transport for London managing director for planning Michele Dix was awarded a CBE in the New Year Honours list. Also honoured with a CBE were three contracting bosses; Costain chief executive Andrew Wyllie, BAM Nuttall chief executive Steve Fox, and former Kier chief executive Paul Sheffield who is now managing director of Laing O'Rourke's European Hub. Sustainable design guru Jane Wernick, the engineer behind iconic structures such as the Kew Treetop Walk and Rainham Trackway was also awarded a CBE.

Attracting new talent into engineering jobs across the sector will generate an additional £27bn a year for the UK economy from 2022, according to the latest State of Engineering report from EngineeringUK. However, solving the current skills shortage and filling the demand for new engineering jobs means finding 182,000 people a year with engineering skills in the decade to 2022.

Melanie Dawes has been appointed as the new permanent secretary for the Department for Communities and Local Government replacing Sir Bob Kerslake who retires at the end of February. Dawes is currently the head of the economic and domestic secretariat in Cabinet Office.

New appointments at HS2 Ltd include former Lend Lease procurement and supply chain chief Nigel McKay as new head of construction procurement. Jonathan Crone will join from Foster Wheeler Energy as director of the programme management office and Colin Morris will join as programme delivery strategy director from EC Harris.

Engineering will find itself competing with government to recruit numerate school leavers and graduates. This follows an announcement by Prime Minister David Cameron that he is backing a push to find 17,500 more maths and physics teachers with a £67M bursary fund.

INTERVIEW: Don Ward is chief executive of Constructing Excellence, working to drive industry improvement in 2015. Interview by *Antony Oliver*

Construction Excellence exists to "drive the change agenda in construction". How does it do that?
We bring together clients and the supply chain to:
- define excellence and exceptional performance and set the standard,
- set a routemap for industry,
- facilitate alliances and across the sector
- measure performance and evidence the benefits,
- act as the voice for the leading edge of the sector who drive change faster.

What areas does performance still need to improve?
This needs to be the era of value through lean delivery. Success starts from focus on value for clients and will be built on foundations of respect for people, collaborative working and BIM and offsite solutions.

Are there any quick wins?
Many larger infrastructure clients have recognised they cannot achieve their business goals through traditional ways and have adopted collaborative working strategies with their supply chains. CE is the home for those who want to pursue such strategies and we need to reach out, embrace them and provide the platform for sharing and learning.

What has the construction industry learned about delivery in the 20 years since the Latham Review?
Collaborative working works. But sustainable change is difficult, collaborative working even more so, in a sector which is so vulnerable to downturns AND which too readily reverts to old behaviours.

Does the economic upturn make CE's work easier or more difficult?
Easier in the sense of the ability of people to engage with us, both financially and in terms of time. It also results in a turn back towards collaboration strategies as suppliers find they hold more of the bargaining power throughout the supply chain.

Is it time for another Latham Review to focus the industry?
No, we had one of those with the Construction 2025 strategy in 2013. This at the centre of our strategy, allied to a vision that leading edge players need to be able to achieve those standards sooner, say by 2020, to meet their own and clients' business needs. The message remains that collaboration is fundamental to change – step change in delivery is needed.

Is the industry still too focussed on short term delivery?
Yes, as are clients, but the industry needs to work harder to articulate the problems with this. We don't have the business or procurement models which give enough of the supply chain skin in the game to be commercially aligned and incentivised to deliver value for the long-term.

CE's new chairman is Murray Rowden of Turner and Townsend. How can major businesses like this influence the change?
They are major advisers to many of the top clients. Not only is their advice heeded but they are in a great position to help share learning between such clients.

Uwe Krueger, chief executive, Atkins

Closing the infrastructure funding gap

Infrastructure funding and development has been a central theme at the World Economic Forum's annual Davos meeting since 2011, under the umbrella of the Strategic Infrastructure Initiative, and for a very good reason. WEF has described global infrastructure as "the engine of the world's productivity".

National governments across the globe are facing mounting challenges to create and modernise infrastructure, yet the estimated shortfall in global infrastructure debt and equity investment is at least US$1tr a year.

As population grows at around key urban centres so the pressure to provide the infrastructure to boost economic growth and social wellbeing increases.

These pressures are, of course, keenly felt in poorer countries. Here the influx of private capital is critical. Back in 2012, Meles Zenawi, Prime Minister of Ethiopia noted that "Without the private sector, there is no development."

Yet this issue also exists in wealthy nations. Recently US current affairs TV show 60 Minutes noted that the US had fallen to 16th in WEF's league and needed some $3.6tr to fix the problem.

How to close this infrastructure funding gap is a complex problem but the WEF's Infrastructure Investment Policy Blueprint gives us a way forward.

My input to the debate at this year's Davos meeting focused on some key points. Firstly, that the investor perception of the infrastructure sector is key. Therefore a more clearly articulated argument for the benefits is needed.

It is recognised that infrastructure represents an investment asset class. The attraction of matching stable dividend streams from long-term projects to the long-term horizons of pension funds is very apparent to institutional investors and, potentially, a huge source of capital.

To attract this funding a proactive approach is needed to inform investors.

We need to consider how companies like Atkins can influence the "supply" side to overcome the barriers to investment. How can engineers help governmental organisations to prioritise their needs and strategise on the way their projects are delivered?

Domain knowledge is key. Ultimately more interaction between engineers and the financial community will help stimulate investment. We can add the greatest value by providing a 'client friend' role to recipient national governments, building capacity and ensuring an integrated approach to strategy development is followed through in project implementation.

"Investor perception of the infrastructure sector is key. Therefore a more clearly articulated argument for the benefits is needed."

Nick Baveystock, director general, ICE

Take the 5 Step Infrastructure Challenge

Just under 200 years ago, when ICE was first founded, public and political hostility to large scale infrastructure was often so great that one MP declared during a debate he "would rather meet a highwayman, or see a burglar on his premises, than an engineer."

Today, more politicians of all parties are making the case for infrastructure. It has occupied a reasonably high position on the Westminster agenda in recent years, and this increased interest has led to a range schemes and initiatives on both sides of the house.

Its revival has of course been helped by the need to stimulate economic growth: infrastructure projects create jobs, equip future generations with skills and regenerate communities. It also shapes decisions about where we live, work and invest, improves connectivity and provides access to healthcare and education. It is much more than an economic multiplier.

Despite improvements, progress has been gradual and not as "turbo charged" as many would hope – perhaps due to the notion that spending on needs such as health and social care reap electoral rewards more quickly.

As we approach the General Election, now is the time for concerted political commitment on infrastructure. Without greater political consensus on the UK's infrastructure needs, better public engagement on major projects and less bureaucratic inertia, there is a risk that the socio-economic benefits infrastructure brings will be unrealised.

The UK still languishes at 27th in the World Economic Forum's infrastructure quality ranking.

Whoever holds power next May, all will have to deal with a severely constrained public purse for years to come and maintain some degree of commitment to deficit reduction. However, by making infrastructure a central plank of any plan to improve economic growth and social well-being, politicians can build on the foundation laid over the past 5 years and fully realise the UK's infrastructure potential.

Political courage will be key over the next 6 months and beyond. The road ahead is challenging, with some prickly issues to tackle and tough decisions to make – on aviation policy, the driving forward of major projects, managing cost, and on the resilience of our networks. But I believe there are also opportunities at every turn.

*ICE is encouraging all political parties to show commitment to infrastructure through its new **5 Step Infrastructure Challenge** and join the infrastructure debate on Twitter using **#Commit2Infrastructure**.*

ICE's Manifesto for Infrastructure will be published at the start of February setting out policy recommendations on all sectors.

Paul Sheffield, managing director, European Hub, Laing O'Rourke

Technology holds the key reducing risk and boosting efficiency

I think everyone involved in designing and building infrastructure projects in the UK has been growing in optimism over the last 2 years. But the memories of the devastating effects of the credit crunch in 2008 are never far away and there are constant reminders in the press of the things that could trip up the economic recovery that we are all enjoying.

Whether it is the looming election and the uncertainty that brings, or the renewed threat of "Grexit" from the Euro, or the instability brought about by the fall in the oil price and trouble in the Ukraine, there are plenty of reasons to remain cautious.

However, I think I can honestly say that I haven't seen as much opportunity in the UK marketplace at any time in the 32 years I have been in the industry.

The fact that all the major political parties are united in their support for infrastructure spending as an imperative for economic growth is a real bonus and the low interest rate environment that we have enjoyed (?) for a number of years is now encouraging the private sector to play catch up with the plans they have been holding back.

The result is that for the first time in many years we have choices about who we want to work for and what terms we will accept – and this applies equally to consultants, suppliers, specialists and main contractors. So, wo-betide those who abused the trust of their supply captain in the difficult years.

There is little doubt in my mind that the biggest challenge facing our industry in the next few years is a lack of skilled resources to be able to deliver the programme of work we see ahead of us.

In the frantic years leading up to the credit crunch in 2008, we saw the same issues and a number of businesses were starting to research and invest in technology and modern methods of construction (aka – off site manufacture) but the crash came and in most cases investment dried up overnight – hastened by the near 50% fall in the cost of skilled labour on our projects.

We are now seeing strong growth in construction GDP with an even smaller pool of skilled people who are now costing more than ever.

We have to find ways of doing more with less and for those of us who have continued to invest in technology such as BIM to design more efficiently, and to build off site in factory controlled conditions, we are starting to see that it de-risks our projects and we are (hopefully) seeing discerning customers prepared to pay for quality and certainty of delivery.

"There is little doubt in my mind that the biggest challenge facing our industry in the next few years is a lack of skilled resources"

Michele Dix, managing director, planning, TfL

A business case for growth and jobs

Despite huge investment in recent years there is a strong case for more. As such, Crossrail 2 is vital if London is to continue to succeed as a global city.

The project will address the transport and housing challenges generated by London's rising population. It will unlock sites for up to 200,000 new homes, support employment, and address severe congestion on the tube and national rail networks.

Significant transport benefits will be felt across key rail corridors across the south east region,with a very positive benefits to cost ratio (2.1 to 2.6).

Getting Crossrail 2 off the ground has its challenges, as does any major infrastructure scheme

Yet the Crossrail 2 business case is clear. With so many jobs and homes also supported by Crossrail 2 beyond London its positive impact on GDP will be key to the case for its inclusion in the next comprehensive spending review

Crossrail 2 already has cross party political support in London and there has been overwhelming public support. As we get into more detail design this year to decide where the tunnel portals, stations, ventilation shafts, worksites etc will go, we need to fully engage with the public over any concerns of local impacts.

Given the competing demands for funds and the criticism that London has had its fare share of investment we also need to find ways to fund the scheme. Public transport users, businesses, and land owners whose assets will increase in value will all benefit, as will the Exchequer from the resulting uplift in the economy.

An independent study by PWC has shown that, on cautious assumptions, over half the cost can be met through local London sources. Our task is to seek to increase this further.

Right now we must learning lessons from others about getting the design right to provide a safe, reliable, high frequency railway service but that also enables the economic potential of Crossrail 2 to be realised.

We also need to ensure we can readily build the scheme in the minimum time and with minimum construction impacts. Many lessons from other major schemes – Crossrail 1, HS2, the Northern Line Extension – will be applied to ensure we can meet our challenges and get to a single preferred scheme design by 2016!

Graham Watts, chief executive, CIC

Construction's slipper still doesn't fit

"The biggest single thought, garnered from my 36 years' experience, is the certainty that this industry needs an entirely new business model."

I joined the construction sector in 1979 – I know, I don't look old enough! But a 36-year perspective on construction has been one series of very long loops.

On the one hand, there has been the continual drive to improve efficiency with strategic reports coming along at an ever-increasing frequency. Introducing his 'Constructing The Team' report in 1994, Sir Michael Latham, remarked that it had been 15 years since the Banwell Report and hoped the next report on construction would not be needed for another 15 years.

Yet by 2010, there had been four more major overhaul reviews (2 x Egan, Wolstenholme and Morrell)!

The current iteration of all this motherhood and apple pie is the Industrial Strategy, which merits some higher level of consideration it does at least, place construction alongside the other major industrial sectors of the UK economy.

The "Cinderella" industry has at last found a Prince Charming in business secretary Vince Cable, who recognises that the UK economy cannot function without an effective construction industry (and he can dance, too).

But to carry this "Into the Woods" analogy a step further, the slipper still doesn't fit. Despite all the reports, we remain an industry that doesn't train in sufficient numbers, has an appalling record on diversity, requires a convoluted supply chain and doesn't pass on the payments fairly to the people who actually turn up to do the work.

Then there's eternal cycle of boom and bust. We go from throwing good people onto the scrapheap to bemoaning skills shortages. The short-termism of the industry never ceases to amaze me as companies' breeze through the good times without bothering much to prepare for the day recession comes.

Now we are obsessed with pipelines of work. It seems like a great idea – spreading the workload evenly like marmite on a piece of toast. But perhaps not always great for the industry.

The problem now comes with the industry believing that the pipeline is there for its own sake, to provide a steady and unencumbered forward flow of work. "Give us certainty of work and we can invest in the people we need", is the sort of plea I hear often.

Frankly, it's a cop-out. No other economic sector has certainty of demand. The biggest single thought, garnered from my 36 years' experience, is the certainty that this industry needs an entirely new business model. And time is running out.

