

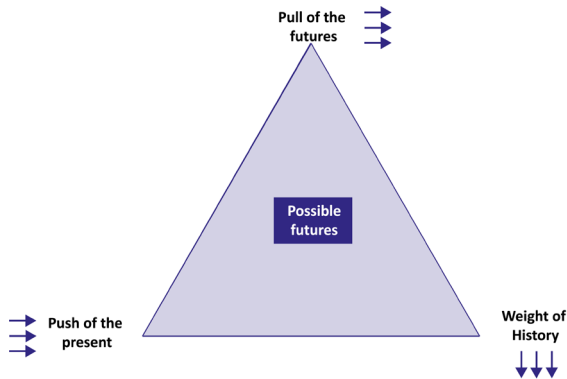
*‘The danger is that when the future becomes complex we revert to what we know.’*

Major General ‘Mitch’ Mitchell MBE, QCVS, Director, Development Concepts and Doctrine Centre, Ministry of Defence

This report is our first annual review of the events, debates and reports produced during the year. By looking at the year as a whole we are able to see the key themes which emerged to help inform our future programme of activity.

The Major Projects Association **Annual Conference** set the scene for the events of the year under review. It looked at how we can future-proof major projects and navigate an uncertain major project world, yet remain open to new thoughts and technologies that will overturn many of the conventions we have become used to.

Strategic foresight is a critical tool for effective organisations and leaders. It is an organised and systematic process to engage with uncertainty. It is not about predicting the future, but understanding your current and future operating environment.



The Futures Triangle is a tool developed by Sohail Inayatullah (metafuture.org)

It has been recognised within the profession that there needs to be more understanding of political risk. And allied to that, stronger communication with stakeholders and the public has to take a more central role, so that the benefits of the projects can be explained better in order to garner support to stiffen political will.

More diversity, whether it be gender, culture, or youth is vital for innovation and acceptance of new ideas. Boards need to give themselves time for blue-sky thinking and use increased diversity to allow everyone to break out of ‘business as usual’ mode. This would support projects to challenge convention and not always fall back on tried and tested solutions.

## BP – Mapping political risk

Businesses like BP have ‘anti-fragile’ diversified portfolios. However there is still a huge risk that rigid business strategies based on future forecasting about political policies can be overrun by non-linear events.

Their key tips for managing political risk:

- Do not assume that you understand what the political landscape will look like in the future.
- Do not predicate your project based on government action.
- Align with government imperatives over the short term but do not bank on being looked after in the longer term.
- The elements of your business that you know best are likely to be at most risk technologically and politically.
- Better information does not destroy uncertainty.

*“Space-ship Earth” is hurtling through the void. Its passengers are anxious and fractious. Their life-support system is vulnerable to disruption and breakdowns, but there is too little planning, too little horizon-scanning, too little awareness of long-term risks.’*

The Lord Rees of Ludlow OM Kt Hon FEng FRS, Astronomer Royal

Three key themes featured strongly throughout the year:



## PEOPLE

*'If high-performing projects are all about people, how much time does your organisation get to spend on people and personnel issues? I know it will not be enough.'*

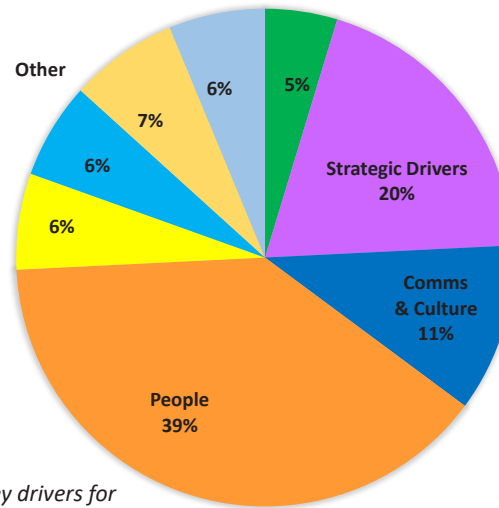
Wendy Cartwright, HR Lead, Palace of Westminster Restoration and Renewal Programme

What has become clear is that the skills of managing, engaging, promoting, understanding, communicating and collaborating with people are at the core of better major project delivery. It is vital to have the right people for the job.

A survey of delegates at *Unlocking high-performing potential in major projects* found that personnel issues made up 50% of the areas where there was most potential for major project performance improvement. But in reality, attention to the people delivering the project tended to be an afterthought in any major project management plan.

Understanding behaviours, motivation in a finite role, reward and how to generate loyalty are key elements of a good major project set-up and a vital part of a project leader's skill set.

A major legacy lesson from the *London 2012 Olympic Delivery Authority* (ODA) is the need to 'invest in human resources and organisation development', according to Imperial College Business School. Imperial believes that in terms of the ODA's success this is as significant as comprehensive project/programme management, being an intelligent client and full project funding.



