PROJECT

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50 APM at 50:
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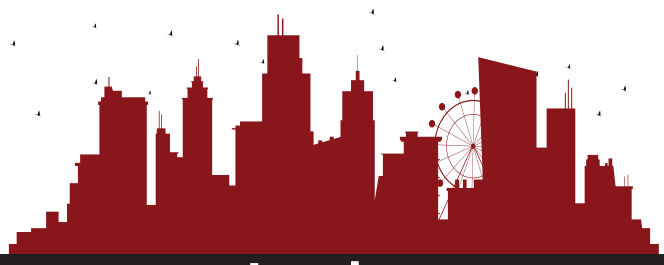

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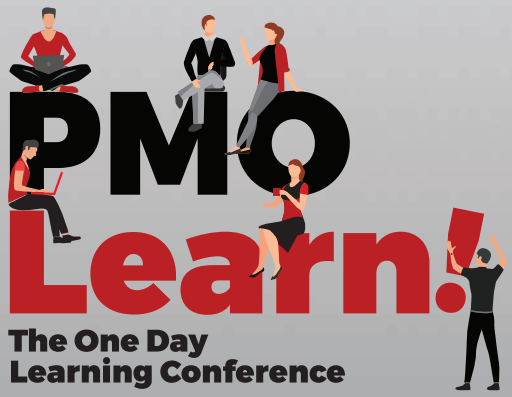

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Vive la difference!

Odd couple Margaret Thatcher and François Mitterrand brought a revolutionary project to life

I'm guessing many of you have travelled through the Channel Tunnel. We take this civil engineering and transportation wonder of the world for granted, but our cover story is the story of every project, everywhere. It's a tale of challenges being overcome and, once the dust has settled, an appraisal of how things have been transformed for the better.

This year APM celebrates its 50th anniversary, so when better to take a behind-the-scenes look at one of the 20th century's greatest projects and its legacy? The Channel Tunnel revolutionised UK trade with mainland Europe – and keeps us physically connected to the EU we've since waved goodbye to. Given the green light by radically different political leaders, it goes to show what determined collaboration can achieve.

Another iconic European project that has left an impressive legacy is the Guggenheim Museum Bilbao, regarded by many as a project that was highly successful in the way it was managed. *Project* speaks to the protagonists to evaluate what went right and how its transformative legacy has become a model for city regeneration.

Undoubtedly the most important factors in the successful outcome of the museum were the partners sharing a vision and also sharing responsibility for making it happen. "I think the diversity [among the partners], which could have been perceived as a liability, became a strength," Guggenheim Bilbao's director Juan Ignacio Vidarte told *Project*, "because everyone understood that success could not be achieved just by one of them pulling the strings."

Understanding what makes a project a success – or a failure – is the life's work of Darren Dalcher, who is our Big Interview this issue. With a career spanning 25 years, the professor of strategic project management calls projects "these strange creatures with the power to surprise, excite and make a difference". These 'strange creatures' also have a meaning beyond the actual delivery, he muses. "What is our purpose, and what are we trying to achieve? It's not just to get to the end of the project on time and on budget, but to think about our responsibility to deliver something with real legacy value."

Every project we feature in this issue has real legacy value. The focus in this anniversary year for APM will be on those historic projects that changed our world for the better, and those with the potential to improve our future.

Emma De Vita is editor of *Project*

Cover: Alamy

50 APM at 50: Better projects for a better future

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THE JAMES WEBB SPACE TELESCOPE IS GO!

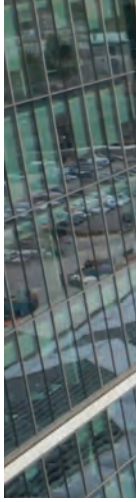
Hubble's replacement has travelled a million miles from earth and is preparing to take groundbreaking images of the cosmos

A joint project between the European Space Agency, NASA and the Canadian Space Agency, the powerful telescope is ready to collect data about the distant universe after its massive kite-shaped sun shield was unfurled and its 18 hexagonal mirror segments moved into place. The first tests of the near-infrared camera on board the telescope were conducted successfully in February, with the hope that clear images of a perfectly focused star will be captured by June.

"On a mission as large and complex as this, almost every moment is critical," Bill Ochs, NASA's project manager for the telescope, told *Project*, although he singled out the testing of the observatory vibration and acoustics in the rocket, and the final folding of the sun shield into its stowed and launch configurations, as particularly nail-biting. The biggest project management challenge so far, he said, has been "balancing all the testing and risk mitigation required for mission success versus budget and schedule."

Explaining his project management approach, Ochs said: "Always listen to your team – don't assume you are smarter than them – and from there you can make informed decisions at critical points. Also, you need to protect your technical team from the pressures coming from above when it comes to maintaining schedule. Risk mitigation, even at the cost of project schedule, is key to success."

NASA



Elizabeth line on track

With the central London section planned to open this summer, it's time to consider what the £18.9bn Crossrail project's legacy will be

The Elizabeth line entered its final phase of testing in February and is within months of opening – as long as its running is "flawless", said Andy Byford, the boss of Transport for London. "Better to take an extra couple of weeks, after how long Londoners have had to wait, than have people loving the surroundings but disappointed by the reliability," he told *The Guardian* in February. "Some days it is 98 per cent on time, but some days have been 80 per cent, and that's not good enough."

Twelve passenger-less trains are already running every hour between Reading and Paddington in the west and Shenfield and Liverpool Street in the east. By the end of the year, the plan is that trains from the east will run as far as Paddington while those from the west will terminate at Abbey Wood. Next year, the whole line will be joined up to make a single railway, completing the project, with each train carrying up to 1,500 passengers.

"We are now in the trial operations phase where our staff are working through 150 practical scenarios, ranging from what happens in the event of an active shooter, to what do you do if you lose all of the escalators, all the way to full mass evacuations," Byford told *The Times*. The Elizabeth line's 10 new central London stations are also being prepared for use. Of Paddington's glass-roofed station, Mark Wild, the chief executive of Crossrail, said it was "epic, a beautiful outcome".

Future-proofing

The stations and trains have been designed with the ability to cater for increasing passenger numbers, and station circulation spaces have been established with forecast passenger numbers plus a percentage uplift, which means they will be appropriate for decades beyond the opening date. The station platform tunnels have also been designed and built for additional train carriages without new excavation, and the trains are also capable of having two more carriages added. The new signalling has been designed so that the service can be upgraded to 30 trains per hour.

But the delayed megaproject has had its share of problems. In August 2020, the outgoing Crossrail board warned of a £1.1bn budget overrun, and the government had to loan £825m to complete the project. Bond Street station was three months behind schedule and has been separated out from the opening of the rest of the line. It will instead be ready in late 2022. The current Crossrail scheme was first conceived in the early 1990s, but it wasn't until 2008 that the Crossrail Act finally gained royal assent, with construction beginning in 2009.

An act of will

In an interview with *Project* in 2019, Crossrail's chairman Tony Meggs put the project's veer off-course down to the "classic project management paradox" of the balance between the huge self-belief necessary to make progress on the one hand, and pragmatism about what can actually be done in the time available on the other.

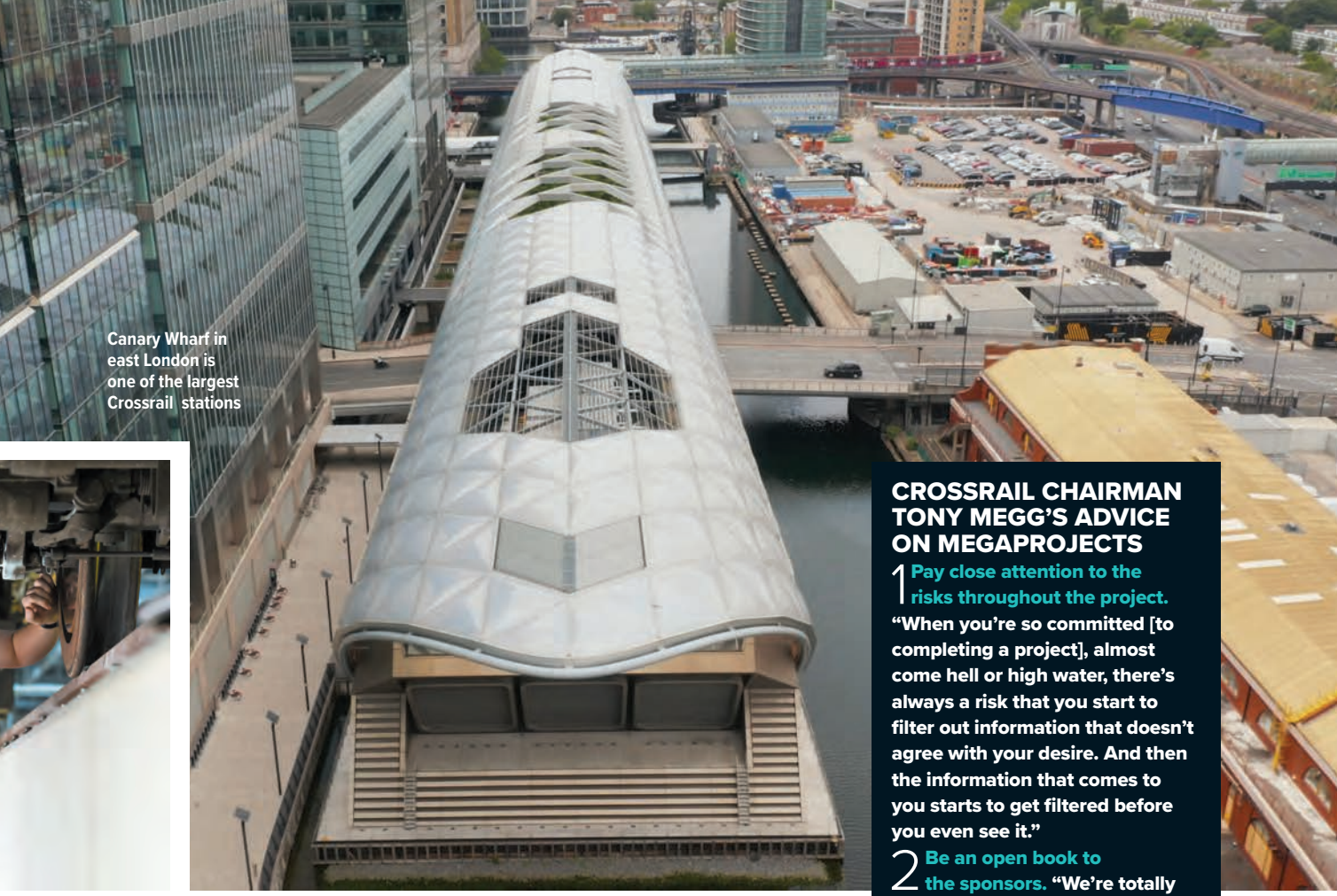
"A big project is an act of will, and you need people with a very strong will who can run it, manage it and move it forward," he said. "Crossrail was very successful in the past in that it had very strong leadership and determination, but those same characteristics caused problems at the end. You have a project team who really do need to be optimistic, hard-charging and focused, but you also need a bunch of more sceptical people doing the independent assurance who say, 'Oh but this is so very difficult, are you sure?'"

Complex systems of systems

Simon Bennett, head of learning legacy for Crossrail, tells *Project* that one of the major challenges faced by the project was underestimating the scale and complexity of the railway systems and integration. The Elizabeth line consists of three sections – the newly built central section, and the existing east and west surface sections. Each of these has a different signalling system and the new trains need to be able to work with them all, including smoothly transitioning from one to another while trains are moving across London at high frequency, he explains.