Ailie MacAdam, managing director rail (global) at Bechtel

Diversity must strengthen our industry

At Bechtel we are committed to fostering a diverse and inclusive environment where people of all backgrounds have the opportunity to advance and thrive. It is critical to the long term success of any business.

One area of particular importance is combatting unconscious bias, an instinctive tendency to favour familiar kinds of people, rather than objectively judging an individual's capabilities.

In response we have been rolling out unconscious bias training across our sites and offices around the world. The programme aims to help people at all levels to reflect on their existing biases.

Biases can be applied to people of all backgrounds – gender, nationality, religion etc – and can relate to any number of differences – even accents, tastes and interests – idiosyncrasies that make us individuals. The aim is to equip people to avoid unfairly prejudging colleagues or potential new recruits.

We are also forming an international group for diversity and inclusivity made up of various minority backgrounds and groups, reflecting the markets we serve. The goal is an environment where all employees can reach their potential.

This includes the development of a framework, with appropriate tools, training, processes and tracking metrics.

More specifically with respect to gender equality, we are engaged with a number of initiatives to encourage women to take up engineering.

We have signed up to the Government's "Your Life" Government campaign, which aims to increase the numbers of women in engineering by focusing on the numbers of girls taking maths and physics 'A' levels.

Our "women@bechtel" network is a collaborative forum for both men and women to share perspectives and experiences, and learn about tools for success. Each "women@bechtel" chapter is empowered to set its own agenda.

The Middle East chapter recently took the lead in us signing up to the Abu Dhabi American Chamber of Commerce 'Women Achieve' initiative to promote the professional advancement of women in the region.

I believe that we should all feel a personal responsibility to address this challenge. I am sure that many other companies are also implementing great plans to strengthen diversity, and if not, they should be! Our industry will only benefit as a result.

Nelson Ogunshakin, chief executive, ACE

Uncertain times ahead but global opportunities await

"Increased activity in Africa, the Middle East and Asia will lead to global demands for consultancy services. This is something the UK should take advantage of."

As I look forward to 2015, my big hope for the industry this year is the global market is managed carefully and becomes more predictable. While the global market is challenging, it's not too challenging for the industry to navigate

However, uncertainty in the market will likely affect the corporate world as there'll be a lot of changes internationally.

Further consolidations of the market is expected across the international frontier. We already know the political landscape will likely change, particularly in the UK with the General Election fast approaching.

So the impact of these on the industry is something we need to prepare for.

Despite the implications the election will have on the industry in the UK, how things will unfold on the international stage is more of a concern for me. If you study the GDP of the world's emerging economies, the biggest growth is in Africa, the Middle East and Asia.

So what sort of impact will that growth have on the market oil price?

If you are a country exporting oil the lower its value becomes, the less disposable income you have towards infrastructure. However, if you are importing oil then the cost of production becomes more feasible.

The pressure points of production cost in Asia and challenging working conditions in the Middle East makes Africa the last frontier for foreign investment. If you look at countries like Ghana, Nigeria, and Uganda there are numerous activities taking place in the infrastructure development, manufacturing, oil and gas industries.

So what does that mean for UK plc? Increased activity in Africa, the Middle East and Asia will lead to global demands for consultancy services. This is something the UK should take advantage of and is strategically well placed to do so.

As for ACE I hope we stay focused on our core strategy and continue to stay relevant. We need to support our members, both small, medium and large at the appropriate level. As devolution beckons, we continue to strengthen our regional activities.

With the National Conference in March, followed closely by the election, this event will provide the perfect forum for debate on infrastructure policy.

All in all, we are ready for 2015, and I'm confident ACE will be a strong advocate for the UK engineering and construction sector helping it become the leader, if not the best in the world.

Steve Fox, chief executive, BAM Nuttall

A year of optimism – and plenty of challenges

Key challenge to government:

- *Maintain current infrastructure plans – no major reviews*
- *Raise the profile of the chief construction advisor*
- *Create independence for IUK to help determine future infrastructure*
- *Resolve the air capacity debate*
- *Set green energy tariffs to encourage private sector commitment.*

The New Year brings new challenges, in particular the general election in May. I remain optimistic, as all major political players appear to have embraced the importance of investing in infrastructure, and we have seen a commitment to longer-term workload.

The establishment of Highways England in April 2015 has been a positive step on this journey, and going forward, it would be good to see the Environment Agency also remove its current annualised spending.

The industry has an important role to play in helping the Government ensure we remain part of the European Union. Construction relies on the transient European workforce, and it is essential that this continues, to retain the benefits of skills and knowledge transfer across boundaries.

However, we must also increase our British workforce, by working more closely with schools and influencing young people to join our industry by promoting the broad spectrum of career opportunities and various entry routes. The construction industry is a great place to work, and we need to get this message across.

Additionally, we must continue to improve the public perception of the construction industry.

The Crossrail films and "Engineering Happiness" were all very positively received and we must build on this.

Improving health and safety is still a big challenge. While there have been significant, positive changes in approach, standards and openness, the industry continues to suffer life changing injuries, and worse.

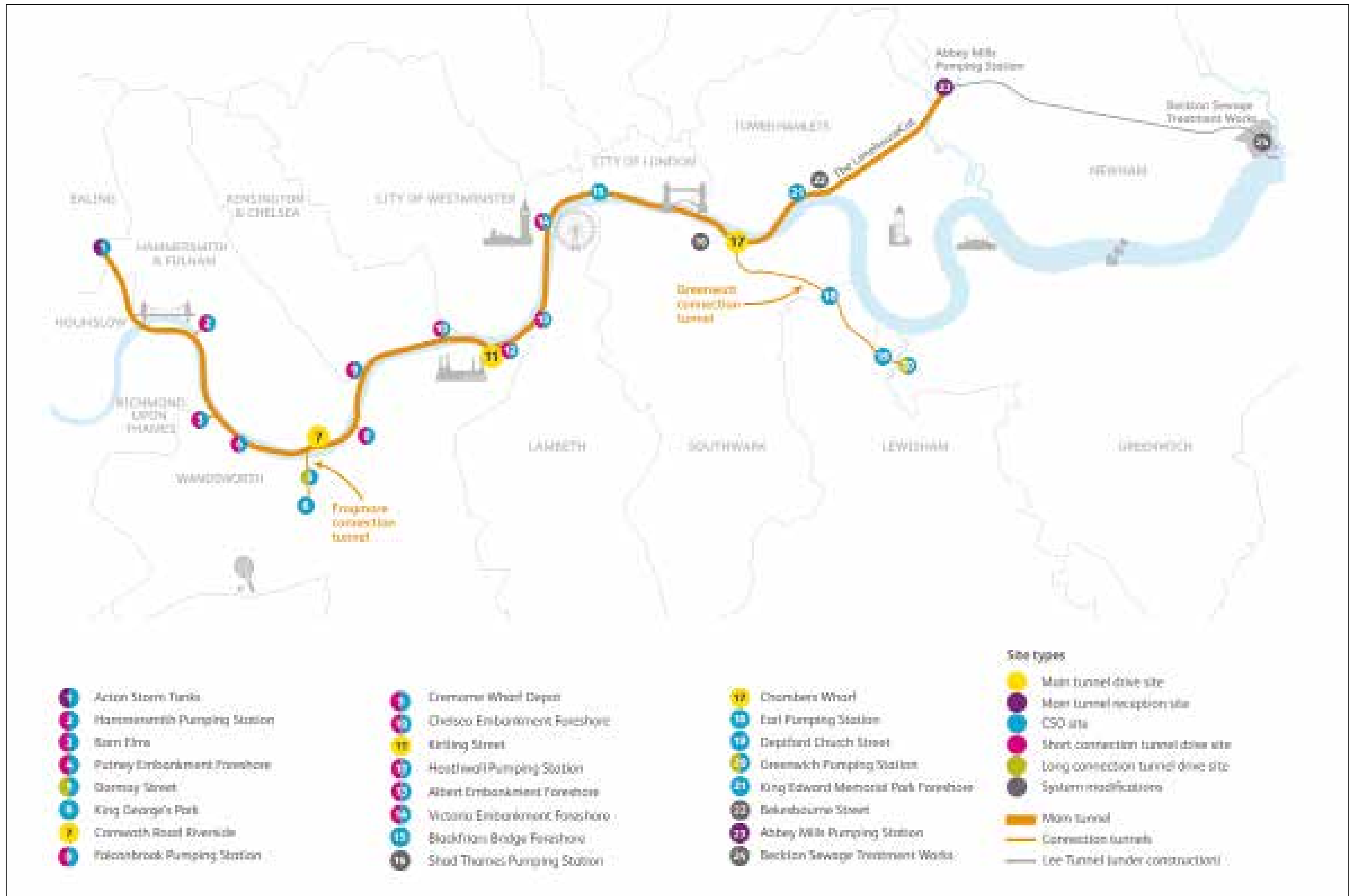
In recent years, employers have focussed on influencing individuals' behaviours, yet it is apparent that all contractors have different rules and procedures, and clients' safety performance and programme scoring varies. My challenge to all of us in 2015 is that the industry unites, and promotes a consistent safety message and approach, for the entire industry workforce.

The need to further reduce waste, and therefore cost, continues. We suffer from relentless 'reinvention of the wheel' in contract form, procurement and design in the name of innovation.

My challenge to the industry in 2015 is to standardise processes and allow innovation to flourish in the final solution.

Tideway's time

2015 is due to be a big year for Thames Tideway Tunnel. Its chief executive *Andy Mitchell* talks about pitching to investors, choosing contractors and how the project can change London's relationship with its river. Interview by *Jackie Whitelaw.*



The Thames Tideway Tunnel is the third part of the London Tideway improvements which also includes work being carried out by Thames Water to construct the 7km Lee Tunnel which completes this year and upgrades to five major sewage treatment works. Tunnelling contracts for the Tideway Tunnel are divided as follows:
- Western contract is from Acton Storm Tanks to Carnwath Road (1 – 7 on the map) largely in London Clay
- Central contract is from Carnwath Road to Blackfriars Bridge (7-15) in Thanet Sands and other groups
- Eastern contract is from Blackfriars Bridge to Beckton (15-24) in chalk

By the end of February the team on the £4.2bn Thames Tideway Tunnel will have presented their project to investors looking to help create Britain's first sewage only utility. They should also have selected three contracting teams for the main civils works on the 25km long, 7.2m diameter tunnel. At the same time, the Government is defending its decision to issue planning consent to the project against four objectors who have applied for a judicial review. But the view has already been taken that the project is the best long-term solution for managing sewage waste in a capital that is about to hit its highest population ever and is expected to grow another 25% after that.

Here's chief executive Andy Mitchell on a busy few months ahead for the project to build a sewage interception, storage and transfer tunnel running from Acton in West London along the line of the river through the centre of the city to Abbey Mills in the east.

Finance

Around £1.4 billion of the Thames Tideway Tunnel's construction cost will be financed by Thames Water and £2.8 billion by a new company currently being created. The financing structure for the new company will be determined by the winning bidder.

Thames Water is running the sale process and early February will be the first time I and my management team present to the investors. They are buying into us and it is our chance to convince them that they can trust us to deliver the project whose construction they are funding without heartache.

Investors' money will be used to pay for construction of the tunnel and they need to know we can deliver. Crossrail (where Mitchell was programme director until July 2014) finishes its 42km of tunnelling work at about the same time as we make our presentation and the timing is not lost on me or anyone else, and that's entirely right. The tunnelling on Crossrail has been very successful.

This is an opportunity to take the big learning and huge comfort from Crossrail along with the success of Thames Water's Lee Tunnel project and the National Grid tunnelling work and bring it all to bear on the next major investment in London in a harmonious way.

The intention is that the tendering process with investors comes to a conclusion in the summer, so it will be a post-election decision. I'm not concerned about the election. There is cross party support for the scheme – we stay in

"The good thing about the timescale is that tunnelling in London is well understood and we have contractors with access to a workforce with current knowledge and skills"

Andy Mitchell, chief executive, Thames Tideway Tunnel

regular contact with the Government and have had assurances from the Labour opposition team that they are keen to see the project proceed without delay and want to be kept up to speed on anything we can share to make the process easier. We take this as very supportive.

With the financing in place we can formally create the new company, for the moment known as Thames Tideway Tunnel Ltd, whose first job is to build the asset which it will then own and maintain in perpetuity. The revenues for the project will be collected from Thames Water's entire customer base in the usual way. The quoted increase in customer bills of up to an average maximum of £80 per year is very much a worse-case scenario, and we are confident it will be lower than that.

Contractors

The good thing about the timescale is that tunnelling in London is well understood and we have contractors with access to a workforce with current knowledge and skills thanks to Crossrail, Lee Tunnel and others.

The contractors can have their pick of the experienced and the best and that is reflected in the bidding which is competitive. That competitiveness also reflects the contractors' belief that this job is eminently do-able with typical views on production rates coming out on the high side.

I'm chair of the infrastructure client group of Infrastructure UK and the big thrust there is that as clients we continue to give government and the public confidence in investment in infrastructure. It's not just about continuing to deliver the programme, it's about real incremental cost efficiency. It should no longer be a surprise that we can build it at cost. What is important is for everyone in the infrastructure sector to demonstrate improvement. And that's the thrust of the contracting approach on Tideway.