Key drivers for project improvement

Strong evidence emerged from *Developing the next generation of project leaders* that traditional concepts of leadership are outmoded. The idea of the leader commanding the troops and taking them over the top is no more. Instead, as Mick Hill, Chief Executive Officer, Greenhouse Integration Ltd explained: 'A leader's job is to lead upwards, serving their team by creating a space in which they can self-organise and work autonomously, aligned with the objectives of the project.'

From Bank Station Capacity Upgrade to the activities of the Submarine Corps, success was achieved when the 'what' and 'why' of a job was held centrally by the leadership but the 'how' was handed over to the teams who could self-organise to meet the changing dynamics of a project.

There is work to do on increasing the diversity of major project leadership, *Women in major project leadership* heard.

While 90% of government policy is delivered through major projects, only one in four of the 243 project leaders in the Government Major Projects Portfolio are female. At director general level this falls to one in six.

Institutionalised gender difference remains a problem, perpetuated by 'the alpha male club', with women delegates sharing their experience of that culture even on projects which have set hard targets for gender parity.

At the same time positive action needs to be in place to take into account that women tend to underestimate their talent, skills and experience, and to wait for recognition rather than push themselves forward.

The Environment Agency has developed a career and personal development programme for women; since its launch in 2009, the number of women at executive manager level has risen to 38%, compared to 22% in 2007.

Clients are increasingly asking for their project teams to be as diverse and representative as the end users that projects serve. Companies that fail to act could fail to win work in the future. Manon Bradley of the Major Projects Association has recognised that clients could drive change and is working with the *Infrastructure Client Group* to find a collective response to the issue.

[more](#) > [Gender Balance Initiative](#)

[more](#) > [Gender Balance highlights Reports](#)

[more](#) > [Gender Balance Study Report](#)

*Are we getting better at project initiation?* highlighted the significance of clarity of vision right at the start of a project. At initiation stage there has to be as strong a focus on outcomes as there is on the technical specification, with the aim of keeping the vision simple and achieving the ambitions of the client and stakeholders.

The outcomes also feed directly into the business case that justifies the project in the first place. It is vital to be able to articulate these at the start. Achieving value for money remains critical, but other measures such as social performance, stakeholder benefits and impact on the local economy can be very significant. But too often these issues – the ones that justify the expense of the project to the community – remain overlooked during project initiation and so are not addressed during delivery.

People, in this case project sponsors, have a key role to play in an issue that was brought out at the event *Getting beyond the benefit cost ratio*.

Where it is tricky to monetise the benefits of projects, such as social value, community approval, increased workforce skills and investment in the local supply chain to suit benefit cost ratio measures, then a strong sponsor is needed. Ken Livingstone's sponsorship of the Transport for London (TfL) congestion charge is one example, along with Michael Heseltine's advocacy of HS1.

Community buy-in is crucial. Consideration needs to be given to whether project teams are paying sufficient attention to finding out from the public what they want, and whether project teams are diverse enough to hear and translate the public's needs accurately.

A project's success is measured by the client, operator and public in how well it performs on the day it opens. However brilliantly construction may have gone, if a scheme falls flat on its face on opening day or is delayed at the last moment it will be remembered as a failure.

But most project managers are, by their nature, keen on start-ups and driving a scheme forward. By the time the job is winding up and preparing for handover, they are often off to the next role, leaving behind the dotting of i's and crossing of t's, gathering of relevant documents and sign-offs.

At the event *Project closure and operational readiness* Tony Turton, Highways England Smart Motorways Programme Delivery Director said: 'If you need to get a project completely finished, you need a completer-finisher on the team. Otherwise the last 4% of the job is never done.'

*'Local support is essential. A business case that considers the needs of the community must sit alongside the commercial business case.'*

Phil Wilbraham, Development Director, Heathrow Airport

Five steps to achieve better operational readiness have emerged:

- **Plan for operation** – use early involvement of operators in the delivery team.
- **Plan for close out** – swap project delivery people with those skilled at completion at the right stage.
- **Engage stakeholders** – to create a united sense of purpose.
- **Keep records up to date throughout** – and agree IT formats at the start and put the format in contracts.
- **Learn lessons and feed back** – to the operator so the next job can be better.

## Global client models

A major theme during the year was research and analysis into global trends in client models in major projects. The Association produced a report entitled *Global client models* and held a seminar and two discussion dinners to explore this surprisingly little addressed topic.

The purpose of the research was to capture the experiences of clients of major projects from a range of sectors and countries to draw out important trends and lessons.

What was revealed was a trend towards outsourcing delivery functions in immature clients, especially where schedule was the main driver.