The trains also need to work with station systems such as platform doors, and the stations themselves are complex systems of systems. "The sheer scale of integrating, assuring and testing all these interconnected systems was

Simon Bennett



Canary Wharf in east London is one of the largest Crossrail stations

"One of the major benefits of the increasing activity in major projects is that there is now much more opportunity for effective knowledge transfer, including through partners like APM"

underestimated. A key project management lesson is to maintain a focus on those final phases of the programme right from the start," Bennett says.

Several clear project management lessons have already being taken up by government and industry following reports by the Department for Transport, the Infrastructure and Projects Authority, the National Audit Office and others, he notes. "One is to schedule projects with completion windows rather than fixed end dates – the challenge to clients and project managers will be to use this new approach effectively. Another is the systems approach. There is increasing focus on treating projects as systems, and systems of systems, and the Crossrail experience will be useful to demonstrate how important that is and how a systems approach can be implemented."

The team benefited from the experience of people and organisations who had been involved in the Channel Tunnel Rail Link and the Jubilee line extension, and as the project moved into delivery more experience became available from the London 2012 Olympics and the Thameslink programme.

"One of the major benefits of the increasing activity in major projects is that there is now much more opportunity for effective knowledge transfer, including through partners like APM," Bennett adds. "Personally, I'm proud of the learning legacy. We've moved knowledge sharing on beyond the already excellent work of the Olympics Learning Legacy and passed the baton to HS2, who are sharing the lessons from an even earlier point in delivery."

FURTHER READING

Read Karen Elson's article, 'How HS2 is helping embed the learning legacy as an industry standard approach', on the APM blog at bit.ly/3vcjJ5E

CROSSRAIL CHAIRMAN TONY MEGG'S ADVICE ON MEGAPROJECTS

1 **Pay close attention to the risks throughout the project.** **"When you're so committed [to completing a project], almost come hell or high water, there's always a risk that you start to filter out information that doesn't agree with your desire. And then the information that comes to you starts to get filtered before you even see it."**

2 **Be an open book to the sponsors.** **"We're totally transparent with our sponsors and give them feedback every single day. That openness is quite different from the past and from the way that most major projects are run."**

3 **All projects should be treated as digital projects.** **"One of the things I really believe is that all projects now are essentially digital, and infrastructure projects should be treated as systems integration projects from the get-go."**

4 **Remember the wider benefits.** **"What I always say to the suppliers and the team is that we're not just doing this for ourselves. We're not just doing it for Crossrail or London. We're doing it for this whole industry for the long term."**

TFL

Inflation as a project risk

High inflation, rising energy costs and a weakening economy will be the story of 2022 – so should you prepare for the extra risk?

After a long and stable period of low inflation, UK inflation hit a 30-year high of 5.5 per cent in January. The Office for National Statistics said inflation was last higher in March 1992.

"The government might have hoped that the fading of the pandemic's clouds would leave a sunlit economy. But, as is their wont, events got in the way. The economy, the people and the government face hard times," wrote the *Financial Times*' chief economics commentator Martin Wolf in February.

The growth in prices of imported energy is a real risk to the UK economy, and employers are set to increase wages at their fastest pace in almost a decade this year. While the risk to household budgets is real, should professionals be concerned about the impact of rising energy prices and inflation on their projects?

A new risk

Inflation is not routinely considered when determining risks for a project.

"Most project managers under the age of 50 will have worked all their careers in a relatively low inflation economy; and where projects deliver in a relatively short timeframe, say six to nine months, increases in input costs between the start and the end are fairly small," says Paul Chapman, director of the Major Project Leadership Academy at Saïd Business School, University of Oxford.

"Unless project professionals have experience of delivering projects with longer durations where even small price changes mount up and have a big effect, or with big budgets where a small change is still a lot of money, then the resurgence in inflation in developed economies that makes a material difference in short periods of time will be something new."

Emma Willson, director of the Major Project Delivery Hub at the National Audit Office (NAO), tells *Project* that: "We've not often seen inflation as a driver of programme cost pressures... With over 20 years of fairly low and stable inflation, inflation risk has inevitably not been a focus within programmes."

"With over 20 years of fairly low and stable inflation, inflation risk has inevitably not been a focus within programmes"


Paul Chapman


Emma Willson

However, she says project professionals should now be considering inflation as a risk: "Inflation risk creates uncertainty, so aspects of the programme are harder to manage (and contract), and can make it harder to estimate future funding requirements. And with things seemingly more up in the air now, the real question for major projects is whether this risk/ uncertainty will continue into the long term or is just a short-term blip. If, for example, HS2 development covers 20 years of low and stable inflation, and this year there is a spike but then a return to trend, inflation won't be the biggest risk they've had to manage."

Managing inflation risk

Willson recommends inflation be considered in a project's business case up front as a key external risk and then revisited. However, government projects (the NAO's focus) generally exclude economy-wide rather than sector-specific inflation from key appraisal metrics.

"Our lessons learned report in 2020 reinforced the need for senior decision-makers to ensure that they understand the underlying bases of estimates, and where areas of risk and

Annual CPIH inflation rate highest since May 1992

CPIH, OOH component and CPI 12-month inflation rates for the last 10 years, UK, January 2012 to January 2022

Source: Office for National Statistics

uncertainty lie, which will include inflation. An estimate produced from early high-level information is unlikely to be suitable for setting a programme budget and schedule and should be revisited," she adds.

The NAO has often seen rising costs across programmes – although not driven by inflation – including the Home Office's emergency services network, which is expected to cost £3.1bn more than forecast. In its 2019 report on Crossrail, the NAO reported a £2.8bn increase in funding to cover cost increases and remaining risks. "The compressed schedule, contractual model, loss of downward cost pressure and absence of a realistic plan contributed to underachievement in terms of cost and progress," says Willson.

But how can this learning be applied to inflation risk? "Many of these cost risks can be managed in a similar way. First, there is a lesson around understanding the uncertainties and drivers of costs. What types of things are inflating? And for what reasons? For example, could this be construction design costs given a constrained resource pool or supply chain issues? Second, be realistic and open about these risks – it is widely accepted that a bias towards optimism can lead officials to underestimate risks. Finally, lessons should be learnt around managing the risk to reduce uncertainties.

"In terms of inflation, what is within a programme team's control? Could investors make the construction sector more efficient, or shortages within supply chains be addressed? In many ways, in applying lessons from managing other cost risks, programme managers could be well placed to manage increasing inflation cost risks."

Inflation shopping

Chapman recently published the research paper 'Inflation Shopping: How Transport Infrastructure Project Cost Evaluation is Affected by Choice of Inflation Index' in the *Engineering Project Organization Journal*, which looked at how the choice of inflation index on the funding and financing of transport infrastructure projects affects the outcome of ex-post cost evaluation and the allocation of inflation risk between parties.

"When planning a project, the various inputs required for delivering its intended outcome should be costed in advance to provide the project with a budget. Over the time it takes for the project to progress through its life cycle, the cost of these inputs is likely to change, typically as a result of inflation, putting pressure on the project's budget. A typical way of costing a project to account for inflation is to take the nominal cost, the cash spent in a given time period, and convert this to a real cost, stated in a base year, by adjusting using an inflation index," Chapman tells *Project*.

"In applying lessons from managing other cost risks, programme managers could be well placed to manage increasing inflation cost risks"

"What the research established was that inflation is not uniform and different commodities experience different price changes. This means that project professionals need to choose an inflation index based on a basket of goods and services that most closely reflects their project's inputs. This choice of which inflation index to use makes a material difference to the apparent success or failure of being able to deliver a project against its budget."

Deliver to a realistic budget

Chapman says his research highlights the need for project professionals to include in their risk management activity how inflation presents a risk to successfully delivering the project against its agreed budget, and also wider issues like the resilience of their supply chain partners in a higher inflation economy.

"To understand the particular inflationary risk they face, project professionals should seek to establish the basis for accommodating changes in the cost of inputs to the project, ie payments to suppliers; whether and how the project's budget can change over time to reflect changes in input costs; and how their project's funding changes over time and if this aligns with changes to the project budget. This understanding can then guide decisions on how best to manage immediate risks... and on which party is best placed to hold which risks."

Levelling up

In February, the UK government published a white paper setting out the blueprint for the next stages in its programme to 'level up' the country

Levelling up secretary Michael Gove unveiled the government's *Levelling Up White Paper*, a plan to "transform the UK"

A strong vision, a clear delivery roadmap and a project-centric approach are needed to deliver the changes required to 'level up' the UK, according to APM. Speaking in response to the government's latest white paper, APM's head of public affairs Andrew Baldwin said: "While the headlines will focus on the 12 levelling up missions detailed in this paper, the government has also referred to this initiative as a decade-long project. Whether or not new funding is available, the people charged with delivering these missions must use a project-centric approach, ensuring there is a strong vision for the benefits they intend to deliver and a clear roadmap for realisation of those benefits."

Levelling up secretary Michael Gove told the House of Commons in early February that he had adequate funds to meet 12, decade-long, rolling policy 'missions' to narrow regional inequalities across the country, despite no new government money being announced.

A 12-pronged mission

Reaching back to Renaissance Tuscany as a model to emulate, the government is striving to follow a "contemporary Medici model" for a New Industrial Revolution. The white paper promises to create nine new county mayors in England by 2030 to drive efforts for boosting economic growth, increase state-funded research and development outside the south-east, improve digital connectivity, reduce serious and violent crime, and boost life expectancy. The 12 missions also include housing, wellbeing and 'pride in place'.

The 300-page paper defines the government's levelling up mission: "While talent is spread equally across our country, opportunity is not. Levelling up is a mission to challenge, and change, that unfairness. Levelling up means giving everyone the opportunity to flourish. It means people everywhere living longer and more fulfilling lives, and benefitting from sustained rises in living standards and well-being."

A project-centric approach

The government means to eradicate geographical inequality by "improving economic dynamism and innovation to drive growth across the whole country, unleashing the power of the private sector to unlock jobs and opportunity for all". Productivity will be improved, economic growth boosted, innovation encouraged, good jobs created, education attainment enhanced, and the social and cultural fabric of those parts of the UK that have stalled will be renovated, the paper says.

Commenting on the plans, Baldwin said: "As the chartered body for the project profession, APM believes that projects are the means for delivering positive, long-term, sustainable change. It is imperative that a long-term initiative such as this 'decade-long project' establishes clear goals and specific plans to achieve them.

"We need to see more detail on the proposed shift in power from Whitehall to local leaders, but there is an opportunity to re-evaluate how communities plan and deliver levelling up activity. More leaders are acknowledging the value of applying project-led approaches more broadly. Understanding of what constitutes a project is also changing.

"Work – whether at local government level or in a particular industry or sector – is being seen in terms of projects, rather than 'tasks', with outputs, outcomes or benefits being delivered through planned change, balancing the constraints of time, cost and quality."

● **Download the *Levelling Up the United Kingdom* white paper at bit.ly/3teBfUD**

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A TRIBUTE TO DR MARTIN BARNES CBE

A founding member of APM, and an ambitious pioneer of the profession, *Project* shares APM's appreciation of his life and work

The profession pays tribute to Dr Martin Barnes CBE, a founding member of APM, who sadly passed away in February. Martin was APM's longest-serving president (2003–2012), chair from 1986 to 1991, and was named an Honorary Fellow in 1995.

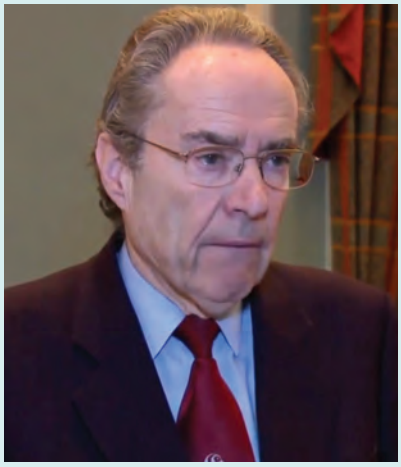
"Martin had a number of senior APM roles and accolades, including as a winner of our most prestigious Sir Monty Finniston Award," said Professor Adam Boddison, APM's chief executive. "However, it is most notable to me that he was above all a friend to APM. Although I did not have the opportunity to meet him, I have been struck by the warmth in which he was clearly held.