We have opted for only three tunnelling contracts divided by the different ground conditions to be encountered (see map). That is significantly less interfaces than on Crossrail and will be more efficient. When we tendered Crossrail there wasn't an appetite among contractors for big packages, now there is and with the consortia presenting these are about the right size.

What we will see is pure incremental tunnelling figures better than ever before even though our diameters are bigger and we will be working at depths (up to 65m) where we need to keep the aquifer out of the tunnel.

We will also be running an alliance arrangement with pain and gain triggers for the whole alliance which includes us, Thames Water, the three main contractors and the SCADA systems integrator.

For the winning contractors, what that means is that there will be opportunity in the six month optimised contractor involvement period after award of contracts to work out how we could do things better by changing elements of the design and by using the alliance framework.

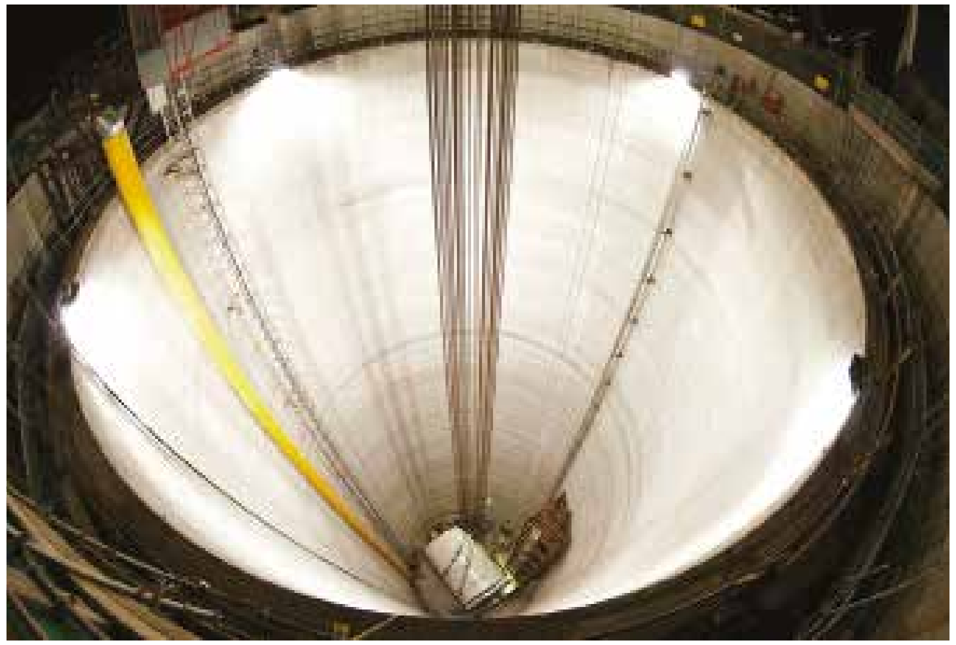
For instance, all the contractors are looking at marine shipment of tunnelling segments and muck away. Does that mean we require three separate logistics management plans on the river? That can't make sense.

Many of our sites are waterfronted and my ambition is that the vast majority of our deliveries and muck aways travel by water.

You could say the same about the design detailing for the shafts. They all have to achieve the same dissipation so do we need three different designs? We can't do.

This is not for us to impose but there must be synergies. It is going to be interesting to see them develop.

My chief operating officer Mark Sneesby, who was latterly Thames Water's programme director on the Lee Tunnel, will oversee the monthly alliance board and there will be a quarterly CEO alliance board. What we have to do is make sure every level is living and breathing the alliance. And if any party isn't playing its part it is up to the boards to manage, and I am sure there will be some fairly straight words.



One of the shafts for the Lee Tunnel (top) giving an idea of the scale of Thames Tideway Tunnel; the project will stop current outfalls pouring sewage overflows into the river (left); site investigation underway along the Thames (right).

Need and opportunities

What is disappointing is that the discussion about London's waste water has become polarised between tunnel or blue/green options like sustainable urban drainage. It shouldn't be an either or.

Tideway is necessary – we are currently having to pour first flush sewage into the river fifty or sixty times a year because the current sewage system is at capacity and it is that first flush that does the real damage. It takes up to three months for each of those highly polluted flushes to make their way down river and out to sea. That can happen with as little as 2mm of rain because there are just more people in the city.

The role of blue/green options is to complement the tunnel. Alone, these options can't deliver the scale of what is required or fast enough. Meanwhile London would watch the rate of sewage in the Thames increase. It can't be acceptable.

Overall, on an average year, 39M tonnes of sewage and sewage polluted rainwater gets into the Thames and even with the Lee tunnel (currently under construction between Abbey Mills and Beckton sewage treatment works which will capture a large portion of London sewage), there will still be 20m tonnes a year hitting the river before you take account of a growing population. That can't be acceptable.

With the Tideway scheme there will be just three or four spills of the most dilute sewage a year. Three months after we press the button on the completed project the Thames will be effectively sewage free for the first time in generations. It will change London's relationship with its river. There are opportunities to use the river as an amenity in ways we haven't done for centuries.

Retrofitting for blue/green solutions is not practical in the city now – it doesn't make sense to rip up hard standing and you can't dig a hole (for underground storage tanks) without encountering lots of underground utilities. But I do believe that we need to change the planning rules so future development has greater blue/green elements and we need to campaign for that. We have to see different planning regulations such that our successors are not going to have to build another tunnel.

Changing tack

London' £15bn Crossrail project reaches a milestone in May as civils contractors start to hand over tunnels and stations to mechanical and electrical fit-out and systems crews. *Antony Oliver* discusses the critical plans ahead with technical director Chris Sexton and rail system and commissioning director Siv Bharma.

Every major project learns lessons from those that go before it. Crossrail, Europe's biggest construction project, is certainly no exception, not least as it begins the complex process of turning tunnels into an operating railway.

It is a critical moment. Speak to anyone involved in a recent major rail project and they talk about the biggest risks to meeting the opening schedule as being centred around getting the track, power signalling and communications systems properly integrated, tested and commissioned on time.

For recent examples, think signalling on the Jubilee Line Extension; think baggage handling at Terminal Five.

Hence the priority right now, three years ahead of the first train service, to ensure that the strategy for testing and commissioning the entire railway ahead of handover to the operator is absolutely worked out and agreed.

"The way in which you do the testing, commission and handover will drive the decisions that you make during the installation of the systems themselves," explains project technical director Chris Sexton, underlining the reality that as any project nears completion the challenge of managing the risks escalates.

"So the strategy that sits above everything here is to not leave all those big risks to the end," he adds. "So we do everything we possibly can to pull the mitigation as far forward in the programme as possible."

And that, he says, means ensuring everybody on the project really understands what has to be done now in 2015 to ensure that they are completely ready for handover and first trains running from May 2018.

At the sharp end of this work is rail system and commissioning director Siv Bharma, a veteran of many major rail projects in the capital and beyond. And having the whole systems supply chain on board already, he says, plus MTR Corporation (MTRC) the ultimate operator and maintainer, gives Crossrail a major advantage.

"Our systems specification was written very early which meant we were able to reach out to the supply chain early," Bharma explains. That means being able to tap into the ideas of experienced systems and mechanical & electrical (MEP) contractors including Costain, Alstom, Knorr-Bremse, Westinghouse, Siemens and train manufacturer Bombardier.

"We have been working to get the test strategies earlier from the supply chain – getting them to mobilise their key thinking people sooner rather than later," he adds

The first trains come off Bombardier's Derby production line in February next year and before that date Crossrail has to get its testing specification coordinated and approved to enable it to book the vital test track in Melton by March.

In fact, MTRC will start running services from 31 May 2015 between Liverpool Street and Shenfield, taking over stopping services from Abellio Greater Anglia. Initially these will operate with the current rolling stock but will be gradually replaced in 2017 by the new Crossrail trains.

Testing of the new Crossrail trains will begin in June 2016 ahead of the phase one opening in May 2017 to put this new rolling stock onto the Great Eastern Line out of Liverpool Street. Phased openings will follow in 2018 and 2019 ahead of full opening in December 2019.

"By May we have to notify our sponsors DfT and TfL that we are ready to go [with testing] and we have to give them a detailed plan and share our findings with ORR so that two years ahead of that date the whole of the industry gets mobilised," he explains. "Agreeing this now means that two years ahead the whole industry knows what your game plan is and so what to expect."

Bharma also points out the initiatives such as making the test track available as early as possible along with investment to construct a new station operations room jointly with London Underground at Blackfriars – to be ready to start testing systems in the Spring this year – will be important in meeting the programme.

"The best thing that the senior management at Crossrail did here was to mobilise the operator and maintainer very early on – it is very unusual to mobilise them seven of eight years ahead of opening," says Bharma. "MTRC's engagement here is a plus – they have the competences in house to help us decide whether the solutions that we are proposing are the best ones and the ability to be able to question and challenge."

Also available in Spring will be the so-called "Train zero" – a computer version of the train on which to test all systems and scenarios. The project is also investing in a purpose built integration facility – a detailed lab in which all the supplier software is brought together to be tested and electronically simulate how real trains will operate.

Bharma has learnt many lessons along the way throughout his career, not least from time spent on challenging projects such at the Jubilee Line Extension project in the 1990s.

"The lessons there were that firstly the level of complexity specified [to use a moving block system] was way ahead of its time, and second the level of systems integration specified was highly advanced – all you needed was one or two suppliers not really getting it for problems to occur," he explains.

"For signalling you should use the best three year old technology in the world – something that somebody else has already tried," he adds. "The software that we will use here is just being commissioned in Copenhagen so there will be the opportunity to actually go and see that software in operation. That means we are less likely to have grief."

Chris Sexton, technical director (left) and Siv Bharma, rail system and commissioning director (right) are masterminding the complex task of creating an operational railway with a brand new fleet of trains from a series of completed tunnels and station caverns.

> "The strategy that sits above everything here is to not leave all the big risks to the end."
>
> **Chris Sexton, Crossrail technical director**

So an enormous amount of thinking is already going on to prepare and plan for these critical operations at the back end of the programme. However, Sexton points out that, while these testing strategies are of course crucial, there is also the small matter of having to first construct everything.

And that means as the tunnelling winds down, from May and June 2015 onwards the MEP and systems contractors must start to mobilise to fit out the stations and install the track, overhead line, ventilation, signalling, power and communication kit.

In fact the first of these contractors, Siemens, starts in the Canary Wharf station in February.

"One of the challenges for us is that as we change over the contractors there are new people doing different things, organised in different way," explain Sexton. "We have done a huge amount of work with our supply chain in terms of moving the industry's safety behaviour forward and we are now going to have to start this again with new contractors. Particular in the MEP area, the question is how do we drive in the safety culture into a supply chain that is much more fragmented."

So Sexton's first challenge is to complete tunnelling and that is by no means a simple task given that much of the final work is under central London.

Second is for "the tunnelling community to clear off in a timely manner' as he puts it, leaving the work areas clear for the MEP and systems contractors to access.

The third on-going challenge, he says, is to continually manage the integration between the civils, MEP and systems designs, each of which was necessarily carried out separately in phases and now must be knitted together.

"The lesson from other projects is that getting those interfaces roughly right is not good enough. They have to be exactly right. Here the digital model is a huge help," he says. "On any project the nearer that you get to the end the risk tends to go up – so whatever you can do to pull those risks back is important."

Planning for the new train service

Crossrail's *Howard Smith* on moving from project delivery to railway operation. Interview by *Jackie Whitelaw*.

In just over four months time at the end of May Crossrail starts its first train service. It won't be called Crossrail and there won't be any of the 65 new Bombardier Class 345 trains running on the tracks. But Transport for London and Crossrail operator MTR will be taking over the eastern part of the Crossrail route and operating services from Shenfield to Liverpool Street.

And that section will be the first to appear on the London Tube map – a major milestone in the story of the project. It is the first stage of a phased opening of London's revolutionary new railway from Reading in the west to Shenfield and Abbey Wood in the east right through the heart of the capital.

Crossrail operations director Howard Smith has the job of managing the transition from Crossrail the project to Crossrail the operating railway. He explains what is happening and why.

Crossrail operations director Howard Smith. "It's going to be dramatic."

What is the plan for opening Crossrail?

There are six stages to watch out for.

- May 2015 – Transport for London and Crossrail's operating concession MTR take on the line between Shenfield and Liverpool St from Abellio Greater Anglia. We'll be running 30 year old trains from existing stations so it won't be called Crossrail but TfL Rail as we don't want people to misunderstand the Crossrail brand. But from day one, as we did on Overground (Which TfL took over and expanded between 2007-12) we will be staffing stations all hours that trains run and cleaning and refurbishing the trains and the stations.
- May 2017 – we introduce the first of the new trains between Shenfield and Liverpool St and that will be more high profile and will begin to demonstrate what's coming with Crossrail. That's when people will start to understand how different Crossrail is – these trains are 200m long, walk-through with air conditioning and up to the minute passenger information systems. And they can take 1500 people with nearly 500 seats. It's going to be dramatic.
- May 2018 – TfL and MTR take over the Heathrow Connect services that run into Paddington. This will be the first appearance of the new Crossrail trains west of London.
- December 2018 – the tunnel section opens and we start operating trains from Abbey Wood in the east to Paddington in the west.
- May 2019 – we feed the trains from Shenfield into the tunnels.
- December 2019 – we'll be operating all the way to Reading and feeding trains from there though the tunnels, the end state of Crossrail as currently planned.