However when budget was the key factor, client models tended towards more direct control – demonstrated most clearly when clients had programmes of work in hand.

There was growing recognition of the importance of customers in major projects, which has led to new client models encouraging earlier engagement with users, a more consultative approach and creation of internal clients within the delivery organisation to monitor performance.

Alliancing – which was once the answer to all ills – is now, from data collected from extracting industries such as mining or oil and gas, the least cost-effective option, according to Nekkhi Mishra, Regional Director, EMEA.

Sydney Water, certainly, has moved away from alliancing, finding that it had led to a dumbing down of capabilities and a loss of competitive tension. It now has a strengthened internal capacity, regional delivery teams to create a more customer-focused client model and a robust performance monitoring scheme for its 14 delivery contractors. It is also the first utility to pioneer the delivery partner approach first used on the London 2012 Games.

Meanwhile in Saudi Arabia, the Government is seeking to outsource project management on a national scale. Led by Mashroat, the national project management organisation, supported by Bechtel, the Kingdom is aiming to reform delivery by outsourcing the project management function for all 48 delivery entities in the country. The new Entity Project Management Offices will be staffed by international consultants in every major client.

One of the most important lessons from the research was that client models need to be flexible enough to evolve as projects progress without losing the necessary intellectual capability for delivery – whether this is to scale up or down, or to outsource or take back delivery functions for the benefit of the project.

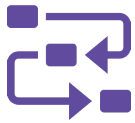
*'We grouped three wastewater treatment plant projects together as a programme under the new delivery partner model. Some of the benefits include: reduced commercial risk with prices agreed across all three sites and strong community, environment and safety outcomes.'*

Mark Simister, Head of Delivery Management, Sydney Water

[more](#)  [Global trends in client models and industry insights](#)

[more](#)  [Global trends in client models](#)

[more](#)  [Global client models study report](#)



## CHANGE

*'It takes leadership to drive change and real courage to try something new.'*

Alison Atkinson, Director Capital Works, AWE plc

Instigating and driving through change is one of the toughest roles major project people have to take on – but it can revolutionise project delivery.

Recognising the differences in skills and motivations across a delivery organisation is critical, as the discussion at *Are we getting better at project initiation?* flushed out. Some parts of an organisation might be naturally pessimistic or cautious while others are open and optimistic about change. Understanding these differences at the start is vital.

The enemy of improvement is tacit knowledge – a belief that the right approach is sticking to the way it has always been done. Breaking out of usual practices is critical.

Moving teams from 'We can't because...' towards an environment of 'We can if...' is important. As is bringing in a younger generation of project leaders without the baggage of historic experience to help drive change.

Companies with diversity on their executive board have a 95% higher return on equity than those without, the event on workforce transformation heard.

To benefit from the innovation and creativity that is driven by diversity, the major projects world has to understand how to attract groups of people that to date have not been adequately engaged, recruited, retained or promoted. Part of that is understanding the growing importance of work-life balance.

*'There is a growing generation coming through our organisations who see a job as simply a job, not a life. Increasingly people are looking for flexibility in the way that they work – and I think that is a healthy thing. It is about productivity – presence is not everything.'*

Douglas McCormick, Chief Executive, WYG

Increasingly 'lifestyle fit' is just as important as 'role fit' when people are deciding where to work. Equally, an organisation's culture is a key driver when people choose where to work. Having the right cultural identity and values that align with the people you want to employ is central to building and retaining a future workforce. And people who are given more opportunities to diversify their role within an organisation stay for longer.

## Workforce transformation at WSP

WSP has embedded a clear set of values (aligned with their approach to corporate social responsibility) into their UK business strategy – this has helped to attract and retain a wider talent pool.

**Humanitarian aid framework:** For many staff, particularly women, the ability to contribute to humanitarian aid projects and to use their professional skills to make a tangible difference in the world, is a real driver and motivator. WSP provides each staff member with two days a year that they can use to volunteer for causes they are passionate about.

**Carbon neutral strategy:** The firm committed to become carbon neutral by 2025 as a driver for changing the way that staff operate in terms of the travel choices they make but also the way that teams operate. The Monday One Day scheme – where staff commit to no business travel on a Monday – has proved to increase team interaction and ensures that staff get home on time.

Collaboration is a word often bandied about as the panacea for major project issues, but it cannot be demanded, it has to be encouraged by leadership.

As Arup Director of Organisational Development Rob Jones said at *Unlocking high-performing potential in major projects*: 'Collaboration is an outcome, not a thing of itself. And process won't change all the behaviours.'

Putting people at the centre of a project will effect change though, helped by people-focused values such as health, safety and wellbeing that are driven down through the supply chain.

Encouraging collaboration with SMEs will also reap rewards, the event *How do SMEs get involved in major projects?* heard. SMEs have a major role to play in improved productivity, innovation and delivery.