"It is sad that, in APM's 50th year, we are seeing some of APM's founders pass. However, we are so grateful to Martin and the other founder members for setting us on such a good path. It is a testament to them that we have such a bright future."

The Barnes triangle

Martin had a civil engineering degree from the University of London and a PhD from the University of Manchester. His doctorate was awarded in 1971 for research into improved methods of financial control for engineering projects. His contribution to the profession was immense, not least for his invention of the classic time/cost/quality triangle – known as the 'Barnes triangle' or 'iron triangle'.

Speaking to *Project* in 2012, Martin said that he "really didn't know just how important it would become". He said that he created it because, when he was first running projects, "they weren't even referred to as projects. You had cost engineers to look after the money, planning engineers to look after the time, and nobody was really looking after the value or quality of what was actually being produced. Nobody was in charge of making sure that the end product was the useful or valuable thing that the client wanted."



"Martin was not just on this journey, he was in the front row every step of the way – leading, encouraging, cajoling, entertaining"

An international career

Martin set up his own project management business in 1971, which merged with what is now PwC in 1985. Latterly a consultant, Martin was also executive director of the Major Projects Association for nine years until 2006. He advised on significant projects in many countries for the World Bank, other funding agencies, governments, promoters and major contractors, and across many sectors including engineering, defence, aerospace, IT, finance, business change and the media.

Martin's BBC television programme on project management has been used as a training aid in many countries. He also led the team that produced the New Engineering Contract (NEC), a system of contracts designed to facilitate and stimulate the use of modern project management across all the contributors on a project. The NEC is now being used in over 20 countries and has been adopted by the UK government for all publicly funded construction projects.

Martin had been active in the International Project Management Association (IPMA) since 1972, and was a Fellow, former board member and chairman of its Council of Representatives. He was a recipient of the Chartered Management Institute's Special Award and of the Institution of Civil Engineers' Watson Medal in the UK. He was also a Fellow of the Royal Academy of Engineering, the UK's highest engineering recognition, and was a Churchill Fellow. In 2009 he was awarded a CBE for services to civil engineering.

A committed pioneer

Asked by *Project* what his proudest career moment was, Martin replied: "Seeing the success and wide adoption of the NEC for one. Making and being in the first television programme about project management with the BBC was great fun. But I am proud of the project management courses which I developed and ran at the Outward Bound School in the Lake District for many years."

Tom Taylor, a fellow past APM president, said: "One of the reasons Martin was the longest-serving president of APM was because he wanted to be in on the whole project management journey. To be present from unknown and unheard of right through to chartered status – in a single lifetime or a single career. And he made it – all the way – in his lifetime and his career. Martin was not just on this journey, he was in the front row every step of the way – leading, encouraging, cajoling, entertaining."

Martin had always been at the forefront of the development of project management and worked relentlessly to ensure that it became a fully recognised profession. Always a pioneer, Martin changed the landscape of project management forever.

HOW YOU CAN LEARN FROM LAYING A PROJECT TO REST

Christian Busch has investigated the art and science of serendipity, and here he explains how it pays to connect the dots

Dr Christian Busch is the director of the CGA Global Economy Programme at New York University. He teaches at the London School of Economics. His new book *Connect the Dots: The Art and Science of Creating Good Luck*, is published by Penguin

Sometimes, people have luck without any effort. That's blind, 'passive' luck: success or failure brought about simply by chance rather than through our own actions. Like being born into a loving family. That's where a lot of societal inequality comes from. Some were born luckier, and others experienced 'dumb luck' along the way. Often the former makes the latter more likely. But what's fascinating is that there's another kind of luck: 'smart luck', or serendipity.

Smart luck is the luck that we create ourselves. Our research shows that successful people have often (either consciously or unconsciously) done the necessary groundwork to create the conditions that have brought them smart luck; they worked hard to be luckier. They spot opportunities in the unexpected, but they also often create them. What separates this active perspective on serendipity from blind luck are the steps one takes to influence, facilitate and leverage coincidence.

If you're running a team, you can help people get luckier within your project in two ways. The first is by spotting serendipity triggers. We can ask people in routine meetings if they came across something that surprised them last week. If the answer is 'yes', does that change their assumption? Would it be worth digging deeper?

The point here is that, once we incentivise people to look out for the unexpected, we start seeing opportunities where others don't. If you're working for a white goods manufacturer and you learn that farmers in China use your company's washing machine to wash their potatoes and it's causing problems with some machines, do you just tell them to not wash their potatoes in it, or do you connect it to the fact that many other farmers in China might have the same problem, and build in a dirt filter to make it a potato washing machine? Coming up with this new idea might lead to your next promotion.

The second way is by facilitating an environment of psychological safety that allows for creativity and cross-pollination.

Take the example of post-mortems, or 'project funerals'. The idea is that, when a project doesn't work out, the project manager who is responsible for it presents it in front of project managers from other divisions and reflects on why it didn't work. It's not about celebrating failure – it's about celebrating the learning from what didn't work. Instead of hiding away things that didn't work (and thus not really learning from them or each other), 'laying a project to rest' usually builds trust and often leads to people connecting the dots.

We can ask people in meetings if they came across something that surprised them last week. Does that change their assumption? Would it be worth digging deeper?

Successful people, like Bill Gates, have often done the necessary groundwork to create the conditions that have brought them smart luck

In one major materials and nutrition company, for example, a coating for picture frame glass was unviable for the market. When the team 'laid it to rest', someone in the audience realised that it appeared to absorb a lot of energy. He then asked: could it be useful for solar? That's how 'serendipitously' a part of the company's solar division emerged. Nobody knew in advance that this lucky outcome would happen – but by creating a practice that allowed people to connect the dots for each other, it became more likely that serendipity would happen.

We're less often in the office, so watercooler moments happen less frequently, and we aren't able to fully recreate online the human energy and

Alamy

sense of belonging. But there are things we can do. I always loved the idea that Zoom/Webex/Google Meet etc are essentially our own private planes – we can be within someone's living room at the click of a mouse, without having to travel in real life. That potentially allows for meeting more people, and it allows us to experience them in their own home, which can be a bonding experience.

And technology can easily foster serendipitous networking from home; for example, by planting serendipity seeds. You can write honest, speculative messages to people you admire (eg via LinkedIn) to share how they have already shaped your trajectory, and open up a conversation about how they can be a part of your future journey. Or follow professionals you respect on Twitter and make a point of providing thoughtful, relevant commentary on what they have to say. The goal when planting seeds like these is to increase serendipity by engaging in unexpected conversations.

DON'T BE SCARED OF CHANGE

Louise Hardy shares her experience of navigating extreme uncertainty, terrible lows and dreamt-for highs in the world of projects

In late 2021, I was named Business Woman of the Year at both the National Business Women's Awards and the FL National Leadership Summit. The question I have been asked most is: 'So how did you make it to this moment?' My answer is simple: embrace change. Uncertainty and change can bring opportunity. My career and life have been shaped by big paradigm shifts, some within my control and many imposed externally. Resilience and agility have been essential companions.

In the late 1980s, I became a chartered civil engineer. Soon, I found my passion working on major engineering projects, but as each project came to its impressive conclusion, my search for the next major project began – forcing the transition to a new location, organisation, team and role. From the Limehouse Link tunnel, spearheading innovative observational techniques for cut and cover tunnelling, to the project management of Europe's biggest bridge slide on the High Speed 1 railway, the new projects and challenges were abundant. I instigated my most major career shift, moving to Romania to lead the construction of the western half of the 145km Autostrada Transylvania motorway. For the first time, I led an all-female team. We were a potent, productive project force.

As project managers, we are problem-solvers; this trait certainly helped me through a difficult time

In 2004, my partner and I were caught in the devastating Tsunami in the Indian Ocean, and he was badly injured. I returned to the UK, but fate had some magic in store. I joined Laing O'Rourke just as it commenced its bid with CH2M Hill and Mace to become the delivery partner for the programme management of the engineering and construction of the London 2012 Olympic Games.

I ultimately achieved my dream role as infrastructure director for £2bn worth of critical integrated infrastructure on the Olympic Park and the beautiful park landscaping. Seeing, from my office window, the majestic stadia rise a little each day from a barren landscape was exceptionally rewarding. I handed over the Olympic Park in 2012, and two weeks later I gave birth to twin girls. Life was very different and joyous. I found that my voluntary work as a STEM ambassador, plus undertaking committee work for the Institution of Civil Engineers, provided industry contact and continuity through my maternity leave. But while our daughters' birth was planned, the sad, sudden and untimely death of their father was not.

As project managers, we are problem-solvers; this trait certainly helped me through this difficult time. I reconfigured my professional life to meet the needs of our young daughters and began to build a non-executive portfolio. Many years on, I now sit on several FTSE engineering and construction company main boards, combined with bringing up my twins and continuing my voluntary work. At the FL National Leadership Summit, I was also named 2021's Mentor of the Year, of which I am most proud. It is inspiring to help the next generation of engineers and to see the future Business Women of the Year forging their paths.

Louise Hardy is an Honorary Fellow of APM

Perspectives

WHAT ARE YOU DOING ABOUT SOCIAL MOBILITY?

Sarah Atkinson on why it pays to have a strategy that counters class bias

Sarah Atkinson is CEO of the Social Mobility Foundation

It has been two years since I was appointed CEO of the Social Mobility Foundation – a charity that supports young people from low-income backgrounds into higher education and top jobs. During this time, even without accounting for the external events that have disproportionately affected those from disadvantaged backgrounds, I have been struck by the resilience and drive of the young people we support in the face of persistent and often invisible barriers.

Something we continuously come up against in our work is a focus from employers on 'polish' over potential. This creates a cycle where candidates who fit the mould – often from a small number of elite universities – inadvertently gain preferential treatment in the recruitment process, while other talented individuals are overlooked. Once those lower socioeconomic individuals make it through the doors, the situation does not necessarily get easier. Our recent campaigning efforts on the concept of 'class polish' highlighted that working-class people are held back from progressing at the same rate as their more privileged counterparts and can face a class pay gap of up to £6,000 per year.

Many would agree this is unacceptable, yet unfortunately social mobility is often the forgotten dimension of companies' diversity efforts. There is a multitude of reasons why in 2022 leaders should be placing this high on their agenda. Not only is it morally unfair for anyone to be held back from progressing professionally due to factors such as accent and background, it also makes business sense to prioritise social mobility. Opening the door to young people from different backgrounds allows companies to access the best talent in the country.

The benefits of increased social mobility are especially true in the world of project management. If today's leaders cultivate diverse teams with different backgrounds, this in turn will avoid 'groupthink', ensuring different points of view are heard and projects are not left to stagnate.

We are starting to see the tides shift towards greater progress among employers. It is especially encouraging that APM's latest *Salary and Market Trends Survey* included two social mobility metrics – free school meals and first in family to go to university – for the first time. It is this kind of socioeconomic data collection at an organisation-wide level that will be vital to understand the make-up of the workforce before developing a social mobility strategy. The data should span both new and existing employees and include pay. Next, leaders should work to identify and remove the barriers that people from lower socioeconomic backgrounds are facing on entering and progressing within the workplace.