What is the thinking behind the phased opening?

There is great merit in having a progressive programme of bringing the elements into service. It's common sense but sometimes there is pressure to have a big iconic day. With Shenfield to Liverpool St for instance we'll have hundreds of thousands of in service miles with the new stock to learn from before we ramp up for the full tunnel service. And it gives MTR a more progressive timescale to hire and train new personnel and give them experience – it needs 850 new staff including over 400 drivers, which is a big task. At every step in the phased opening we'll be taking over the stations, then we'll introduce the trains, run the trains in service as live tests, then bring them through the tunnels.

What is the most important target for Crossrail and MTR when it opens?

The starting point has to be what do passengers want from Crossrail. Safety, obviously is the number one thing they expect. Beyond that, two thirds of customer satisfaction marks are on reliability and expectations are rising. What was acceptable five years ago is unacceptable now, and what people demand now would have been superlative 10 years ago. So the headline target is 95% reliability in terms of the national performance measure.

Is reliability a measure of running on time, or meeting headway targets?

Both, that's the big challenge. We need to measure performance against a timetable when we run on Network Rail lines and on headways when we are underground and are effectively a Tube. In the Tube section the trains could all be 10 minutes late but as long as the headways are maintained people would be happy. But we have to operate on a timetable for Network Rail who have given us train paths and we have to stick to those. Crossrail needs to meet all those expectations.

What impact will Crossrail have on London and its transport operation?

It creates a 10% increase in capacity, though that's likely to fill up pretty quickly. It will provide faster journeys and one-seat options removing the neeed to change trains. People's personal geography is based on how long it takes to get somewhere, not how far is it. Crossrail will change the map of London.

HS2 is about to start procurement. What are the key lessons for them from Crossrail in terms of the link between construction and operations?

HS2 have links with Crossrail and it's self evident really. The earlier you think about operations the better and Crossrail has had a big input from the operations team as it's developed. Progressive opening makes sense. And whilst technology is moving at such a speed you need to be clear and consistant in how often you want trains to run and how many people you want them to carry.

Who's for a Department for Infrastructure?

Former transport minister and ACE advisory board member *Stephen Hammond* makes the case for a single department to manage major infrastructure development.

The quality of a nation's infrastructure is a critical determinant of its economic development. The urgent need to invest in critical maintenance and enhancement of our infrastructure networks has now sparked a debate in the UK; do we have the institutional framework that allows longevity in investment to be enshrined?

Politicians talking about institutions and the need for change are invariably a public turnoff. In some cases, however, institutional reform could drive a step change, either in policy or delivery.

In the UK, the extent of government involvement in infrastructure varies significantly, depending upon whether it is power, transport, housing, or broadband. In some sectors, the government's role is limited to policy and regulatory framework design and implementation, while in others it is to direct financial investment and project manage. Whatever the level of involvement, however, there remains a concern that strategic infrastructure decision-making is too often short-sighted, uncoordinated and lacking expertise. The same concerns remain throughout the process, as policy moves into the project delivery phase and future regulatory oversight is needed.

This Government has taken two positive steps, namely developing a National Infrastructure Plan (NIP) which sets out an infrastructure pipeline, and setting up Infrastructure UK, a unit within Treasury that provides advice on the UK's long term infrastructure needs. There is still, however, little concentration of expertise; departmental divisions still exist; and innovative financing solutions have not been developed. Moreover, there is the inevitable impression that Treasury has a final veto in any case.

Now is the time for radical change. A unified Department for Infrastructure could overcome past policy failures and bring coherence and skill to project implementation and management. This Department would assume the responsibilities of all other Whitehall departments with respect to infrastructure, namely DfT, DECC, DEFRA, HMT, DCLG, and BIS. Therefore the new department would not be established for administrative convenience but would ensure coherence and excellence in a key government objective.

Stephen Hammond

To those who might say the last thing Whitehall needs is more government departments, I say "hear hear". I also say there are, of course, two obvious solutions. Firstly, as the devolved nations get more powers there will be no need for separate departments for Scotland, Wales, and Northern Ireland, and a single Ministry for the Devolved Nations could be instituted. Additionally, much of the work done by DECC, DEFRA, and DCLG could be combined into a reconstituted Department for Environment with a revised brief.

A Department for Infrastructure would become responsible for any further NIPs and the advantages of this are numerous. For instance, the interlinking nature of transport, housing, power, and broadband could be taken into greater account when making decisions. The faster roll-out of faster internet connections, for instance, might alter priorities in regards to the siting of housing development and new transport services. A consolidated department would bring a more focused and co-ordinated approach to policy areas which are currently diffuse or subject to competing departments. A more aligned and coherent approach will eliminate confusion and allow stronger leadership on key policy issues and objectives.

A new department would determine the key sectors and allow for greater project prioritisation, overcoming real concerns about whether just having 40 or 50 key projects is the right approach. It would quickly become a centre for expertise and skills, improving both as well as the quality of decision-making in policy development and project selection.

That government is weak in project management and procurement skills is widely recognised. Project oversight has all too often been characterised by indecision and delay, with continual redesign leading to cost increases and delay rather than "on time and on budget", for example. A new department will allow for better procurement and potential savings through the outsourcing of programme management that would benefit from central management. Equally, if government has a direct role in delivery, project management would be improved for exactly the same reason.

It could better assess the impact of likely technological advances on infrastructure projects, provide a single point of guidance on legal matters and stimulate a better consultation and engagement process with the public. It could set and have oversight for the strategic decision-making authority for national infrastructure decisions.

There would also be a substantial cost saving through eliminating duplicate roles and reducing the need for space within central government. There might even be limited revenue-raising opportunities through the selling off of surplus buildings.

The idea of a combined Department for Infrastructure is one that, in my opinion, must be discussed, and the political parties should consider making a firm manifesto commitment to look at establishing it.

Coming soon:
ACE is working with Stephen Hammond MP on a paper outlining how a Department for Infrastructure would work, expected to be launched on 26 February. For information please contact ACE policy manager Peter Campbell at pcampbell@acenet.co.uk.

Preparing for a bright future

International consultancy and construction company Mace has big plans to continue growing. *Antony Oliver* speaks to chief operating officer, major programmes and infrastructure, Jason Millett about the opportunities and challenges ahead.

Twenty five years ago five professionals set up a new project management business with the goal finding "a better way to deliver for clients".

Back then Mace was all about making an impact in the commercial building market with lean teams driving value through collaboration and thinking harder about the questions that really mattered to clients to get the right outcomes.

A quarter of a century later the business, now with different but equally independent management, is bigger and broader with a recent portfolio including eye-catching projects such as the London 2012 Olympic and Paralympic Games, the Shard and Ashghal in Qatar.

Today the business encompass a global portfolio of programme and project management, cost consultancy, construction delivery, facilities management and most recently a more diverse portfolio of infrastructure projects.

"We want to continue to build the size of our infrastructure business and we need to really grow it over the next five years," explains Jason Millett, Mace chief operating officer for major programmes and infrastructure.

"It is a great market at the moment but we really cannot be complacent as we are competing with firms from all over the world and, with massive consolidation going on there are now some very big players out there."

The plan for growth will see the firm expand over the next five years from around 4500 staff to a whopping 7000. It is a bold ambition and one that, given the current pressure on available talent in the market, Millett is clear it will require more than simply doing more of

"Clients want something different because they are not always getting what they need from their existing supply chain."

Jason Millett

the same when it comes to recruitment.

"Whichever way you look at it we have a perfect storm around staff and resourcing," explains Millett, reflecting on recent reports that an additional 500,000 people or more will be needed to deliver the UK's current pipeline of infrastructure work.

"But our 2020 ambition is to get to £2bn turnover and to achieve this goal means we need more people. So you have to look at new pools of labour," he adds.

And despite having "a respectable churn rate" as Millett puts it, the reality is that gaps will also have to be filled along the way as staff leave to hit the firms' planned growth to 7000 staff.

Meeting this considerable challenge, he explains, means doing things differently. For a start, Millett points out, that it will mean changing the perception of the firm as an employer and appealing to people who perhaps would not otherwise consider a career in the construction industry or a role at Mace.

That starts, he says, by attracting a more diverse workforce and ensuring that the firm is somewhere that all people want to work.

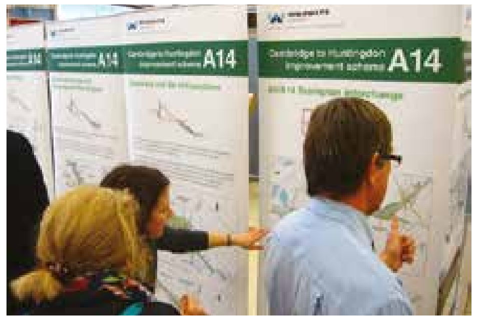
"The emphasis is to bring more men and women into the business but with more balance in gender," he explains. "Not by positively discriminating but by making the business more attractive to all – doing it for all the right business reasons."

Across the board Mace is looking at its policies and procedures to ensure it is both family and lifestyle friendly so that having attracted the right staff, they stay. Additionally they are looking for people who themselves would not have previously considered a career in infrastructure.

"At a graduate level we are now taking on people with arts degrees and geography degrees," say Millett. "We are fortunate that as we have a consultancy and contracting business it is easier to look at broader skills."

In addition Mace's international footprint means that it can transfer skills in and out of territories – filling short term requirements but also proving staff with valuable experience outside their home markets.

Entering new sectors is another way that Mace is attempting to broaden its talent pool and in particular the firm is targeting the burgeoning energy and transport sectors.



Top: Birmingham New Street station redevelopment was a landmark scheme involving Mace. Bottom left: Mace is expanding from iconic buildings to track related work. Bottom right: The development consent order application for the A14 project was submitted in December

"Branching out into nuclear and transport is about securing bigger programmes of work over longer periods," he says. "Clients want something different because they are not always getting what they need from their existing supply chain. But it is also easier to articulate to people why it is worth their while joining a firm like Mace."

"We are trying to create career paths to show people how they might progress within the company. This, combined with enhancing the performance appraisal process, instils us with confidence that we will yield positive results," he explains.

Project management skills he says are transferrable and that gives the opportunity to build on those skills and gain specialist experiences.

For example, this month, working in joint venture with Atkins and French nuclear specialist Areva, Mace won £1.72bn contract to design and construct the so-called "silos direct encapsulation plant project" at Sellafield.

This complex project involves processing intermediate level waste recovered from one of the oldest nuclear waste silos on the Sellafield site and then packaging it for long-term storage.

This work sits alongside Mace's existing nuclear new build and decommissioning portfolio across sites across the UK.

"At Sellafield we are looking at target cost work and starting to broaden our risk profile, bringing with it a greater reward," explains Millett. "We would rather work with the client to develop a better service than just continue to provide staff and resource to meet the client's existing needs."

It is a similar situation in transport where Mace is targeting both the rail and road sectors for potential growth.

"We are very privileged to have been working on some of the nation's flagship highways projects such as the A14 and the Highways Agency's smart motorway delivery programme. It has allowed us to build our credibility with the Highways Agency and built up our skills base," he explains.

"But we have also been able to transfer skills and learning from other sectors – the lessons learnt from the Development Consent Order (DCO) planning application work in the energy sector were passed into the work we did on DCO for the A14, for example."

But it is the rail sector that offers perhaps the greatest long term transport opportunities.

Work on high profile rail stations such as the Birmingham New Street transformation have given Mace a credible CV in the industry. But it is also now branching out from the buildings dominated work and has already gained a strong foothold in new areas such as the electrification market working alongside Network Rail on the Great Western Mainline.

"Rail is an exciting market for us and we think that there are some really big opportunities for us around the HS2 project," he explains. "HS2 is a game changer for the economy but also for the industry. It is a long term commitment with a focus on regeneration that gives really long term benefits to the nation. We are talking about a catalyst for 20 to 30 years of development."

Millett has recently been involved in the steering committee for the Infrastructure Plan for London helping to shape the capital's development over the next 30 years so is well aware of the impact that investment can make on the local and national economies.

But equally he understands that the substantial forward pipeline of infrastructure project work that the UK is now blessed with is also in many ways the root cause of the skills shortage. The clear problem, says Millett is the government's consistent failure over the last decades to build skills in preparation for the projects.

"The government is right that it is for the industry to build up its own skills," he says. "But it needs to continue to build the pipeline of work across the built environment so that the market has the confidence to recruit and invest in training apprentices and other staff."

Enabling profitable growth

From the rising cost of growth to outsourcing models and technology investment, small and medium sized business discussed today's pressing issues with Infrastructure Intelligence supported by Deltek.

Small and medium sized consultants are responding to today's buoyant market in a variety of ways, outlined attendees at the Infrastructure Intelligence and Deltek round table in December. Challenges and opportunities are being met with innovative solutions and interesting strategies from "northshoring" work out of London to "mainlining" graduates from key university courses.