They have specialist knowledge that should not be wasted, and Government has set a target to allocate one third of its spending with SMEs either directly or through the supply chain by 2022.

Areas for clients and tier one companies to focus on to improve SME involvement include removing unrealistic tendering requirements and unsustainable risk transfer, along with redrafting onerous terms and conditions.

Considering regional construction hubs is another way of accessing a diverse supply chain. Heathrow, for instance, is creating logistics hubs across the UK to widen its supply chain and get closer to the SME community.

## Sharing in growth at Rolls-Royce

Rolls-Royce is a supporter of the government-backed *Sharing In Growth* (SIG) programme, which aims to raise the capability and competitiveness of SMEs in the UK aerospace sector. As well as financial investment Rolls-Royce has provided its manufacturing and engineering expertise to help firms grow.

One such organisation is the Winbro Group, which supplies cooling technology to the Rolls-Royce turbine business.

Through deep collaboration Rolls-Royce has helped its supplier to make an overall equipment effectiveness saving of 60%, reduce its inventory of spares and critical parts by £0.5m, reduce machine build costs by 13%, increase headcount by 37 and increase turnover. These are major strides towards achieving the company's ambitious targets of growing from 195 people to over 300 and taking turnover from £23m to over £50m by 2021.

In the classic transactional model of following down risk and cost, the procurement plan creates challenges for SMEs:

- Lack of proven track record: when looking at safety and risk, a proven track record is vital.
- Procurement requirements can become quite onerous on SMEs, which have to focus a large proportion of their resources on the PQQ and tender phase.
- The lack of transparency in the supply chain can look like 'the unknown' and therefore risky.
- General contractors may have service level agreements for large items such as materials or personal protective equipment (PPE). SMEs would find it hard to break it into this market, unless they can bring a new innovation with them.

These challenges create barriers which prevent SMEs fully engaging in the delivery of major projects:

- Supply chains are more complicated than they used to be and they require far more collaboration, agility and flexibility.
- In some cases value is being diluted because terms and conditions are typically flowed down from the prime contractor, and there is more risk from indemnity clauses and insurance requirements.
- Frameworks and call-off arrangements are now the norm.
- The ability to go directly to a client on a large programme has probably gone for good.
- SMEs are spending a huge amount of time in competitive tendering which increases costs.



## TECHNOLOGY

*'Most companies have a corporate strategy for what they understand. Few have a corporate strategy for emerging technologies.'*

Cliff Brown, Head of Rail, KBR

Five key trends in digital technology that are expected to change the way major projects are delivered were highlighted at the event *The changing digital world – how is this going to change the way we deliver major projects?*

- Artificial intelligence
- Blockchain
- The internet of things
- Robotics and drones
- Augmented and virtual reality

These technologies will revolutionise project delivery, and their development has to be a priority for all project managers.

At the heart of them all is data and what to do with the vast amount that is being generated, so that the insights it delivers can be shared and acted on.

Building information modelling (BIM) is fundamental, particularly investing in data to create the UK's 'digital twin' of the country's infrastructure that will allow outcomes and impacts of investment decisions to be tested and tracked, along with how designs can be developed and built.

Use of data systems and analysis have the capability to reduce major project duration and cost by around 20%, by increasing trust across the supply chain and wasting less time and money in checking and verification. Virtual and augmented reality in design, off-site fabrication and local 3D printing could take savings to 30%.

Blockchain technology will underpin the smart supply chain. This shared distributed ledger system moves the industry from traditional paper and email records towards an immutable record of transactions without the possibility of human error or malicious intent.

It is projected there will be 20 to 30 billion objects with internet of things capability by 2020. The ability for this live information to be uploaded securely to a blockchain means that data is always up to date, trusted and reliable.

We are still at the beginning of this journey. Only time will tell how significant an impact these new technologies will have upon major project delivery.

What we do know is that unless our strategies to embrace new technology also include consideration of the impact of change and the people involved they are less likely to succeed.



## SUMMARY

*'Foresight [is] the capacity to think systematically about the future to inform decision-making today.'*

Maree Conway

By analysing these themes which have emerged from our discussions across the year we hope we have helped our members to understand the current and future operating environments of major projects.

Where appropriate we will take those themes forward into our future programme of events, studies and debates to ensure that members of the Major Projects Association are better placed to deal with the uncertainties ahead.

[more](#) > [Major Projects Association seminars](#)

[more](#) > [Major Projects Association reports](#)

For further information contact: Professor Denise Bower, Executive Director, Major Projects Association

t: 01865 818030

[denise.bower@majorprojects.org](mailto:denise.bower@majorprojects.org)

[www.majorprojects.org](http://www.majorprojects.org)