The APM survey data demonstrated a demand for public action and for recruitment policies and processes to change in order to drive diversity and inclusion. It is true that in many recruitment systems, and in wider society, class bias remains deep-rooted. Research carried out by Accent Britain in 2020 showed that job candidates with a 'received pronunciation' accent were seen as more informed and more suitable for professional employment, even when speakers with other accents gave identical answers.

It is especially encouraging that APM's latest *Salary and Market Trends Survey* included two social mobility metrics – free school meals and first in family to go to university

To combat this at the assessment stage, we have seen success from employers adopting 'blind' recruitment, which involves the removal of personal indicators to protect against bias. It is also valuable to explore the process of flagging candidates from lower socioeconomic backgrounds in the recruitment process and taking a second look to ensure context was not missed.

To zoom out even further, leaders should start to ask themselves: does my organisation have robust processes in place to welcome candidates from all backgrounds? Do we conduct outreach work with young people from low-income backgrounds at school and a wide variety of universities? Are there alternative routes, such as apprenticeships or school-leaver programmes, that are open and accessible to all? Answering some of these questions will allow leaders to pinpoint where to focus efforts and begin to build a social mobility strategy.

Change will not happen overnight. However, at the Social Mobility Foundation, our annual Social Mobility Employer Index offers tailored feedback and advice to organisations at any and every stage of their social mobility journey. Together, we can put in the hard work to support the next generation of young people and ensure our businesses are open and accessible to all.

LEADERS AS A CATALYST FOR THE PROJECT PROFESSION

APM's chief executive **Professor Adam Boddison** on how leaders can give project professionals the support they need

Thinking about the most significant problems facing contemporary society, one of the common factors linking them is that projects are required to realise the solutions. The volume and complexity of the issues facing society are such that the world must be equipped with enough qualified project professionals to make the necessary impact.

Professional bodies like APM clearly have a vital role to play in the supply of qualified project professionals. This is why APM's refreshed strategy, being launched in 2022 (the year of its 50th anniversary), seeks to position chartered status as the accepted global standard.

However, it is leaders who are arguably the true catalyst for the project profession. In some cases, leaders are themselves project professionals, or they at least have a good understanding of the project profession, which means they recognise the importance of their role as an architect for facilitating project success.

However, too many leaders are unfamiliar with the project profession, and as a result they fail to create an environment in which projects have the best chance of success. For leaders who want to support project professionals and maximise their impact, here are three key areas they should seriously consider:

1 Give project professionals the same status as marketing, finance and HR professionals

For those working in marketing, finance and HR, their status as professionals is broadly accepted and appreciated by leaders. Their professional expertise is well understood and valued by leaders, and generally these areas will constitute departments within an organisation. Unfortunately, the same cannot always be said for project professionals, who are too often attached to another area of a business rather than being recognised as a professional department in their own right.

This issue is exacerbated by MBA programmes, which seem to be broadly dominated by curricula centred on finance, marketing and HR as the three core functions. The argument sometimes made for this is that every leader is likely to have to deal with finance, marketing and HR in their role. While this is true, the reality is that every leader is likely to have to deal with projects too.

2 Ensure that project professionals can have a strategic influence at executive board level, eg by having a chief projects officer or chief transformation officer

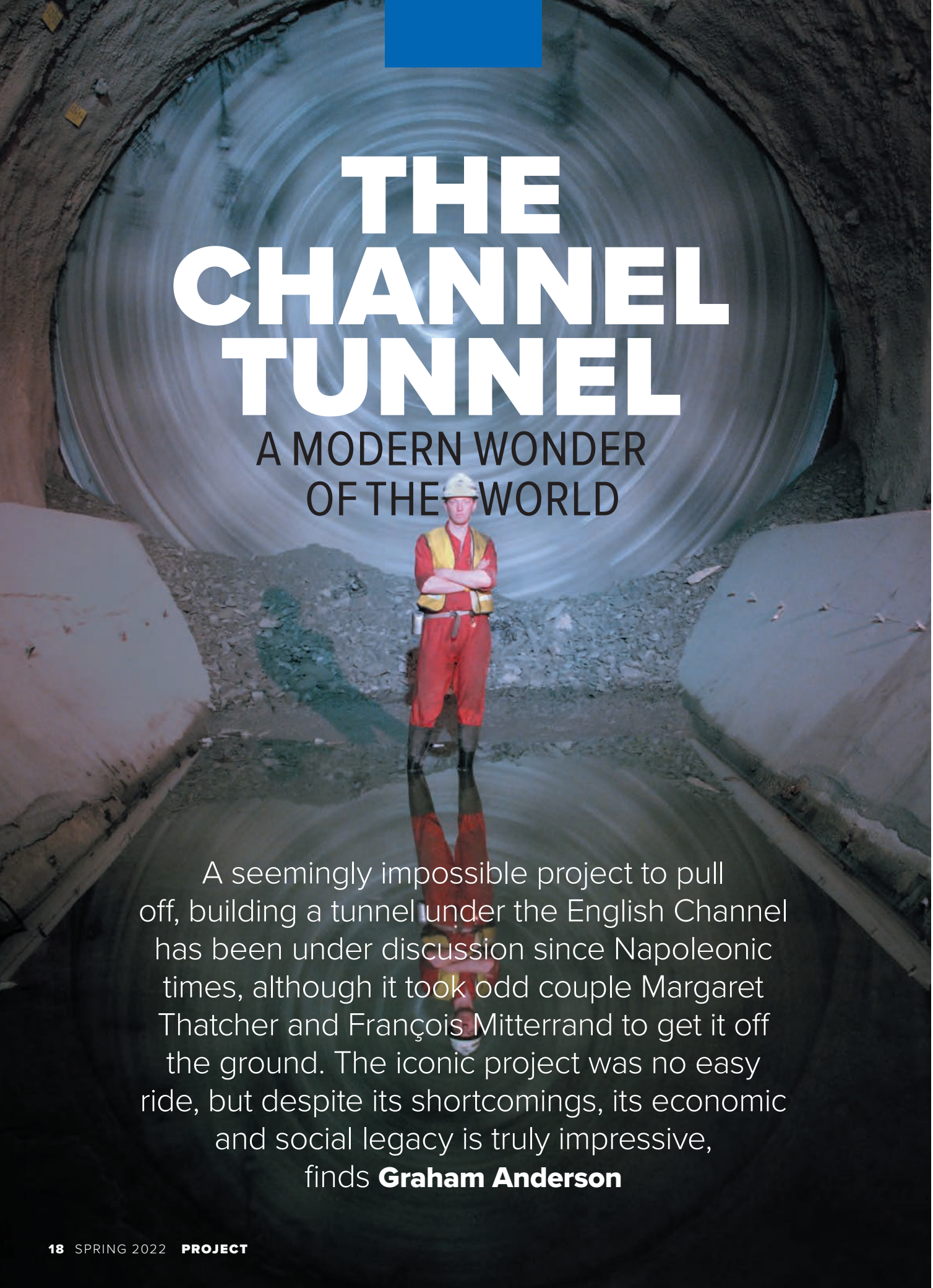
One of the challenges sometimes facing project professionals is having to retrospectively unpick decisions made in the boardroom, or to work around them, to ensure that projects are delivered successfully. This issue can easily arise if project professionals are not able to influence strategic decision-making because their role is incorrectly seen by leaders as being purely operational.

This is not a phenomenon that is unique to the project profession. Twenty-five years ago, marketing professionals faced a similar issue. Decisions were made in the boardroom, and the marketers were then informed what actions they needed to take. Fast-forward to the present day, and marketing is now at the heart of strategic decision-making. Chief marketing officers are often in the boardroom as key strategic leaders, and this should be replicated with chief project officers. At the very least, any project professionals in the organisation should have a mechanism for contributing to strategic decision-making.

3 Be alert to those who may be 'accidental project professionals'

In some organisations, leaders may not realise they have any project professionals, because it is not immediately evident from their job titles. It is essential for leaders to be on the look-out for those who become part of the project profession without realising it, since it is then possible to support their development with targeted training and by becoming part of a relevant professional community of peers. Similarly, this will support project professionals to secure recognition for their achievements, eg through chartered status.

Whether you are a project professional or a leader (or both), it is in your interests for the projects in your organisation to be delivered successfully. It is time to ensure that all leaders in your organisation understand their role as a catalyst for the project profession.



THE CHANNEL TUNNEL

A MODERN WONDER OF THE WORLD

A seemingly impossible project to pull off, building a tunnel under the English Channel has been under discussion since Napoleonic times, although it took odd couple Margaret Thatcher and François Mitterrand to get it off the ground. The iconic project was no easy ride, but despite its shortcomings, its economic and social legacy is truly impressive, finds **Graham Anderson**

On 6 May 1994, a Eurostar train carried the Queen through the Channel Tunnel to Calais, where she met French president François Mitterrand to jointly declare the tunnel open. That short journey was the culmination of a multibillion-pound construction contract that had taken over a decade to complete, was a year late, was well over budget, had cost the lives of 10 workers and had given rise to some of the most bitter construction disputes ever seen.

The project also revolutionised cross-Channel travel and trade, spurred a fundamental rethink of construction site safety, boosted the use of private finance for public infrastructure and ultimately led to a re-evaluation of how major projects should be procured and managed. But above all, it was and remains a civil engineering and transportation wonder of the world.

A project that refused to die

Channel tunnels have loomed large in British and French imaginations since the 19th century, but the story of today's project really began in 1975 with the collapse of another scheme. Two years before, agreement to build a cross-Channel tunnel had been reached between British prime minister Edward Heath and French president Georges Pompidou. But within weeks Pompidou had died, Heath had lost the 1974 general election and new prime minister Harold Wilson, desperate to cut spending, brought the project to a halt.

That, it seemed, was that. But the idea refused to die. UK business was acutely aware that trade with Britain's European neighbours was growing fast. The British and French construction industries remained keen, as did the two countries' railway networks. Then, in 1979, Margaret Thatcher won the general election, followed in 1981 by victory in France for the socialist François Mitterrand. Both supported the idea of a Channel Tunnel.

Alamy

Above: Now that looks like a 'boring' party. Below: Political opposites, Thatcher and Mitterand were united on the Channel Tunnel

For Mitterrand, it would create jobs in an area suffering high unemployment. Thatcher saw its potential to give a huge boost to cross-Channel trade and as an experiment in the use of private finance for public projects. So, in April 1985, the two governments invited bids from private firms to design, own and operate a fixed link. By the October deadline, four consortia had put their hats into the ring.

The winner, to no one's surprise, was the UK's Channel Tunnel Group (CTG) and its French partner France-Manche. CTG's members were some of the biggest and most experienced UK contractors – Tarmac, Wimpey, Costain, Balfour Beatty and Taylor Woodrow – supported by the Midland and National Westminster banks. France-Manche was of a similar standing, comprising five top French contractors (Bouygues, Dumez, SAE, SGE, Spie Batignolles) and three banks (Crédit Lyonnais, BNP Paribas and Banque Indosuez). Their bid – two railway tunnels and a supporting service tunnel – was regarded as the technically safest option and built on the expertise gained by the 1975 project.

Smoothing the way

Attention turned to the necessary legal agreements. The Anglo-French Treaty of Canterbury was signed in 1986, and the French and British parliaments approved the project, after some vocal opposition on the UK side during the first half of 1987. With the legal permissions in place, the way was clear to conclude the necessary private bank loans and equity. Despite the sceptics, by November that year, a £5bn bank loan had been agreed along with the final £750 million of equity. Construction proper could soon start.

However, some time earlier, a decision had been taken that was to haunt the project in the coming years. At the insistence of the governments

"It was wrong for the governments to split the original promoters into a client and a contractor. That was not healthy"

and banks, CTG/France-Manche was split into a client, Eurotunnel, and a contractor Transmanche Link (TML). This was the root cause of many bitter disputes.