"We couldn't do some of the work we do without northshoring, delivering work from Newcastle, Birmingham and Manchester to the London office," said David Dryden, chairman of Cundall. He explained that unlike some of the bigger consultants the company's regional offices do not compete with each other on income, ensuring mutual support throughout the firm. "We have a single bottom line and there is no infighting, this makes a huge difference."

Other firms agreed that moving the work to the appropriate cost base, whether in the UK or overseas, was key element of ensuring sustainable growth. "We set up our London office with the intent to undertake the bulk of detailed design work from our 'engine room' in our Midlands heartland where employment costs are much lower. Although that's still a lot more expensive than, off-shoring to Asia it's much easier to manage delivery and quality," said Steve Wooler, managing director at BWB.

Firms were unanimous in their view that the market was growing and that ensuring that this growth is profitable is a challenge considering the rising costs from existing staff salaries to resourcing new projects. This means that the tide is slowly turning from a buyer's to a seller's market for consultancy services. "There is more work and then you need more staff and it costs a lot and then margins fall as fees are still low and payments are sometimes late – so it has to be really good work or we may say no," said Paul Menzies, executive director at structural consultant Curtins.

Others agreed that the industry is currently in a transition phase. "We are certainly seeing a shift change. We are finding that clients are open to the opportunity to get better value and for that they will pay a fair price," said Neil Smith, senior partner at Max Fordham.

However on the flip side some companies said that many clients were still in recession mode making decisions on the basis of lowest price. "Aspirations don't always match reality; companies may say they seek value, but when it comes down to it the guys running the project still appoint on the basis of cheapest price," said Wooler

Ensuring a fair price is paid, and profit is made also means that some firms are renegotiating contract terms with their clients, and in some cases walking away, as well as taking a closer look at their costs. "It is all about profitable growth, organisations are taking an almost forensic approach to their cost base to be as competitive as possible and also to make acceptable margins at the same time. Rather than just look at the overall project, people are breaking down the various elements to ensure that each part of it is profitable," said Fergus Gilmore, managing director, Deltek.

Investing in new technology to support this and stay ahead of the curve when it comes to industry development was also outlined as a key issue for firms. BIM for example has now been widely adopted but there remain teething troubles. "My difficulty with BIM is that it is supposed to be a consistent, collaborative system for working but there are so many different clients out there with many different ways of working, and different demands on how BIM is presented to them, that we have to invest in all the systems and the cost is quite phenomenal," said Graham Nicholson, executive managing director at Tony Gee and Partners LLP.

The advantages of BIM however are being realised. "One of biggest benefits we see in BIM is people thinking outside the box. We come up against barriers where people say 'this is not part of my job'. It may not have been 2 years ago but, actually, it is now and that is driving some real excitement as it is making people's roles more dynamic," said Andrew Almond, partner at Pick Everard.

For internal management firms debated the use of ERP systems and admitted that the cost was a deterrent. "We looked at business management systems and we have really been put off by the cost, which can reach 6 figures. I almost think we need a "light" version to cater for the SME industry," said Neil Sandberg, managing partner at Sandberg Consulting Engineers.

Interestingly Deltek agreed and said that in the past it had not been able to provide a solution tailored to smaller companies, however recently this has changed. "The truth is that 2 years ago our solution was not tailored to meet the needs of a small business. We have now invested thousands of hours of research finding out the relative needs of small to medium engineering firms to create a best practice standardised model which can be fitted to your company at a cost suited to SMEs and in a much shorter time frame," explained Deltek senior business director Chris Duddridge.

This is a significant acceleration from the 100 days that a bespoke ERP model would have required in the past. However Gilmore warned that investing in technology alone is not enough to derive the potential benefits. "Technology without a change management strategy is a waste of money. It is really important that anyone looking at an investment in technology considers the change aspects to make sure the investment is very successful."

Beyond the technology firms are also investing in people, particularly graduates and in some cases apprentices. "We cultivate relationships with our local universities and try and identify students and get them in for the summer and if we like them we will sponsor them for the rest of their degree," said Mark Ingram, managing director at GHA Livigunn.

Other firms too said that they have built links with Universities, in some cases by giving lectures and tutorials. "There is a symbiosis here because if Universities can show that link with industry it helps them to attract students," said Liz Brown, partner at CampbellReith.

At Tony Gee and Partners, Nicholson said that the firm sponsors 40 students through University which has been "enormously successful" with an 88% retention rate. It is also one of only a few SME consultants to take on apprentices through the Technician Apprenticeship Consortium. "If we take on an apprentice between 16 and 18 it gives them the opportunity to get on to the ladder that can take them all the way to Chartership," he said.

Another area where SME firms are recruiting is in absorbing some of the staff that leave companies that are in the midst of takeovers or mergers. Others such as NG Bailey said that they were successfully re-hiring some of the staff that had to be let go during the recession.

A lesson that some firms have learned from the recession is to be more commercial regarding cashflow. In November the ACE revealed statistics from its latest SME Benchmarking study which highlighted that the average payment term was 81.5 days and 50 % of these payments were beyond the contract terms. Some firms said this was actually higher and said that they were working to bring this down, but some felt that 30 days was an unrealistic expectation. However others pointed to exemplar clients that pay within 21 days. "We have benefitted tremendously from that, and it is the sort of regime that we expect," said Paul Jackson, director at NG Bailey.

From the discussion it was clear that the variety of clients have many payment terms from banks that demand discounts for payments within 60 days "Why should I fund a bank?" said Dryden; to some that offer large advance payments and monthly income. Firms have responded to this in a number of ways. "On our oversees projects we are trying to negotiate away from milestone payments to giving a discount if people pay monthly. You can offer a discount because you are de-risking the project for yourself," said Smith.

Against a backdrop of growth in revenue and staffing levels reducing payment delay is even more important.

Planning for growth is indeed at the forefront of the collective minds of SMEs and is a nice challenge to have compared to the bust years. Enabled by smart graduates, new technologies, passionate engineers and forward thinking clients, SMEs are set to reap the benefits of their own innovation.

Participants:

- Steve Wooler, managing director, BWB Consulting
- David Dryden, managing partner, Cundall
- Neil Smith, senior partner, Max Fordham
- Andrew Almond, partner, Pick Everard
- Elizabeth Brown, partner, CampbellReith
- Graham Nicholson, executive managing director, Tony Gee and Partners LLP
- Paul Menzies, executive director, Curtins
- Mark Ingram, managing director, GHA Livigunn
- Paul Jackson, director, NG Bailey
- Tushar Prabhu, director, Pell Frischmann Consulting Engineers
- Neil Sandberg, managing partner, Sandberg Consulting Engineers
- Fergus Gilmore, managing director, Deltek
- Chris Duddridge, senior business director, Deltek

Top: David Dryden, Cundall; Neil Sandberg, Sandberg Consulting Engineers; Tushar Prabhu, Pell Frischmann.
Middle: Paul Jackson, NG Bailey; Paul Menzies, Curtins.
Bottom: Graham Nicholson, Tony Gee and Partners; Elizabeth Brown, Campbell Reith; Neil Sandberg, Sandberg Consulting Engineers.

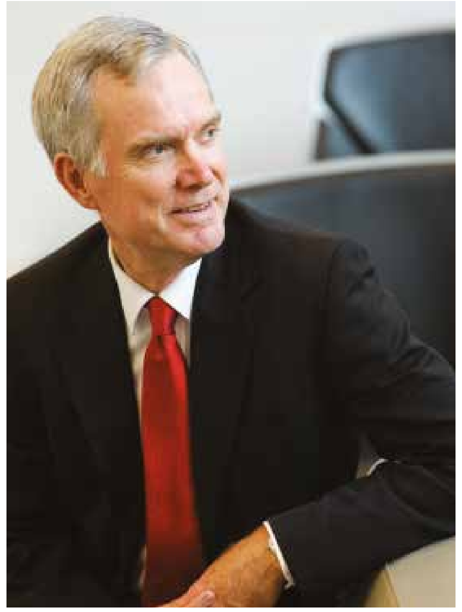
Creating a successful alliance

As collaboration becomes a hot topic for 2015 AECOM's *Richard Morwood* gives his top 10 tips for getting the best out of project alliances

Building on 10 years of alliancing lessons learned in Australia, Richard Morwood, industry director for integrated project delivery at AECOM, and his colleagues decided to write 'Alliancing – A Participants Guide'. The 2008 book was a response to what Moorwood describes as a vacuum of alliancing practice earthed in real life case studies. Here he gives Infrastructure Intelligence his top 10 tips for creating successful alliances.

1. Get the governance structure right
Making sure the right parties are at the 'top table' is fundamental. Consider which parties are able to contribute intellectual property in managing towards excellent outcomes and constraining risk. For infrastructure projects this will typically involve the owners, designers and lead constructors, but might also include a key supplier or even a lead insurer depending on the nature of the complexity. Whilst my preference is for 'boards' no larger than 8 to 10 people that limits the number of organisations present, other mechanisms such as sub-alliances with representation at board level can also be used.

2. Ensure that leaders lead.
In an alliance, a board isn't just there to ensure governance and compliance procedures are effective. The participants must lead. Not only must they set an example in putting the interests of the alliance ahead of their own organisations' (in these frameworks 'best for project' is how an organisation benefits anyway), but they must use their own skill set to champion a particular key result area (KRA). KRAs may include 'safety', 'value for money", 'waste elimination' or 'systems integration'.



"There's real benefit in capturing innovation and lessons in order to demonstrate the value in the model."

Richard Morwood

3. Ensure legal and commercial frameworks support the level of integration needed.
Clarity of outcome desired by the owner and aligning the legal and commercial models with this outcome are vital. There's not much point in having a participant distracted from the client's purpose through having to protect their own interest first in a complex project situation. In Australia, most alliances have had a 'no blame' clause which forces integrated behaviours to resolve issues. This has been picked up in the four-level integrated project delivery (IPD) structure in the USA, but is often the hurdle that lawyers struggle with. In the USA I saw an article that proclaimed that 'no blame' clauses weren't necessarily effective because they hadn't been tested in the courts! On the commercial side equity and simplicity are key. Any time spreadsheets are required to explain a simple model, it can't be simple and it won't drive the behaviours you want.

4. Role clarity and accountability are required to ensure efficiency of delivery
One of our major program collaborative contracts for a $1bn flood reconstruction program almost ground to a halt because everybody was trying too hard to do everything. Board members were micro-managing, managers were directing policy, and deliverers were confused about direction. Thankfully we realised there was an issue and rectified the situation for a much better outcome. Once role clarity is provided in an integrated team, accountability for performance is much easier to manage, wasted effort and rework eliminated, and innovation can flourish.

5. Keep the drivers and messaging simple.
People can't respond to too many messages and drivers at once. Three is usually optimal. Where a client introduces 12 KRAs, a good question to ask is: 'What is particularly important for this project?' After some serious contemplation often this can be whittled down to three that get incentivised, another three that are reported to the board, and others that are set at a sub-project or team level. The real point of these is to drive behavioural change. There's little benefit if KRAs overload or confuse people.

6. Drive innovation back into the participant organisations.
Often the fertile environment of the integrated team will develop new ways of doing things (for example, better integration of BIM, new safety protocols, better training tools, new understandings of subcontractors business models and skill sets). Look for opportunities for these to be taken back into other forms of contract within the participant organisations. Then careers get enhanced, competitive edges honed and others wonder at the innovation of the team.

7. Capture innovation and lessons learnt and demonstration of value
Alliancing/collaborative contracting is relatively new (again). There's real benefit in capturing innovation and lessons learnt in order to demonstrate the value in the model. As alliances matured in Australia, demonstrating value became mandated as a progressive process throughout the life of the alliance. Reporting using a tool like an innovation register at board level is a vital part of this development. Typical elements can fall under three categories: cost elements whether project, external or lifetime; hard elements such as functionality, quality, timeliness or soft elements including sustainability, community and stakeholder relations.

The Eastern Busway project. A dedicated busway in Brisbane, Australia, delivered by the Eastern Busway Alliance comprising AECOM, SKM, Leighton Contractors and Queensland Department of Transport and Main Roads.

8. Balance risk and insurance
Risks tend to end up in a bucket of managed and unknown risks with contingency allocated, or a bucket called insurable risk with potential deductibles and premiums to pay. All actually come at a cost and the best strategy is obviously to manage, design out or avoid the risk whether insured or not. Consider them all in the same bucket and look at how the management processes can be matched to the type of insurance being used. For example, contemplate how you can get access to LEG3 extended contract works, design write back public liability and "events based' professional indemnity insurances.

9. Monitor performance in terms of project outcomes and culture achieved
Don't leave alliance culture to chance. When you think about it, you want to rapidly develop an integrated culture that feels like it's been operating that way for years. We will often institute a high performance management plan that includes strategies, processes, tools and techniques aimed at building and accelerating positive team processes, behaviours and outcomes that will amplify the project's results across the board. Many alliances will have an "alliance culture" KRA with several measures that monitor the success of the plan.

10. Have fun.
Complete focus on the project outcome in a fully integrated team can sometimes lead to an intense work environment that leads to some people working to an unsustainable level. Be aware of this and use circuit breakers (small or large) to relieve the load on individuals or teams. The benefits get paid back many times over. Plus infrastructure projects and technical careers are seen to be desirable places to work!