Sir Neville Simms, current chairman of the Thames Tideway Tunnel, had been heavily involved in the Channel Tunnel since the early 1980s and served as joint chairman of TML for the last three years of the construction contract. A former group CEO of Tarmac, he was credited with defusing the tension between TML and Eurotunnel and guiding the Channel Tunnel to completion.

He tells *Project*: "It was not itself a PFI project, but it was a project that was privately financed, and it was wrong for the governments to split the original promoters into a client and a contractor. That was not healthy. Subsequent private finance projects had the client and contractors around the same table. But in the case of the Channel Tunnel, the government forced the split. To my mind, the Channel Tunnel was an example of how not to do a privately funded project. Keeping Eurotunnel and TML separate did not work well. Nonetheless, the project did change the political centre of gravity, and after that the whole issue of private finance moved centre stage and was taken much more seriously."

Let the tunnelling begin!

In some ways, the Channel Tunnel was a technically straightforward tunnelling project. It was the sheer scale that was daunting. It is over 50km long, making it the longest undersea tunnel in the world. From the main UK construction site at Shakespeare Cliff, there were three tunnel drives – two train running tunnels and a central service tunnel – back towards the terminal site at Cheriton, near Folkestone, and three more out to sea.

The same structure was followed at the French construction site at Sangatte, making a grand total of 12 tunnel drives with a total distance of over 160km. In addition, the terminals were massive construction projects themselves. The French terminal at Coquelles covered an area larger than Heathrow airport at the time.

Almost as soon as construction proper was underway in 1988, the UK tunnellers hit a major problem on the seaward service tunnel drive. The French had been expecting bad ground and their tunnel boring machines (TBMs) had been designed accordingly. But the UK service tunnel boring machine was designed to operate in dry, self-supporting chalk. Instead, the chalk turned out to be micro-fissured, allowing large amounts of water through and causing the chalk to cave in where there was no lining already in place.

The only solution was to modify the machine in situ, underground. This meant delay, and concerns grew among the contractors about whether the banks would continue to allow Eurotunnel to draw down the necessary funds. This initial problem was just one of a series of

"The contractors in TML would have desperately liked to have found a chief executive from within our own companies, but we could not"

Alamy

difficulties in the early days. It was clear that something had to change.

Finding the right expertise

For Simms, the key was finding the right chief executive for TML; someone who had experience of major projects of this size and could solve the delay and productivity issues, leaving Simms and his colleagues free to focus on money and negotiating with Eurotunnel, led by this time by the combative figure of the late Sir Alastair Morton. After a worldwide search, TML appointed Jack Lemley, a 54-year-old American with extensive international experience of tunnelling and major project management for top US construction firms.

In a parallel move, client Eurotunnel brought in expertise from the giant US contractor Bechtel, notably John Neerhout, the firm's executive vice-president. He took over as Eurotunnel's project chief executive.

Simms explains: "At TML our issues were simple – productivity and whether the client had the money to pay us. But we realised that we needed senior people who had direct experience of projects of this size, so we started a worldwide search. It was exactly the right thing to do. Hiring Jack Lemley was a fantastic decision. Why did the project need the guys from the US? Basically, we did not have the experience on projects of this size. Take me; I had worked my way up, worked on the biggest road job in this country, but it was piddling compared with the Channel Tunnel. The British and French contractors in TML would have desperately liked to have found a chief executive to lead the project from within our own companies, but we could not."

Lemley took over TML in 1989. Under his leadership, tunnelling rates picked up and then started breaking records.

A tunnelling revolution

For other projects, tunnelling rates of 25m a day were regarded as successful. But on the Channel Tunnel, rates of 50m a day were common. On 24 February 1991, the British machine digging the south marine running tunnel completed a massive 75.5m. "We have revolutionised tunnelling," said one of

10 FACTS ABOUT THE CHANNEL TUNNEL

1 In 1985 prices, the Channel Tunnel cost £4.65 billion, 80 per cent over the original estimate.

2 It is over 50km in length, making it the longest undersea tunnel in the world.

3 When contractor TML was formed in 1986, it had six staff. At the peak of construction, it had 15,000. Daily expenditure was over £3m.

4 The project used 11 tunnel boring machines. The ones that bored the main running tunnels weighed over 2,700 tonnes each.

5 Over 800,000 tunnel linings were installed, weighing up to nine tonnes each.

6 Tunnel spoil created 74 acres of new land at the foot of Shakespeare Cliff in Kent.

7 Orders worth more than £2.2bn for equipment and services were placed – £1.2m on the UK side and £1bn in France.

8 The undersea crossover caverns are 156m long, 18.1m wide and 10.5m high.

9 The tunnel contained over 550km of pipework, 1,300km of power cables and 20,000 light fittings.

10 A quarter of all trade between the UK and the EU passes through the Channel Tunnel.

the engineers. On 1 December 1990, Englishman Graham Fagg and Frenchman Phillippe Cozette broke through the service tunnel with the world's media watching. In fact, the real breakthrough had taken place some time before and was then restaged for the media, but no one cared about that. Fagg and Cozette became international media stars. What is more, the breakthrough was a great technical achievement – the two tunnel drives met each other with an offset of only 36.2cm.

For the public, the job was almost finished. For Eurotunnel and the contractors, it was anything but. The biggest obstacles – and rows – were yet to come. Neerhout said at the time: "It surprises me that people view this as a tunnelling job. It is not. It is a transportation project." The tunnels were merely the vessels to carry a complex, state-of-the-art railway system that had to be installed, tested, commissioned and operated, but a year before the breakthrough, few of the mechanical and electrical contracts had been let due to the lack of detail in the original contract between TML and Eurotunnel.

Neerhout summed up the situation perfectly. "Just imagine this. You have asked a builder to build you a kitchen. You have agreed a price. But no one has worked out what exactly is going to be built. So the builder thinks the worktop will be Formica. And you think you are getting marble." The result was a massive contractual dispute. TML submitted a fixed equipment claim of over £1.4bn against an original estimate of £620m. Eurotunnel refused to even consider it. TML was losing money and some contractor voices were threatening to stop work, a situation that was rapidly worsening due to delays in rolling stock deliveries.

A deal was eventually reached, with Simms and Morton pulling the project back from the brink of collapse. But it was touch and go. In April 1994, just weeks before the Queen met President Mitterrand in Calais, TML accepted a cash offer reportedly worth £1.14bn. The worst was over.

RESOURCES

- ***Resolving agency issues in client-contractor relationships*, APM Research, bit.ly/3sacQ30**
- ***Building Sponsors*, APM guide to project sponsorship, bit.ly/3h8cWli**
- **Bent Flyvbjerg on optimism bias (APM Podcast), bit.ly/3LRW3JL**

The iconic moment when Englishman Graham Fagg and Frenchman Phillippe Cozette broke through the service tunnel in front of the media

Alamy

"Despite all the talk of its legacy, I can't get past the fact that the Channel Tunnel is simply an absolutely fantastic piece of engineering"

A legacy to be proud of

Today, the Channel Tunnel's social and economic impact is without question. Before the pandemic, every year it was carrying over 20 million passengers, 2.6 million cars and 1.6 million trucks. It accounts for over a quarter of all trade between the UK and the EU and well over a third of all UK exports to France, Spain and Germany.

And despite the rows, the pride of those who worked on the project remains palpable. Simon Lawrence is head of project futures at the UK's Infrastructure and Projects Authority. He started work as a site engineer on the Channel Tunnel in 1990 soon after graduating in mining engineering from Newcastle University. "It was an extraordinary experience. I was a young graduate in my first job, and I lived in the camp at Shakespeare Cliff with thousands of other construction workers. Working on the project was a huge adrenalin hit. It was addictive and it gave me an appetite for working on major projects that has stayed with me, not just because of the thrill of the projects themselves, but also because of their social and economic impact."

In terms of industry impact, he believes a change in attitudes to safety on site, following several fatalities, was the Channel Tunnel's most important legacy. "There was a big drive to change the safety culture. Safety experts were brought in from the US and they did have an impact. The great thing today about the Channel Tunnel is that a lot of us use it. When I go through it with my kids, I say, 'I was an engineer on this project'. I still have my hard hat and a cutter pick liberated from the TBM once it had finished. I remain so proud of my contribution."

From his position in senior management, Simms concurs. "I was involved for many years. It was an important part of my professional life, and I am immensely proud of what we did. Personally, despite all the talk of its legacy and its role as a major piece of transport infrastructure, I can't get past the fact that the Channel Tunnel is simply an absolutely fantastic piece of engineering."

Graham Anderson is co-author, with Ben Roskrow, of *The Channel Tunnel Story* (Taylor & Francis)

A route to becoming a Chartered Project Professional

The Association for Project Management recognises the Praxis Framework Professional certification as a route to becoming a Chartered Project Professional (ChPP).

For Praxis Framework Professionals to achieve ChPP status a short interview and proof of continual professional development is required.

However, this isn't all that Praxis offers. The Praxis Framework provides free tools, like a portfolio of templates and a maturity capability assessment tool, aimed at embedding good practice.
As the framework is available free online, after training you can also refresh your memory with the click of a button.

Learn more about the Praxis Framework Certification Pathway and how training is just the beginning of the journey
https://apmg-international.com/praxis

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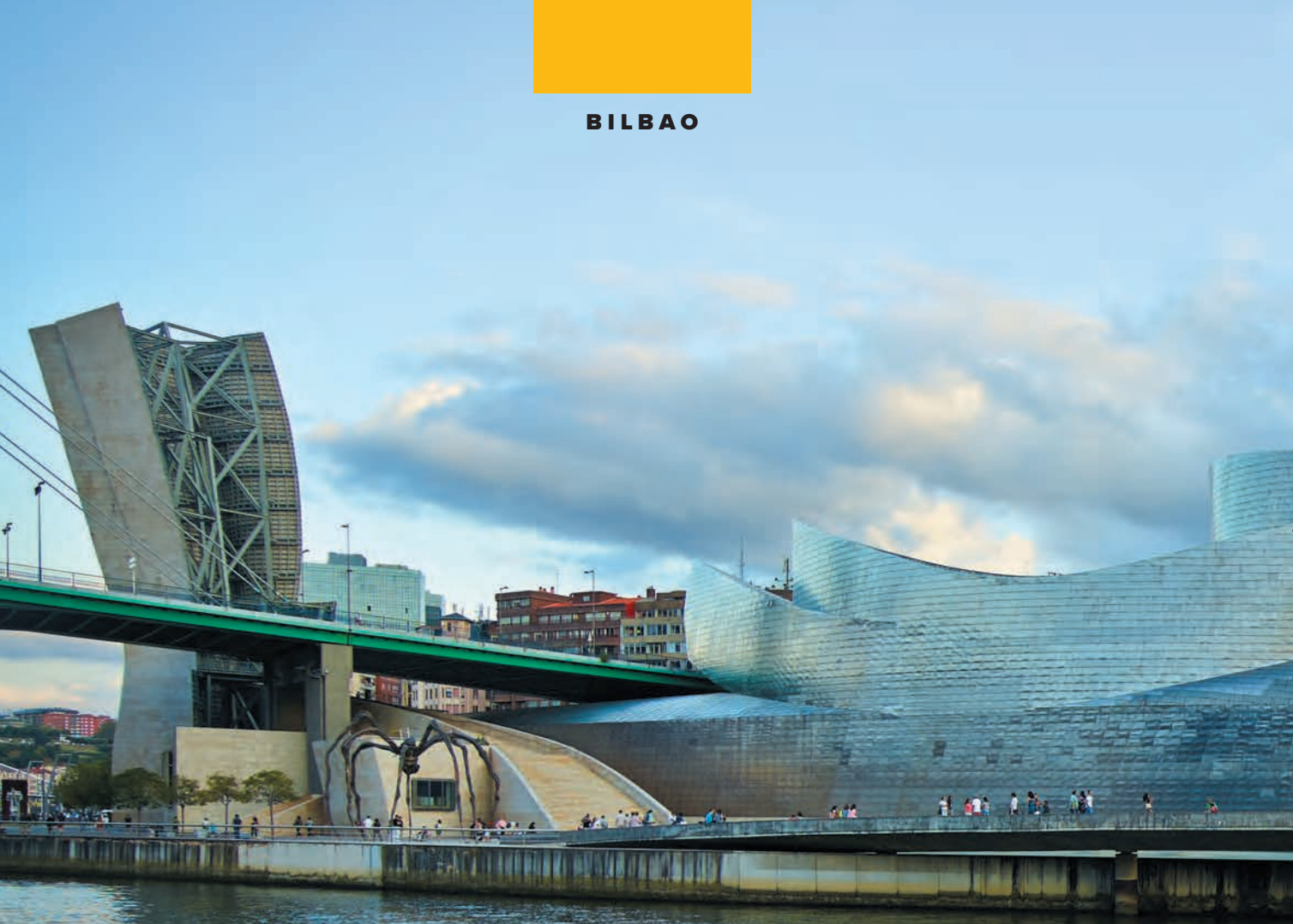


THE GUGGENHEIM EFFECT

One of the 20th century's most successful projects, completed on time and to budget and delivering transformative benefits to Bilbao and beyond, the spectacular Guggenheim Museum in Spain is a world-class cultural institution that surpassed expectations. **Alex Garrett** investigates what went right and what its legacy has been

50 APM at 50: Better projects for a better future

Few projects have achieved a level of fame that has entered the language used by professionals in urban regeneration around the world. The Guggenheim Museum in Bilbao, northern Spain, is one. Since its opening in 1997, Frank Gehry's metal and limestone fantasy sculpture has transformed the economy and the outlook of the former industrial port city, giving rise to the expression 'the Guggenheim effect' or 'the Bilbao effect'.

In any ranking of the most successful projects of the late 20th century, the Guggenheim deserves to figure – not just because it was built within its €100m budget and its five-year timescale, but also because it has delivered benefits to Bilbao and the surrounding region that far exceeded expectations. It has attracted a steady one million-plus visitors each year, two-and-a-half times the 400,000 goal, and generated a huge boost to local tourism.

It has catalysed the transition from a post-industrial economy with a history of shipbuilding and steel-making to an economy that is now focused on culture. And in the process it has become one of the world's most recognisable and admired buildings. It has inspired a legion of imitators in the form of urban planners seeking to elevate or reinvent their own city through a transformative architectural project.

In search of a catalyst

In 1990, the New York-based Solomon R Guggenheim Foundation was looking for a European outpost to complement its Frank Lloyd Wright-designed museum on Fifth Avenue. The city of Bilbao, meanwhile, was undertaking an urban renewal programme and was looking for a flagship cultural building to symbolise the changes taking place. It was an almost perfect match, and when the LA-based practice of Frank Gehry, an emerging star of the architectural firmament, was chosen to design the building in 1991, the vision moved a step closer.

Juan Ignacio Vidarte has been director of the Guggenheim Bilbao since 1996; before that, he was part of the group that envisaged the plan, and then director of the entity set up to develop the project.

"From the beginning, this project had a large agenda in terms of goals, but the core of it was to be the catalyst of a transformation process that was already going on in the city of Bilbao and the wider region," he explains.

The context was multi-faceted. Spain had recently acceded to the EU; the Basque country was at its outer margin and the subject of an independence movement that had given rise, at its extreme, to terrorism.

"The museum was by no means the most significant project in terms of resources or in terms of investment," says Vidarte, "but we aspired for it to be the catalyst that would make

the whole plan happen." The mandate was to develop a world-class cultural institution, but one that would act as a driver of urban renewal and an agent of economic development, as well as a symbol of change.

The ambition was always to create an iconic building, says Vidarte, and that drew criticism from sceptics.

"To have some possibility of success, we had to look at the museum as a holistic experience, not just based on the contents. What type of building would make the experience of visitors coming to Bilbao worthwhile? Because Bilbao is not London, Paris or New York."

The line-up for the project consisted of a Bilbao-based consortium representing the city hall, the provincial council and the regional government; the Guggenheim Foundation; Gehry's firm; and Spanish engineering firm IDOM, brought in to manage the construction. It was a mixed bag, says Vidarte, spanning two national cultures, the public and private sectors, and three levels of government. With this potentially combustible partnership, and against a background of local controversy, with many arguing the money would be better spent elsewhere, it might have all been expected to go badly wrong.

Why didn't it fail?

The reasons why large projects so often fail have been analysed and well documented. Bent Flyvbjerg, first BT professor at Saïd Business School, Oxford University, and Villum Kann, Rasmussen professor at the IT University of Copenhagen, carried out a study of some 3,000 such megaprojects in 2019. They found that only 0.2 per cent were completed on time and within budget and delivered the planned benefits. Among the most significant reasons identified for this were the failure to carry out rigorous cost/benefit appraisal; politicians wanting to undertake projects for the wrong reasons; a propensity for optimism; and changes to scope or budget over the duration of the project.

Flyvbjerg has studied the Guggenheim Bilbao project closely and says that all of these tripwires were avoided. "A common pitfall is that you start with the wrong budget," he explains. "And no matter how good you are, if you don't have the money, you can't deliver the project, even if you're the best architect in the world."

The partnership of architect and client in this case was "an exceptionally good fit", he says. "The client was ambitious and they were in government for a long time, so you had continuity. Too often, the person who makes the decision at the outset is not there in four years' time and everything gets derailed. And they had an architect who actually listened to the client. So it didn't happen by accident."

Gehry's philosophy is that if he promises a budget and a schedule to a client, he makes sure that he can keep to it, says Flyvbjerg. In return, the consortium gave Gehry the freedom to design the building without interference, a concept that the architect has referred to as "the organisation of the artist". Establishing mutual trust, in other words, was a cornerstone of the successful relationship between the two key players. It was all in sharp contrast to the other big project Gehry was working on, the Walt Disney Concert Hall in LA, where progress stalled for several years, the construction cost soared and the client forced big changes to the design.

Juan Ignacio Vidarte

"To have some possibility of success, we had to look at the museum as a holistic experience, not just based on the contents. What type of building would make the experience of visitors coming to Bilbao worthwhile? Because Bilbao is not London, Paris or New York"

An innovative construction

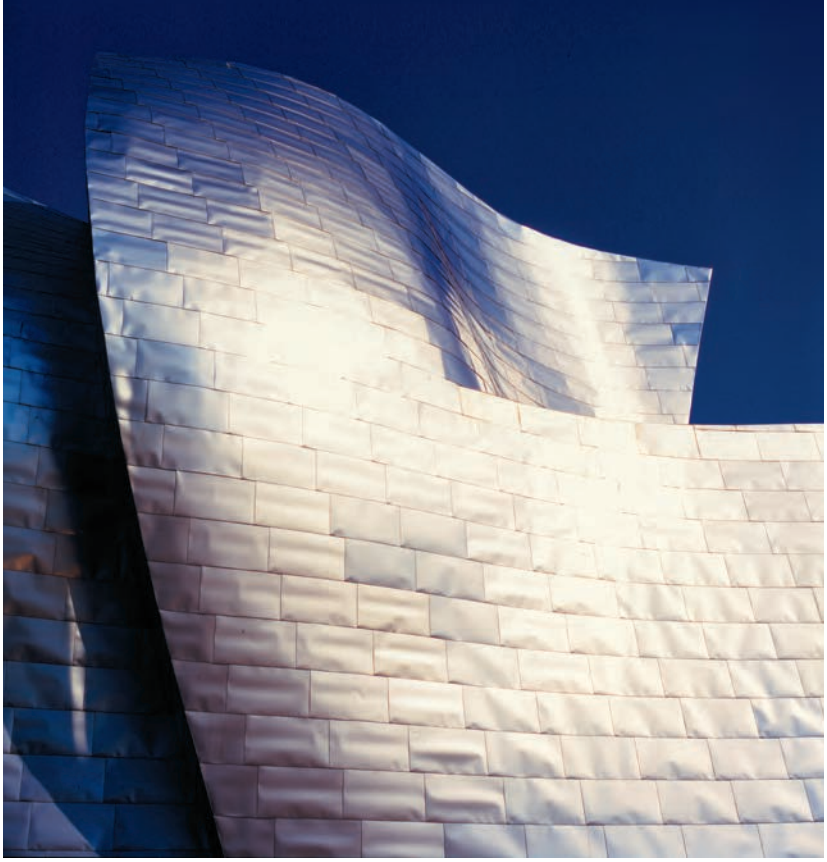
In Bilbao, IDOM had responsibility for delivering the construction on time and within budget. IDOM's present-day CEO Luis Rodríguez Llopis, who led its involvement 25 years ago, says: "Because of the schedule, it was designated as a fast-track project, meaning that construction started before the whole design was completed. So we came to an agreement that any design that came after something was built must fit to the budget. Any change or any improvement should fit to the budget, and we had the complete help of Gehry and his team on that issue."

In fact, says Vidarte, staying on time and within budget was embedded in the management of the project: "It was not just a nice side effect or additional goal, it was really a fundamental priority."

Other specific techniques and innovations contributed to meeting this objective. The construction programme was divided into discrete packages that could be tendered simultaneously. Gehry's use of CATIA software – originally developed by Dassault Systèmes for the aerodynamic design of aircraft fuselages – not only made the construction possible, but also highlighted potential conflicts, for example in plumbing or electrical wiring during the design phase, and enabled a significant cost saving during construction, says Flyvbjerg.

A stroke of good fortune came with the decision to use titanium for the thousands of panels that adorn the Guggenheim's exterior and provide its characteristic reflective lustre. Titanium had never been used in a comparable construction project, says Rodríguez Llopis, and was one of two options under consideration alongside stainless steel.

"Our main concern was not that titanium wouldn't work, because its role in the buildings was only aesthetic, and we checked its durability. Our main concern was the price." Titanium is typically at least 10 times as expensive as stainless steel, but at that time, due to a geopolitical quirk – with Russia dumping a large quantity onto the market – it actually worked out cheaper to buy than stainless steel.



"I think the diversity [among the partners], which could have been perceived as a liability, became a strength"

IDOM's role cannot be underestimated. It provided the local construction know-how and made critical calls on some of the materials and technology used. "Fittings such as faucets would be bronze in the US, but in Europe we use stainless steel. We showed that it would be feasible to use concrete block for construction in Bilbao," says Rodríguez Llopis.

A shared vision

Undoubtedly the most important factor in the successful outcome was that the partners shared a vision and responsibility for making it happen.

"I think the diversity [among the partners], which could have been perceived as a liability, became a strength," says Vidarte, "because everyone understood that success could not be achieved just by one of them pulling the strings." Gehry, he says, was pragmatic enough to know which battles he needed to win and on which to concede. He understood that, "We're not going to do the cheapest possible building; we have this amount of budget, and we're going to spend the last euro of it. But we want to spend it on the best Gehry building that we can afford for that amount."

The museum itself has never been short of accolades. American architect Philip Johnson called it "the greatest building of our time". But the true measure of its success is the transformation it achieved for the city and region. Bilbao was not the first city to attempt to do so with the help of an iconic building, but it may have been the first to succeed so unequivocally.

"It's not so easy to create the effect that you got in Bilbao," says Flyvbjerg. "I think that's related to the fact that it was not just a museum. It was part of a much bigger renewal programme involving a dozen different projects. That's what you need, if you want that kind of effect."