Contractors top the risk register

What are the risks concerning consultants in the current market? And how do you help alleviate them. The latest Griffiths & Armour/ Infrastructure Intelligence meeting found out. *Jackie Whitelaw* reports.

Contractors, the election and fragmentation of major programmes by clients resulting in little visibility of future workload are all causing consultants concern in terms of managing risk as the industry recovers from recession, the latest Griffiths & Armour/Infrastructure Intelligence breakfast debate revealed.

And the greatest concern is contractors. Industry has been awash with stories of the companies who put in cut price bids in recession to hang on to cash flow that are now finding themselves in all sorts of trouble as an unexpectedly quick recovery leaves them locked into fixed priced deals just as costs of materials and labour are rising.

One remedy now being seen is to put in claims to replenish that lost cash, said our group of consulting bosses. And consultants are a particular target as they are at the front end of recovery and contractors can see them doing well and earning increasing margins.

"When the cost of a brickie has doubled on jobs bid 18 months ago, what was a marginal cost has gone through the roof. At the same time consultancy is doing well even though it is stretching at the seams. We expect more claims," said BLM partner Keith Lonsdale. "And we are noticing that there is a long lead time. Issues from 2009/10 are just coming to light now and from even earlier.

"That said, though, in this recovery claims so far have not quite followed the pattern of earlier post recession activity. After the recession of the early 90s the courts were rammed with claims in the mid years of the decade. It's not the same now. Things are resolved quicker and there are less disputes."

Most of the consultants were resigned to the inevitable. "There is no doubt that if a contract is losing money we are going to feel some pain too," said regional and divisional managing director for Buro Happold Neil Squibbs. "It's all down to our record keeping; that's the only thing that can help us."

"What we are tending to see when companies do a lot of work for contractors is that the claims come to them more quickly than if they are working directly for a client. We have also seen an increase in the quantity of claims, a lot of them spurious, during the recovery in the last two years," said Tony Gee director Richard Prosser.

Not all businesses had the same experience. According to Pell Frischmann company secretary Linda Roberts: "When the recession started, from 2008 onwards, there was a spate of notifications led by contractors who had priced at the margins. There is less appetite now."

For Arup director Alison Norrish this was all to be expected from the current procurement cycle where the popularity of design and build in various guises, which she understands, means jobs are mostly contractor led and will be going forward – from Crossrail to HS2 and Thames Tideway Tunnel. "For consultants that's high risk territory and likely to be a bigger challenge than anything else."

The remedies need to include a focus on risk management even when you are stretched because there is suddenly so much work, said Griffiths & Armour chief executive Stephen Bamforth. "There is now money available so you will start to see claims coming back to life. And you have to make the effort to protect yourselves now because by the time the claims come through the insurance market will have hardened and will likely coincide with the next recession which would be a double whammy for consultants."

Businesses admitted to becoming more hard nosed and more selective about who they worked for. "It's my job to get a grip on our projects and ensure our teams become more cogniscent of risks," said Ramboll head of project management Chris Rhodes. "We are focused on a stringent decision gate process and we are prepared to tell a director that perhaps this isn't the client for us when this is perhaps the third job on which we've worked with that company and we've lost money."

There is also an issue with time taken by contractors to resolve claims from consultants. "Working with contractors is challenging," said Tyréns managing director Scot Parkhurst. "Their

Participants:

- Alison Norrish, director, Arup
- Keith Lonsdale, partner, BLM
- Neil Squibbs, regional and divisional MD, Buro Happold
- Denise Bower, chief executive, Major Projects Association
- Linda Roberts, company secretary, Pell Frischmann
- Chris Rhodes, head of project management, Ramboll
- Steven Trewhella, director, Royal HaskoningDHV
- Richard Prosser, director, Tony Gee & Partners
- Scot Parkhurst, managing director, Tyréns
- Nick Taylor, chief executive, Waterman
- Gareth Arber, head of legal, WYG
- Steve Bamforth, chief executive, Griffiths & Armour
- Antony Oliver, editor, Infrastructure Intelligence
- Jackie Whitelaw, associate editor, Infrastructure Intelligence

Election and EU referendum

Consultants do not like uncertainty and there is nothing more uncertain than a general election and indeed the possibility of a referendum on Britain's membership of the EU shortly afterwards. "The private sector doesn't like uncertainty either," said BDP director Peter Drummond and in terms of commercial investment if it hasn't started by the end of 2016, it won't."

According to Waterman chief executive Nick Taylor: "I am concerned that there could be a slow down in 2017 resulting from the proposed European referendum. If a referendum occurs, the uncertainty may reduce property development and investment and companies will not recruit staff."

Project fragmentation

There is a perceived lack of confidence within clients – both public and private sector – which means they are not prepared to commit to a whole project but want instead to build it in stages. Not efficient, and not good for risk management said the consultants.

"If we want to manage risk we need to commit to solve all the problem not put together a jigsaw one piece at a time which is expensive and difficult to manage," said Royal HaskoningDHV director Steven Trewhella.

"Things are a little clunky, you can't really plan. With frameworks there is often that euphoria when you win it, but that soon dissipates when reality set in and a year later you realize that despite your best efforts you have still had only limited work from it. Was the work ever really there? You would be brave to recruit solely on the back of a recently won framework." said Ramboll's Rhodes.

What is integrated project insurance?

IPI is an innovative form of insurance that insures project risks rather than liabilities. It operates on a blame-free basis and insures outcomes rather than causes; all members of the project are covered – including the client – and all rights of subrogation are waived. IPI supports collaborative working and the use of truly integrated teams, helping to drive out waste, deliver innovation and provide better, more cost effective solutions to meet the needs of clients. It is the only insurance product capable of supporting BIM Level 3, according to Griffiths & Armour chief executive Stephen Bamforth.

Government is convinced of its value and has committed to trialling IPI as part of its Construction Procurement Strategy by supporting demonstration projects to show that hoped-for savings in capital costs and procurement times can be achieved in practice and to encourage the insurance market to create a commercially viable product that can be made available to both the public and private sectors.

IPI insures the integrated project team's performance against specification, time and cost. Liabilities to third parties arising during the construction process are covered. There are no internal liabilities to consider and the project team operates on a completely blame-free basis.

Managing it all would be a project board which includes the client. There would be a light touch audit of designs by an independent party. Fees earned on IPI projects would not need to be declared under consultants' annual PI covers. There will be no duplication of insurance costs.

What is the CIC BIM Protocol

This is a supplementary legal agreement that is incorporated into professional services appointments and construction contracts by means of a simple amendment. The protocol creates additional obligations and rights for the employer and the contracted party. The protocol is based on the direct contractual relationship between the employer and the supplier. It does not create additional rights or liabilities between different suppliers.

The CIC BIM Protocol has been designed to be used by construction clients and contractor clients. It is possible that consultants and contractors will use a version of the protocol to manage the work of sub-consultants and sub-contractors.

The key principles are:

- All parties that are responsible for the production of Building Information Models on behalf of the employer should have the protocol incorporated into their contract/appointment.
- The same version of the protocol and appendices should be incorporated into each contract.
- The wording of the CIC BIM Protocol should not be amended
- The protocol should detail all Building Information Models that are going to be produced by all parties contracted to the employer on the project
- The appendices have to be completed with project specific information for all projects. This should be available from pre-appointment documentation such as the Employer's Information Requirements.
- Changes to the protocol and its appendices should be treated as variations to the contract

The CIC BIM Protocol Appendices are the only documents which need to be completed with specific project details.

- Appendix 1 – Model production and delivery table. This must include references to all Building Information Models that are required by the employer at each project stage.
- Appendix 2 – Information requirements. This details the information management standards that will be adopted on a project.

Griffiths & Armour

"Our experience is that integrated project insurance enables true project collaboration and has the potential to be a game changer"

Gareth Arber, WYG

"There is no doubt if a contract is losing money we are going to feel some pain too"

Neil Squibbs, Buro Happold

"All consultants should shoulder the responsibility of training engineers for the future"

Nick Taylor, Waterman

"If we want to manage risk we need to commit to solve all the problem not put together a jigsaw one piece at a time"

Steven Trewhella, Royal HaskoningDHV

resources are stretched and if you put in a claim for compensation their QS team are juggling a lot of stuff and are not interested and want to deal with it down the line, at the end of the job. But you need it dealt with or the issues will just build up."

Bamforth said that the lessons to be learned are the same ones that have been there for years – get the documentation right and keep it up to date; understand the contract and work to it; and don't cut corners with insufficient resources.

BIM

No meeting of consultants can not mention BIM these days and the G&A breakfast was no exception. There was concern that consultants were not in the driving seat on BIM implementation as they did not have the funds to invest that it was perceived contractors did have. But on a positive note there was general agreement that the CIC BIM protocol was building up a head of steam and helping to level the playing field. "What I have started to see encouragingly is the specification of the CIC BIM protocol and it prevents one party disproportionately floating the risk," said Tony Gee's Prosser.

Clients need to be helped to understand the implications of BIM more and to understand the protocols for sharing risk, it was agreed. "We found in a recent review that our staff are prepared for BIM, but some of our clients didn't understand what it was and not all projects were ready for it," said WYG legal director Gareth Arber.

"Where we are finding lack of knowledge is with the clients. As an industry we need to recognise this and get into the client side so the BIM strategy is set from the outset and the CIC protocol is recognised in the contract." Issues ahead included having enough people trained to implement BIM. "In terms of risk, we need to make sure that our staff are appropriately trained otherwise risks will increase" said Waterman's Nick Taylor. "BIM requires senior engineers and technicians who have extensive experience so that they can review the output from the computers. During the recession we continued to invest in training and this has given us an advantage over our competitors. Waterman in the past has recruited apprentices direct from schools as we have found that they tend to be more loyal in the long term than university graduates. However, all consultants shoulder the responsibility of training engineers for the future. We are all going to find ourselves competing for the same resource."

Royal HaskoningDHV's Steven Trewhella agreed but questioned how consultants could externalise the impact of overheads particularly when projects were being worked on in phases with no guarantee that the next phase would go ahead. "Only through collaboration can we afford it," he said.

In terms of Professional Indemnity Insurance, the insurers are pretty comfortable with BIM, G&A's Bamforth said. "We worked with Beale & Co on the CIC Protocol so we are relaxed about where we are now. But the next stage to BIM 3 is different. That is where BIM becomes a tool for collaboration and it requires integrated teams, open book accounts and an informed client. And it needs integrated project insurance."

Integrated project insurance

IPI is an innovative form of insurance that insures project risks rather than liabilities. It operates on a blame-free basis and insures outcomes rather than causes; all members of the project are covered – including the client – and all rights of subrogation are waived (see fact box).

"It is designed to encourage collaboration," Bamforth explained to an audience who grew more enthusiastic the more they understood the process of IPI. "The client pays for the insurance as part of the project cost plan and will claim on the insurance if there is an issue. All parties to the project take the degree of pain proportionate to their ability to pay. It means the team can't ignore problems and have to work together to sort it out."

WYG's Arber has experience of working with IPI on one of the trials being supported by the government on a public sector job.

"Some of the seasoned team were sceptical at first but were quickly won over by the experience," he said. "Getting the right team together for an IPI project is very important and there were workshops to get that established. If people are adversarial, as some traditional forms of contract require, they need to be re-educated or they are not the right people for a collaborative job.

"At the project start, all the usual barriers to collaboration are broken down so a true team is formed and rather than some contracts, where collaboration is mentioned at the start and is then forgotten, collaboration continued and increased throughout the project. Our experience is that IPI underwrites, encourages and enables true collaboration and has the potential to be a game changer for the construction industry"

G&A has been working with government through the Cabinet Office on developing IPI. "There is very strong buy-in from there. It can see that the difference with IPI is that it drives collaboration even when things go wrong," Bamforth said.

This also means that the biggest party with the deepest pockets no longer assumed to be the right organisation to lead the project. "It could be a designer who leads the team, it doesn't have to be the contractor. But what will happen is that good, collaborative teams will become high value assets attracting lower premiums. Bad teams will be costed out of the market," Bamforth said.

Risk and insurance hub

Infrastructure Intelligence is working with Griffith & Armour to help share best practice across the industry as a fundamental step in helping raise the industry's performance when it comes to managing risk. A number of important case studies have been brought together on-line at **www.infrastructure-intelligence.com** to highlight lessons to be learned when avoiding contractual liability claims. This work will be expanded over 2015 to assemble a comprehensive information resource to help guide professionals towards a lower claim, lower cost future.

New policies needed in public procurement if UK is to meet SME target warn firms

Small and mid sized consultants say government policy means it is missing out on best value.

Professional services firms are urging government to implement new policies to ensure that small and medium sized design consultants are involved in public projects and frameworks. They say that government clients are missing out on the value that small firms can bring to public works by including contract terms, liabilities and legal requirements that only major consultants can comply with.

In a round table discussion hosted by Infrastructure Intelligence and software firm Deltek consultants said that changes must be made if the UK is to meet its target to devolve 25% of public procurement spend to SMEs by 2015. And at the same time deliver on its ambition promote the growth of middle sized companies, emulating the economic success of this sector in Germany, known as the Mittelstand.