Vidarte adds his own take: "Sometimes it's a cliché – a city has a problem and then they hire a famous architect, they do a flamboyant building and they think that's done. But, of course, it's not done because the building needs to serve a purpose, and that purpose needs to be fulfilled by having a sustainable model of operation. So you need to have not just the resources to do the building, but also a funding institution or developing institution that works."

He concludes: "Buildings are for something – they're not just landmarks."

THE GUGGENHEIM BILBAO IN NUMBERS

$100m
construction cost

32,500m²
space occupied by the building

33,000
titanium panels fitted to the exterior

664
concrete piles supporting the structure

4
years to build (October 1993–October 1997)

400,000
annual visitors forecast in feasibility study

1,170,669
visitors in 2019 (pre-pandemic)

€195.9m
economic activity generated in the Basque region

€67.9m
total income generated for the Basque Public Treasury

69%
visitors from outside Spain in 2019

RESOURCES

Check out APM's 2021 *Dynamic Conditions for Project Success* report at bit.ly/331SoHQ; and listen to our podcast on 'The Evolving Definition of Project Success' at apm.org.uk/resources/the-apm-podcast

DARREN DALCHER

In APM's 50th year, **Andrew Saunders** meets the professor of project management to look back at how the profession has changed since the 1970s. He finds an intellectual fascination with the project successes and failures of the past – and an enthusiasm for the possibility of a more liberated, strategic profession of the future

Few people have studied project management as closely or for as long as Darren Dalcher, professor of strategic project management at Lancaster University Business School, director of the National Centre for Project Management and one of the editors behind the seventh edition of APM's *Body of Knowledge*.

In a career spanning more than 25 years, Professor Dalcher has become a respected voice for innovation in the project profession, thanks to his fascination with the power of projects and, in particular, why some fail and others succeed.

"I have been collecting stories of failure for years, and the collection is still growing," he says with a smile. "Projects are these strange creatures with the power to surprise, excite and make a difference. My journey started with trying to make sense of these animals, to really understand what success and failure mean."

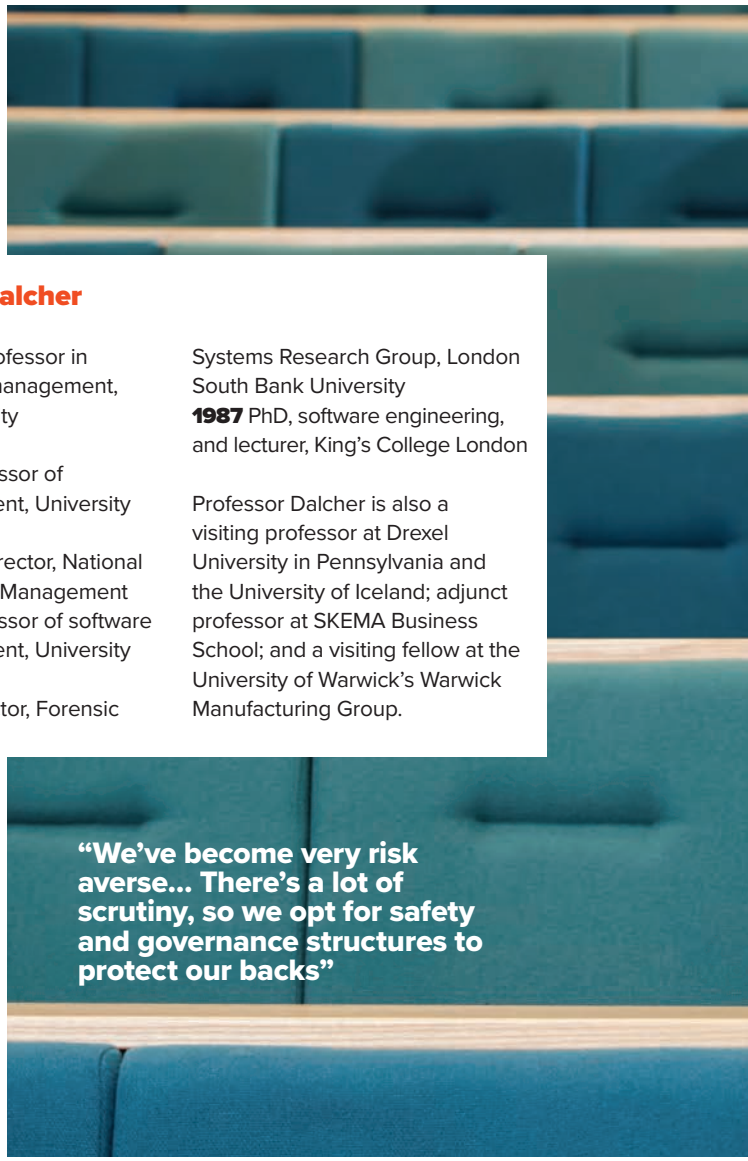
Dalcher also has a wide-ranging intellectual curiosity and a penchant for tackling big questions that might traditionally have been regarded as above the pay grade – and outside the skill set – of the project manager. "Projects have a meaning beyond the actual delivery," he says. "What is our purpose and what are we trying to achieve? It's not just to get to the end of the project on time and on budget, but to think about our responsibility to deliver something with real legacy value. Sometimes, you have to ask: 'Is this project the best way of achieving that value?'"

So instead of the classic focus on budget, scope and timescale, Dalcher is on a mission to liberate project management so that it plays a much bigger and more strategic role – something that the experience of the pandemic has really brought to the fore. "If you think about the iron triangle, well, in an emergency situation, some of those dimensions

"Projects are these strange creatures with the power to surprise, excite and make a difference"

Photography: Claire Wood

50 APM at 50: Better projects for a better future



collapse on you," he says. "In the pandemic, we had to respond quickly and hit the ground running, because the rules were changing daily, and we had to cope with new realities. I've interviewed the project managers who built the hospital in Wuhan in 10 days – they didn't have the time or the certainty to plan for everything. They had to be pragmatic and make things happen."

Nor could a conventional approach have resulted in successes like the UK's Covid-19 vaccination programme, with a staggering 136 million doses administered in little more than a year. The lessons learned can have a potentially huge impact on the future of the profession, he adds. "We have to rediscover a lot of what we've forgotten in the last 70 years. We've become very risk averse – in the effort to instil governance and remove risk, we've lost a lot of what we had. There's a lot of scrutiny, so we opt for safety and governance structures to protect our backs."

CV: Darren Dalcher

2018–present Professor in strategic project management, Lancaster University Business School
2012–2018 Professor of project management, University of Hertfordshire
2003–present Director, National Centre for Project Management
2001–2012 Professor of software project management, University of Middlesex
1992–2000 Director, Forensic Systems Research Group, London South Bank University
1987 PhD, software engineering, and lecturer, King's College London

Professor Dalcher is also a visiting professor at Drexel University in Pennsylvania and the University of Iceland; adjunct professor at SKEMA Business School; and a visiting fellow at the University of Warwick's Warwick Manufacturing Group.

"We've become very risk averse... There's a lot of scrutiny, so we opt for safety and governance structures to protect our backs"

A leading professor of project management urging project professionals to live a little more dangerously might raise a few eyebrows, but innovation relies on judicious experimentation, he says, and so limiting the risk in a project too much also severely curtails the potential reward. "Along the way, we have lost some of our appetite for risk. During the pandemic, project managers were given quite a lot of leeway. Some of that safety blanket was removed – project managers became more pragmatic and said: 'If you want this tomorrow, give me the money and let me make some decisions.'"

So, it's important to recognise, says Dalcher, that all but the very simplest projects have an inherent degree of uncertainty that no amount of planning can – or should even try to – eliminate. But that's not to say that discipline and rigour don't still have a role to play in his world view, rather that it's a question of understanding the context and striking the right balance. "What I've discovered over the years is that too many important decisions are made too early before the problem is properly understood. The CEO or the minister makes a decision and suddenly a lot of potential avenues for experimentation are closed. But if you try to solve a problem before you really understand what it is, inevitably you're going to miss an opportunity."

The trend for agile project management has arisen partly as a way of trying to address these problems, he says. Agile does allow for more experimentation and course-correcting over the duration of a project, he adds, but it is not a magic bullet to eliminate failure. "Agile was very exciting in IT about 20 years ago, but now that industry has moved on. Project managers have embraced agility just as others have ditched it. I am seeing quite a few agile failures, where organisations have bought into agile believing that it is going to solve all their problems, but forgetting that you still need to coordinate and think about the big picture."

Personally, Dalcher is nothing if not industrious, but he is also an open and enthusiastic communicator with an engaging sense of fun. He attributes his lifelong fascination with projects to a natural intellectual curiosity plus a formative experience as a young software engineer when he was working on two very different projects. One had a clear scope and a tight schedule and was delivered exactly on time and within budget. "It was a great project by all the criteria we had, and everyone was very happy with it. But nobody used it," he explains.

The other was much less well defined and directed, so the project team had to go direct to the users to ask them what they actually wanted. The resulting delays meant the project was late and somewhat over budget – a failure, in other words. "But the users loved it – 16 years later they were still using it. I was sitting there thinking that there was something wrong here." Decades later, he remains a firm believer in the primacy of people when it comes to project success or failure. "Projects generally don't fail because of methodology or because a recipe hasn't been followed. They fail because of people – because of irrational decisions and because we don't understand the problems we are trying to solve or all the choices that we have."

He doesn't believe that there is such a thing as a recipe for project success, a view that led – somewhat to his surprise – to his involvement in co-editing the seventh edition of the *APM Body of Knowledge*. "I have criticised bodies of knowledge previously for almost forcing the profession to act in a certain way, for giving us a recipe. So, I was quite surprised when APM asked: 'Will you be part of the effort to rewrite this?'"

It turned out to be a golden opportunity, he says: "Project management is changing and becoming more strategic; it's not about the 'how', but asking why we are doing these things. Now the first chapter of the *Body of Knowledge* is aimed at senior decision-makers, explaining what they can achieve through projects and that we need to recognise that projects are about beneficial change. They are an investment that organisations make, and we have to think about what that investment is going to deliver."

He is optimistic that, over the past couple of years, eyes have been opened in the nation's boardrooms and government departments as to what projects can do. Now it's down to project professionals to make sure they stay involved in the strategic debate. "The pandemic proved that as a society we can pivot on a pinhead – life as we know it changed completely. So, I think there is a real opportunity to reshape things through projects, but the big decisions have to be made very carefully and we have to be part of the conversation. We need to be part of discussing and understanding the problem, not just the execution people."

But he's not going to stop adding to that ever-growing collection of project failures any time soon, because if there is one thing that decades of study have taught him, it's not to fear failure – or at any rate, not too much. "I love learning, so I have learned to appreciate failures from all over the world. Failure can be your friend rather than your enemy; it's an essential part of learning and growing up, and can be the start of something really good."

It also has the power to make life as a project manager a lot more interesting, he concludes. "We don't enjoy doing puzzles because they are simple, but because we can't quite work out how the components fit together. It's that whole interaction with a difficult non-routine situation that makes it a bit different and a bit more exciting. Project management provides a framework for exploring those parameters."