"The UK wants middle-sized firms to drive growth in the UK economy – in fact, a recent Cabinet Office study found that SMEs were disproportionately responsible for creating stable jobs in the UK. The way to achieve this is for Clients to force the very large firms to bring SMEs formally into their supply chains and then monitor that work really does get subcontracted," said Tushar Prabhu, director at Pell Frischmann Consulting Engineers, which employs around 900 staff.

He says that a key reason that public contracts often fail to bring in SMEs is because even when this is agreed at procurement stage it is not enforced and large consultants are unwilling to bring in sub consultants.

Other firms say that a direct procurement route where layers of contracts are specifically allocated to SMEs would be a better approach. "Segmenting the public sector market would provide a more level playing field. The types of contracts and their value can be better matched to those tendering. It will take a major change at government procurement level to bar companies of a given size from accessing opportunities, but it should lead to a fairer contest," said Mark Ingram, managing director at GHA Livigunn, which employs around 155 people.

Top: Tushar Prabhu, Pell Frischmann Consulting Engineers.
Middle: Mark Ingram, GHA Livigunn
Bottom: Graham Nicholson, Tony Gee and Partners

Firms pointed to a number of barriers preventing SME inclusion on public projects including high bid and compliance costs; unreasonable risk transfer; poor payment schedules; contract documents that require unlimited liability and bespoke legal terms that absorb high costs. Furthermore firms say that it is common for large consultants to erroneously count contract staff from agencies as SME content.

Figures from the Cabinet Office show that in 2012/2013 SME direct spend was £4.58bn or 10.5% of all investment, a marginal increase on the £4.44bn procured with SMEs in 2011/2012. The government estimates that indirect spending through the supply chain to SMEs accounted for around £4bn or 9.4% of spending bringing total procurement to around 20% of total. Its target is 25% by 2015.

Some said that they believe that mandating involvement was not the best approach. "I think it is wrong to force anyone to take on SME's as a quota," said Graham Nicholson, executive managing partner at Tony Gee & Partners, which has 325 employees. "The fundamental problem as I see it is that the SME value is not being properly recognised. It is as much for us to show that as it is for others to see it."

Firms pointed to a number of advantages of using SMEs. "SMEs should be considered where they have local or other specialised knowledge. They tend to have lower overheads and often with direct owner involvement where rapid decisions can be made," said Steve Capel-Davies, partner at Peter Brett Associates, which has 474 staff.

To date government has made changes to its processes to encourage more SME content on public projects including eliminating the need for prequalification questionnaires on goods and services under £100,000; providing more visibility of business opportunities and reducing the procurement timeline.

Infrastructure Intelligence is working with SMEs on a procurement position paper. To contribute please contact bernadette.ballantyne@infrastructure-intelligence.com

The Sweett way

Gerard Fitzpatrick heads up rail, the fastest growing sector team at independent commercial consultant Sweett Group. He tells *Bernadette Ballantyne* about "getting things done" in the growing infrastructure market.

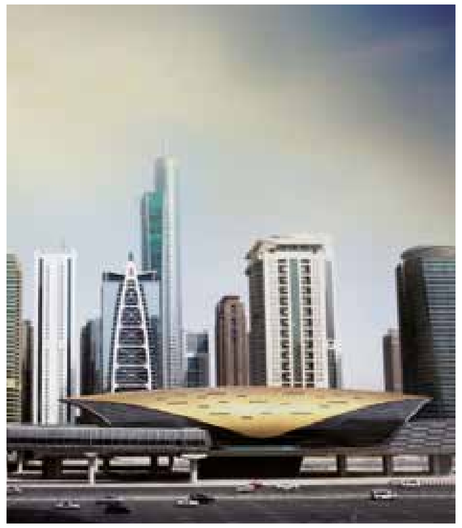
With 1575 employees in 18 countries the business has grown hugely since its founding in 1928. Which parts are growing today and why?
The infrastructure sector is anticipated to have the biggest growth over the next five years, particularly energy and transport. Major growth was initially triggered through successfully securing a major framework with Transport for London. This, coupled with our continued work for Network Rail and commercial services delivery at Heathrow and Gatwick airports, have seen the transport sector in particular go from strength to strength.

Rail is the fastest growing sector team in Sweett Group with 75 individuals working on rail related projects in the UK.

Which current projects best represent your division in Sweett Group?
Over the last 20 years we have helped our clients deliver over £30bn worth of complex, challenging rail and infrastructure projects in the UK and overseas. Three current commissions that stand out are London Bridge which is going to make a significant difference to people's journeys, as well as reaping regeneration benefits; London Overground where we are sole provider of cost management on Transport for London's £330m capacity improvement programme; and our recent involvement at Blackfriars redevelopment project.

What are your biggest challenges / opportunities at the moment?
There are some major opportunities coming to the market in the next few years and we have been really pleased with our growth in the transport team regionally. Historically, our focus was on London but we have seen continued expansion in our teams in the north and south west on projects such as Bristol Rapid Transit, Halton Sidings and a major park and ride scheme in York. We see this expansion progressing and are pleased to have recently been successful on the Network Rail Scotland Framework where we are one of two key providers.

Gerard Fitzpatrick – "I am a firm believer in allowing people to do the type of work they enjoy doing"



Sweett Group has helped clients deliver £30bn in projects over 20 years.

With over 20 years experience in multidisciplinary high value rail projects you have built a reputation for "getting things done", tell us more about your career.
Prior to joining Sweett Group I was at Mott MacDonald where I was project director leading commercial management activity for rail projects in the south of the UK. Before this I was at Balfour Beatty Rail which I joined in 1995 as a principal quantity surveyor. My major projects experience includes being the commercial manager on the NLRIP; working as a major change procurement manager for the East London Line; commercial manager to close out Blackfriars station redevelopment with Network Rail; and 13 years on major UK track renewal programmes.

Where did you get started?
My career started as a trainee quantity surveyor working for a formwork and concrete subcontractor, CJ O'Shea & Co Ltd. I learned from the sharp end of the importance of cash flow management and the intricacies of getting paid by main contractors in the 1980s. I then moved into general construction as a senior quantity surveyor. I was lucky enough to achieve my MRICS status through day release and this type of learning approach is something I am really happy to help the next generation of people with, who will steer construction forward into the digital era.

How are you supporting the next generation of people into the company?
One of the key achievements this year is the implementation of the Sweett Group Apprenticeship scheme. This scheme is designed to attract school leavers to a career in our industry, above other professions. The apprenticeship program provides a career path for these school leavers, with a 2 year NVQ Level 3, followed by the organisation supporting the transition into a HNC and degree program. Ultimately it is a career path towards Chartership.

Looking to the future what sort of people will find a happy home at Sweett Group?
I don't think there is a typical "Sweett" person but I am a firm believer in allowing people to do the type of work that they enjoy doing, as this results in a better product. Our culture is strongly focused on enabling our people to develop by pursuing further qualifications and attending external seminars. At present, 20% of our staff are studying for qualifications.

In November, we were delighted to get a 100% success rate for those completing their APC programme, becoming members of RICS. I am proud that my team consists of many skilled professionals, 70% are fully chartered professionals. This is an excellent advertisement for my people.

Securing talent to deliver in 2015

Employers must think big and be creative in their resource planning says Matchtech operations director *Grahame Carter*.

As the fastest growing economy in the G7 the past year has seen growing optimism about the strength of the UK's recovery. The Organisation for Economic Co-operation and Development predicts that this will continue forecasting GDP growth of 2.7% in 2015 and 2.5% in 2016. Significant public sector investment on projects, notably infrastructure, is also providing a driver for growth.

In his Autumn Statement, the Chancellor announced £466bn in spending as part of the National Infrastructure Plan. This includes £15bn for the strategic road network, £5.8bn for local road maintenance and £2.3bn for flood defences. This, in addition to projects such as Crossrail and HS2, amounts to a sizable investment in the UK's infrastructure.

While on the surface this is a reason for the infrastructure sector to feel confident in the future, the upcoming General Election on 7th May 2015 does bring with it considerable uncertainty. Few projects are completely safe from a change in governing party. HS2 has cross-party buy-in, but more recent announcements, such as the £15bn road plan, may not get off the ground at all.

This uncertainty makes planning difficult for many businesses in the sector, but regardless of what happens in May, there is wide recognition that the UK's infrastructure network must be improved to support economic growth. As a result, demand for experienced engineers is expected to continue to grow, regardless of where the investment comes from. And herein lies the rub. While the sector is experiencing strong growth, it has a dwindling pool of engineering talent to draw on to build the infrastructure being commissioned.

In Matchtech's latest Confidence Index, we surveyed more than 500 engineers in the infrastructure sector asking what policy initiatives they would like to see in the political parties' manifestos to help drive growth. Two fifths (39%) said increasing the level of infrastructure investment as a foundation for future economic growth was the number one priority initiative, followed by greater investment in STEM (Science, Technology, Engineering, and Mathematics) apprenticeship schemes, also chosen by 39%, and a clear strategy for future investment in UK energy infrastructure and clarity on the energy mix chosen by 36%.

Engineers want to see investment in infrastructure continue but also recognise they have to see a parallel investment in skills and training if the UK is to build and maintain the talent it needs. Many current projects are already suffering from growing skills shortages.

There is recognition among politicians that action has to be taken to build and maintain the STEM skills base in the UK, more recently seen in Ed Miliband's statement that a Labour government will seek to create an extra 400,000 engineers by 2020 by encouraging young people to study STEM subjects and expanding apprenticeship schemes.

However, while useful, solutions such as this risk being too long term in scope and need to be coupled with incentives that encourage graduates and qualified engineers to choose a career in the sector now and stay committed to it. Attracting new people into the industry is not beneficial if you continue to lose more experienced staff.

For those currently working in engineering, there is likely to be a rich choice of jobs in the infrastructure sector in 2015. While employers will reap the rewards of the much needed investment, they will also be feeling anxious about delivering what they need to when there is such fierce competition for experienced engineers.

This is where resource planning will form an integral part of their success in 2015. Employers must think 'big' when addressing their future recruitment needs, looking to engineers from other sectors and thinking about how their skills can be transferred and utilised.

Flexibility on the part of employers would also help to reduce the skills shortage. Greater efforts to accommodate working parents, and help long-distance commuters to maintain a better work-life balance (such as home working) would enable more engineers to provide a wider range of roles.

Providing a working environment that helps those approaching retirement or recently retired is also essential. These experienced workers provide an invaluable source of information that can be drawn upon to help train less experienced engineers, in preparation for the workload ahead.

By thinking creatively, solutions can be found to the recruitment pressures that employers face this year, and when they meet those needs they will succeed, in what is a very exciting time for the infrastructure sector.

Want advice?

You can contact Grahame at grahame.carter@matchtech.com or on LinkedIn.

Arup's John Turzynski takes over as ACE chair

Interview by *Antony Oliver*

With workload continuing to build across all sectors of infrastructure and the built environment 2015 looks set to be a busy year for the ACE as it works to prepare members for the challenges ahead.

Not least when you add into the mix a hugely unpredictable General Election in May.

As new ACE chairman John Turzynski points out, it is a year for the ACE to continue its drive, as set out in the recent three year plan, to help members capitalise on the opportunities and to keep up the momentum that has been built around the way it influences government.

"It is about giving members the support and information about what clients and customers want," he says, describing the ACE's task as "joining up the dots" to create an integrated service.

"We need to help our members to have the right skills in place to address their clients' needs – regardless of their size. And we have to provide the right support and back up so that they don't spend time worrying about the routine side of running a business but can focus on being creative, inventive and intelligent for their clients."

An election year clearly makes a huge impact on the work ACE does to influence government, but with all the main parties still committed to investment in infrastructure, the challenge is made slightly easier.

> "The priority must be to make sure all the parties continue to recognise the value of infrastructure to the British economy"
>
> **John Turzynski**

"Inevitably the election changes the dynamic of the year because soon we will be in purdah and decision making will slow down," he explains. "But the priority must be to make sure all the parties continue to recognise the value of infrastructure to the British economy both at home and overseas. So we can't take our foot off the pedal in terms of ensuring that politicians still get this story."

Post-election, of course, a range of new opportunities will appear with new ministers in departments needing help to get up to speed quickly.

"Politicians hunger for knowledge and advice," he explains. "It's a well-used phrase but I would like to continue the work to ensure that the ACE is the trusted friend of government with an independent voice, enabling our members to give their advice."

Maintaining the momentum built up over the last five years of Coalition government after the election with whoever emerges with influence will be vital, he adds.

"We would clearly like to ensure that it is business as usual in the relationship and that means working closely with the civil servants to ensure that transitions are as smooth as possible," Turzynski says. "And of course ACE has to remain apolitical."

Meanwhile there is still much work to do with the ACE business to continue the process of change championed last year by then-chairman Chris Cole.

Development of the Environmental Industries Commission plus the launch of the new Victoria Street Capital publishing business is, he says, a first step towards reshaping the ACE to be ready for the future.

"My feeling is that this is a year of building on these initiatives and getting them into a strong position – and with what we have already achieved the future does look good," he says highlighting that continue consolidation in the market inevitably means ACE has to look elsewhere to replace falling subscription revenues.

"Success is that our membership overall maintains numbers, the value of membership is thoroughly recognised and that Victoria Street Capital and the EIC move forward with their business plans," he says.

However, engaging members more effectively is also a key priority, not least the large number of firms based across the UK regions outside London.

And while ACE is, he says, making ground in a number of UK regions there is still much work to be done to avoid being London-centric – not least as the cross-party drive for devolution sees wealth spread outwards from the capital and as projects like HS2 act as catalyst for regeneration in the regions.

"The skills that we have in the ACE are exactly what central and local government need as they plan their strategies. We really are in a fantastic position," he explains. "London remains the political centre and the financial capital of the country but it is important for me to visit members around the country to make sure that we truly represent the whole industry across the country."

Communicating that message is vital and, as Turzynski points out, the key is making it meaningful to members regardless of their size, sector and location. And necessarily the needs of SME businesses will be different from that of larger firms.

"It is always going to be difficult to serve both the big companies and smaller ones. Big consultancies today are really large corporations and so the things that affect them are often significantly different from the issues affecting smaller businesses," he says.

Turzynski's own career has seen him spend the last three decades at Arup working as a civil and structural engineer managing major global projects and as a senior director of the firm driving the business forward. So while he appreciates the challenges faced by small companies he accepts he has limited experience of their challenges day to day.

"Having worked for a large company all of my career I need to educate myself. But ACE has a number of services that it can provide smaller companies and can also help them win work, overcome barriers and attract people with the right skills."

And as the infrastructure and built environment market grows the ACE's potential workload will grow with it. However, Turzynski is clear that there is only so much that the ACE can do in a year so focus will be important.

It also means working in partnership across the industry to provide a united voice that maximises impact.

He points to the Infrastructure Alliance between the ACE, Institution of Civil Engineers, Civil Engineering Contractors Association and Construction Products Association as a great example of now the collective voice can change the conversation with government.

"Being a trusted friend means being constructively critical," he says. "But ACE ought also to be able to challenge the industry. It is all very well talking about the problems but we are part of it. We have the collective ability to help say how things can move forward."

Danny Alexander to open ACE National Conference in March

Danny Alexander is to headline at the ACE conference on 4 March

Chief Secretary to the Treasury Danny Alexander will deliver the keynote address at the ACE's National Conference in March and kick off an event which will explore the challenges facing the industry as it heads towards the General Election, writes *Henry Kerali.*

Having spent the last five years at the heart of decision making in the Coalition, Alexander has first-hand experience of the way the industry can influence the cross party political debate surrounding infrastructure investment.

His experience means he will also be well placed to share observations on the impact infrastructure investment has made to economic growth and comment on how the consultancy sector can capitalise on regional devolution being hotly debated in the wake of the Scottish independence referendum.

At this year's conference, Alexander, who jointly chairs the National Infrastructure Plan Strategic Engagement Forum with ACE chief executive Nelson Ogunshakin, promises to bring an expert opinion on all matters concerning the planning funding and delivery of infrastructure.

The National Conference is themed around 'Engineering Growth' and takes place on Wednesday 4 March at the Westminster Conference Centre in Victoria Street, Westminster, London.

The one day event, now in its eight year, will bring together the industry to discuss and debate a range of issues including:

- the political risk involved with the delivery of large-scale infrastructure projects. Leading industry experts will be on hand to discuss how best to combat the threat of simmering tensions as projects kick off.
- the funding mechanisms that can make or break a project. The debate continues to rage over how best to fund infrastructure and experts will be on hand to set out the options.
- the role that SMEs can play on large infrastructure projects. While it appears SMEs are often unable to access work on large-scale projects, for the UK to achieve its objectives in the near future and beyond, this perception must change.
- the challenge of regional delivery. With the Scottish Referendum now firmly in the rear view mirror, devolution and decentralisation of power to areas across the UK means more delivery of infrastructure on a core city-region basis. Panellists will discuss the merits of increased engagement between core cities and how the consultancy sector can take advantage of devolution.
- how can the engineering sector continue to demonstrate the economic benefits of infrastructure development. With the UK economy on an upward trajectory, continued investment in infrastructure remains critical to growth.

Alongside Alexander, well-known economist Vicky Pryce will speak at this year's conference.

As chief economic adviser at the Centre for Economics and Business Research, former joint head of the UK's Government Economic Service and director general of economics at the Department of Business, Innovation and Skills, she will be well placed to judge and explain the value of investment in infrastructure.

Other confirmed speakers include Darryl Murphy, partner at KPMG Corporate Finance and Richard Abel, managing director at Macquarie Infrastructure and Real Assets.

For further information and to register to attend the ACE National Conference, visit www.acenet.co.uk

Every ACE member firm can claim two free places at the conference.

Book your place

Book your place at the ACE National Conference now – Wednesday 4 March. Every ACE member firm has two free places reserved to be claimed. www.acenet.co.uk/conference

Pension auto enrolment: Are you aware of your employer obligations?

ACE has advice on an issue that will affect all companies and particularly SMEs from April. And it is offering a pension solution.

Automatic enrolment legislation affects all UK employers. Pension provision in the UK was reviewed by the Pension Commission to create an employer responsibility to automatically enrol jobholders into a pension scheme.

The legislation requires substantial changes in the way employers operate. Penalties for non-compliance can be severe and could range from £50 to £10,000 per day depending on the size of the organisation.

The date the legislation affects you will depend on the size of your business. Larger firms with more than 50 employees will have needed to complete auto enrolment by April 2015 – with firms with 49 employees and less being the focus from August 2015. The time for SMEs to act is NOW!

Number of employees	Staging date
Over 250	October 2012 to February 2014
250 to 50	April 2014 to April 2015
49 to 30	August 2015 to October 2015
Under 30	June 2015 to April 2017

Automatic enrolment requires considerable planning. There are over 100 checks that should be performed for each of your workers requiring a specialist system in place to perform these checks. Majority of UK employers have not done any cost modelling to ascertain what the costs of automatic enrolment might be for their business.

The good news is that ACE, working with its specialist partner, Charles Stanley Financial Solutions, has put in place a state of the art dedicated solution to help its members through the automatic enrolment maze, to ensure that members understand the changes and what their obligations are.

Even if a member is currently providing pension benefits to your employees, there are a series of rules that will determine whether your scheme is a qualifying scheme for automatic enrolment purposes. Auto enrolment is a complicated area and you may still benefit from additional support.

The ACE Pension Solution

From as little as £390 per annum (for employers with up to five workers), the ACE Complete Pension Trust provides:

- A scheme delivered through established and proven market leaders.
- A low annual management charge (paid by employees) of 0.48% per annum, which is both competitive and well below the Government's charge cap of 0.75% per annum.
- Access to a well governed range of investment options.
- Guaranteed acceptance to a qualifying pension scheme including smaller members.
- Access to and use of our state of the art online compliance system with full video support.
- A safe and secure, easy to administer pension solution, which helps you plan ahead and keeps you on top of your on-going responsibilities with a robust and repeatable automatic enrolment process.
- A trust based arrangement with the trustees acting in the members' best interests and ACE representation at trustee meetings.
- No restrictions or penalties on transfer of funds in and out of the scheme.
- Telephone support to members who may elect to buy additional telephone based support as and when required.
- Employee access to an exclusive online shopping platform.

For further information on the ACE Complete Pension Trust, please visit www.acenet.co.uk/pensions or telephone ACE on 020 7222 6557

Enter the ACE Engineering Excellence Awards

Improved market conditions for the engineering and consultancy sector sets the scene for the 2015 awards. It's time to highlight success.

The call for entries for the 2015 ACE Engineering Excellence Awards is now open to provide businesses and individuals in the UK consultancy and engineering community a perfect opportunity to celebrate some extraordinary performances.

The outstanding achievements of the last year will be rewarded and celebrated at a special gala dinner at the Grand Connaught Rooms, London on Wednesday 20 May 2015

An expert panel of judges has been assembled for this year's awards including London Underground director David Waboso, chief executive of Balfour Beatty Construction Services UK Nick Pollard and senior partner and group chief executive of Griffiths & Armour Stephen Bamforth.

Performance will be judged on examples of work carried out since January 2014. Submissions can be made for projects in the UK or for international projects that utilise UK based staff.

Visit www.acenet.co.uk/EEA2015 for further information and to enter. Entries must be received by Friday 13 February 2015

Categories for entry are as follows;

- Building Services Award (companies with up to 250 employees & with more than 250 employees)
- Building Structures Award (companies with up to 250 employees & with more than 250 employees)
- Utility Infrastructure Award
- Transport Infrastructure Award
- Project Design Award (companies with up to 250 employees)
- Research, Studies and Consulting Advisory Award
- Engineering Professional of the Year
- Progress Network Award – Consultant of the Future

Updated ICC: Designed for collaboration and cost certainty

A "radical" revision of the Infrastructure Conditions of Contract has been launched by ACE and CECA, says ACE contracts adviser *Rosemary Beales*.

The ICC with Quantities Version is an up to date contract for infrastructure projects designed to incorporate current best practice and provides a fair and flexible basis for clients and contractors to work together. And its simple structure and provisions for collaborative working offer an attractive alternative to existing forms of contract.

Professor John Uff QC, who chaired the ICC Restructuring Group said: "It is the most radical revision of the Form of Contract since it was originally published. The new contract cuts out a large amount of redundant and outdated wording, particularly relating to the resolution of those disputes which cannot be avoided where now the Engineer has a pre-adjudication role which either party may choose to use at no cost. The contract is also much clearer with its provisions contained in just 20 clauses in logical order, retaining much familiar wording which will assist current users to relate to its content."

John Banyard, who chaired the ICC Development Forum, explained: "This contract has been drafted with the aim of providing greater certainty of outturn cost. To do that the concept of fixed quantities has been adopted and the role and authority of the Engineer are closely defined. Risk is clearly allocated between the parties within a single clause which ensures that risks are carried by the party best able to manage them."

There are clear provisions for ensuring collaborative working and as a part of this is the requirement for the early warning of matters that may affect the contractual process.

ACE chief executive Nelson Ogunshakin said: "We are delighted at how the updated contract has been restructured to meet industry requirements and the government's focus on best practice. This is a timely refresh."

ICC Quantities Version costs £30 a copy and associated Guidance Notes are £20 a copy. www.acenet.co.uk/publications

EU puts green agenda on hold

Circular economy and air quality legislation pay the price as commission tries to demonstrate its pro-growth credentials, says EIC executive director *Matthew Farrow*.

It used to be the case that the European Commission was seen as a shining light for those who wanted tougher environmental regulation. But times are changing, and the few days before Christmas saw the new commission attract the dismay of the European environmental movement.

The provisional Commission Workplan for 2015 had included proposals for new legislation in two environmental areas – air quality and waste management/recycling. The 'air quality package' as it's known, contained plans to tighten EU air quality limits to take account of more recent scientific evidence of the health impacts of polluted air, while the 'circular economy package' would put in place 70% recycling targets to be met by 2030 along with new policies such as landfill bans for some materials.

But when the new set of commissioners took up their posts in November 2014, there were strong rumours that President Juncker's deputy, the grandly titled First Vice President of the European Commission, a Dutch politician called Frans Timmermans, was looking for regulatory proposals to ditch to demonstrate the pro-jobs, pro-growth credentials of the new commission.

There followed several weeks of intense lobbying, with traditional industrial bodies such as Business Europe encouraging the axing of the proposals and a coalition of green NGOs (and environmental business associations such as my own) warning such a move would be a grave mistake.

On December 16th, Timmerman's announced that the Circular Economy package would indeed be dropped from the 2015 Commission Workplan, although to appease the green movement he added that it would be revised 'to improve it' and reintroduced in 2016, while the air quality proposals would be revived in different format in the future.

On January 15 this year the European Parliament debated the Workplan, but despite much unease among MEPs about the dropping of the two packages the two main political groups, the right of centre EPP and the left wing S&D could not agree on a joint resolution on the issue to put to a vote.

The result is that a large chunk of the EU green agenda is effectively 'on hold' for 2015 and it is unclear how quickly it will be restarted and whether future proposals on recycling and air quality will be watered down or not. Three things strike me about this episode.

First, it's a reminder that while those of us working in the sustainability field are very focused on these sorts of EU policy issues, most politicians and voters across the EU are far more concerned about the basic economic situation, and with the Eurozone recently slipping back into recession even EU politicians steeped in the federalist agenda such as Junker and Timmermans are looking for ways to be pro-business. Of course, there is a good deal of evidence that if implemented sensibly progressive environmental policies can support economic growth, but that argument has still not been won in mainstream political/media circles.

Second, it was noticeable how British ministers seemed to have nothing to say as the arguments raged about whether or not the packages should be ditched. I think this shows how toxic EU issues have become in UK politics, especially for Conservative Ministers.

Third, with the prospect of an EU referendum in 2017 casting doubt over whether any EU legislation will be relevant to the UK in a few years' time, it's worth remembering that there is nothing to stop UK policy makers and politicians putting new air quality and recycling targets and policies into British law anyway. I often think green NGOs are too quick to look to the EU to deliver policies for which they have not secured support among UK policy makers.

Overall, it's clear that uncertainty over the direction of environmental policy is very high both at the EU level and here in the UK. That's bad news both for firms in sectors such as waste management or air pollution control trying to set investment strategies and for all of us who care about the quality of the air we breathe and the amount of virgin resources society consumes.

EIC is the leading trade body for environmental firms. www.eic-uk.co.uk