Listen to APM's podcast with Professor Dalcher to find out more about project successes and failures at apm.org.uk/resources/the-apm-podcast

PROFESSOR DARREN DALCHER'S FIVE FUTURE PROJECT MANAGEMENT SUPERPOWERS

1 **People. We are people, we work with people, and so emphasising people is absolutely essential. Failures happen when people come in and mess up your perfect plans.**

2 **Purpose. People work for a purpose and projects have a purpose. Purpose brings people together, but only if they really buy into it. And that purpose is not to burn up half a million – or 10 million – quid.**

3 **Experimentation and innovation. This one tends to get forgotten. We don't understand everything around us and we are not painting by numbers, so we have to explore and experiment, and really try not to close too many doors too early on.**

4 **Drive for results. Emphasising people and purpose doesn't mean that we can't still aim for supreme performance. But great results come through people who feel that they belong and who want to be a part of solving problems.**

5 **Leadership. If we want to take everyone with us, that calls for leadership. Sensible leadership, not heroic leadership. Leadership that takes responsibility, stewards resources and tries to leave things in a better shape than they were.**

A LIFE CHANGING PROJECT

Rachael Pells profiles Medica Reporting's teleradiology AI project (named 2021 Overall Project of the Year by APM), which is making a vital difference to stroke victims

When it comes to strokes, there's a well-known saying among medical professionals: time is brain. The quicker a stroke is recognised and the quicker the patient receives emergency care, the better their chances of recovery. Just like a serious traffic accident or a blazing fire, speeding up response times by just a few minutes can be the difference between slow recovery and good recovery, and even life and death.

It's no wonder, then, that when presented with a new tool that could help to reduce that waiting time for patients – and ultimately save lives – teleradiology provider Medica Reporting took a risk and seized the opportunity. Last year, that risk paid off: Medica became the first company in the UK to use artificial intelligence (AI) to help identify patients suffering from an intracranial haemorrhage, a life-threatening form of stroke causing bleeding within the skull.

Teleradiology is the sharing of patient images such as X-rays, CT scans and MRI reports from one location to another. It allows medical specialists to provide expert advice in the form of a report, even in cases where a patient is thousands of miles away. Previously, Medica's overnight emergency support service, NightHawk, was able to get radiology reports back to trauma wards in just 23 minutes on average. Since successfully introducing the algorithm qER into its existing workflow, that average has been reduced by one minute – which really matters when it comes to brain bleeds – and in some cases, reporting time has been brought down to around 17 minutes or less.

It's a huge achievement, and one that was recognised at the 2021 APM Project Management Awards, where the Medica team won both Technology Project of the Year and Overall Project of the Year. The judges praised the team for their outstanding execution of the project, but also their passion and supportive team ethos in achieving their goal.

For chief information officer Marc O'Brien, whose team led the project, rapid reporting times have always been a key priority where intracranial haemorrhages are concerned, and so adopting machine learning to help facilitate that felt like a natural step. "We are always looking at ways of improving our service, and AI is something that's been talked about more and more in the sector," he explains. "We decided to examine the market and see what AI could do for us – if there was something that could make the process faster and the doctors' lives easier. All of those things make a big difference to patient care."


Marc O'Brien

For a haemorrhage patient to receive emergency treatment, first a detailed scan of the affected area of the body must take place using an MRI or CT scanner. These images are sent to radiologists, the experts who can diagnose and determine the severity of the problem, which will in turn guide doctors on which emergency procedure

"If, god forbid, anyone in my family were to ever have an intracranial haemorrhage, I'd be really glad that AI was there to push them to the top of the prioritisation list"

or treatment to undertake. For many NHS hospitals, where resources may be stretched and radiologists aren't always on hand, it's the hours between 5pm and 8am that can be especially challenging for tackling emergency trauma cases.

This is where Medica plays a role: its NightHawk service connects NHS trusts to out-of-hours teams of radiologists, who operate remotely from around the world to support emergency care staff by identifying hard-to-detect haemorrhages and providing a report for the doctors on the ground. Part of that service includes a vast digital platform for the rapid sharing of patient scans: these are data-rich and can contain hundreds, if not thousands, of individual images of each scan, rendering email attachments or other web transfers wildly insufficient.

The service has been improved even more thanks to the new AI program, qER, which uses a carefully tuned algorithm to recognise when a patient scan shows signs of head trauma, such as intracranial haemorrhage, and these time-sensitive cases are pushed to the front of the reporting queue. The effect is that highly skilled NightHawk teams don't waste time determining priority, and the highest-risk cases are dealt with first.

A cutting-edge tool to support clinicians

The word 'groundbreaking' is used so often when describing new technology that it borders on cliché, but in the case of qER, it seems especially fitting. Debate around the potential value of AI and automation in healthcare has heated up in recent years. For many, the creeping inclusion of AI within medicine poses a threat – the idea that machines could replace any aspect of human expertise.

This is why O'Brien and his colleagues make a clear distinction: the tool is designed to be something that can undeniably support experts, but never replace them. "We only ever investigated AI from a patient prioritisation perspective, never from a diagnostic perspective – and that decision was influenced by the conversations we've had with doctors over the years," he says. How does he respond to those still sceptical of AI in healthcare? "If, god forbid, anyone in my family were to ever have an intracranial haemorrhage, I'd be really glad that AI was there to push them to the top of the prioritisation list."

The qER program was designed by independent technology developer Qure.ai, which specialises in AI solutions for healthcare. O'Brien and colleagues first met the Qure.ai team at a major conference hosted by the Radiology Society of North America in Chicago in 2019. The algorithm had already been created and peer-reviewed in *The Lancet* medical journal, which helped assure Medica of its quality. After a series of positive meetings between the two organisations, Medica set about testing the product before confirming the partnership.

The necessity of a clear business case

"One of the first things we needed to do was a proof of concept," explains David Evans, functional architect for Medica. "This was to make sure that the tool would fit easily into existing workflows and facilitate what our teams do, that it wouldn't slow them down. This is especially important when trying to report CT head scans with potential intracranial haemorrhages, where every minute counts."


David Evans

The team also wanted to make sure that they were clinically happy with the results they were seeing through the tool. "Because we're a clinical company, we usually take a sceptical approach and like to prove the value and accuracy of tools ourselves," O'Brien says. For this, Medica analysts took hundreds of studies and ran them through the algorithm. "We also ran them past some

of our clinical reporters and compared the results," says O'Brien. "Even when we were very satisfied, we took a historical look back over around 500 cases. We were very happy with what the algorithm did and that it matched with what the humans told us, which gave us the confidence to pilot it."

From here, a dedicated, cross-discipline project team was put together, including a clinical director, IT directors and radiology reporters, led by project manager Samantha Davey. Reflecting on that time, Davey cites "having a clear and informed business case" as one of the key factors that drove her team to be successful. "We knew exactly what our success criteria were from the outset and that helped to inform our pilot," she adds. "There was no point in having something that was 100 per cent perfect but took 25 minutes [to get reports back]."

Strict criteria and benefits realisation strategy

The tool also needed to fit within the NightHawk workflow – which was already producing a rapid turnaround for acute cases – but there was no value in implementing something fast that produced errors. Similarly, Davey adds, "there was no point having something that demanded a level of quality in terms of the images we received from

LESSONS LEARNED

One of the biggest learning curves was the realisation that the technology itself would not pose the biggest challenge, but rather how and where to fit it into the existing service in a way that felt seamless, Medica's functional architect David Evans reflects. "From a technical and design perspective, deploying AI is not all about the algorithm. Understanding your workflow and how the technology is going to fit into your workflow is just as important as the actual algorithm itself."

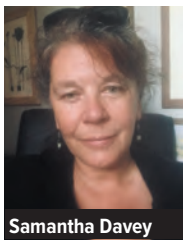
From a managerial perspective, "understanding what you're hoping to achieve from the project" should be foremost in a project manager's mind, says Medica project manager Samantha Davey. "Ask: what are your stakeholders' expectations? What are the benefits that you're hoping to deliver and how are you going to measure those?"

When putting a team together, think personality as well as skills: "You've got to have people on board with the right skills. These people should be identified up front and you need to have them in the room from the start. But something else I try to build in my team is having staff who are personable," says chief information officer Marc O'Brien.

clients that was at a level above what they could actually produce, because that would not be workable. This was the range of criteria which we identified early on and also linked to our benefits realisation strategy."

In early 2020, Davey and Evans put a timetable in place with a strict deadline of 7 December that year ("avoiding Christmas annual leave challenges and other pressures on the system") and remained determined to hit that deadline even when the Covid-19 pandemic hit. "Working backwards, we could be clear where our milestones were, where there was a little bit of flexibility and where there was absolutely no flexibility at all," says Davey.

She also deployed task-and-finish groups for specific technical and qualitative outcomes – this was useful, for example, when the algorithm was ready to be tested but not ready for use in the real working environment. "This involved releasing the algorithm into the live environment, but we didn't want anyone to use it, we simply wanted to be able to look at it and to comment on it," Davey explains. "So a small group was tasked with considering how we were going to do this, deciding at which point in the calendar we should do it, who we were going to engage with it and who was then going to communicate this information out there."


Samantha Davey

"Everyone involved knew that they were impacting on and influencing the delivery of something important. There was energy and excitement for this"

Keeping the team motivated

Even for a company with roots in remote technology, Covid threw up challenges. "We went from office-based to fully remote in three days," says O'Brien. "All our staff were carrying screens and machines down to their cars. It was a huge operation, but we got it up and running very quickly, which was a huge achievement for the team."

Meanwhile, Medica's ambitious growth strategy meant a number of other projects were taking place at the same time, including a major overhaul of the technology platform used by Medica for its medical image sharing. "One of the real challenges was the constant prioritisation of resources – determining which aspect we needed to be allocating our human resources to at what point, and ensuring that those people didn't get exhausted or become completely confused because of differing priorities. It was also important to keep the enthusiasm and excitement about the project going."

Motivating a team through a long-term intensive project can be difficult at the best of times, but Covid-19 lockdowns exacerbated the challenge during a time when employees were stuck at home and life became repetitive. The solution to this, according to Davey, was "clear communication" between colleagues from start to finish: "Not waiting for scheduled meetings to check in to see how something was going, to make sure everything was on track, making sure that people were acknowledged. We spent quite a bit of time just updating people so that they didn't start to feel disenfranchised."

Delivering something with real purpose

Ultimately, what also helped to pull team members together was the shared end goal: that once the algorithm was successfully implemented into the system, Medica would be helping its clients to save lives. "Everyone involved knew that they were impacting on and influencing the delivery of something important," says Evans. "There was energy and excitement for this, which extended from the company executives downwards."

Speaking to O'Brien, it's abundantly clear that nurturing a supportive and friendly working atmosphere is central to Medica – and he believes it's also a key factor in the company's success. This is especially important in the medical healthcare sector, he says: "What we do is stressful. We are moving at a hundred miles an hour and growing at around 20 per cent per annum, which sounds great, but it does create issues, because you're always slightly short-staffed.

"We needed ambition and drive, but I also wanted people to be kind to each other," he concludes. "Getting on and working well with your colleagues is really important and motivating in itself, and I feel proud to have that ethos in place at Medica."

Festivals

What does it take to project manage a festival? As we anticipate a rebooted summer festival scene, Dave Waller takes a look behind the scenes and speaks to the professionals tasked with making these major events happen

"It was a baptism of fire in terms of the nuts and bolts of project management," says Rob Gorham of Bestival, the music festival on the Isle of Wight he co-founded with his wife Josie in 2004. "That first night, we'd been pouring cocktails at one bar and were transporting hundreds of pounds in float in a golf buggy up the hill to another one, when we were told people were rolling burning toilet paper into the woods, trying to set them alight.

"Other people were telling us the sound system in the big top wasn't working, or asking us where they should be deploying security. Meanwhile, [conspiracy theorist] David Icke was in the forest hosting his own sound system. We had to close that down. At 5am, we crawled into a spider-covered teepee for half an hour's sleep before being woken up: people were at the gates waiting to be let in. It was totally nuts."

While Bestival began with only 5,000 guests, and Gorham's "naive" misreading of the scope of the project, it would become one of the key events in the UK festival calendar, hosting the likes of Stevie Wonder and Outkast for crowds of around 50,000. Bestival matured alongside the country's festival scene, which is now a major mainstream industry. According to *The Future of UK Music Festivals*, a 2021 report by the House of Commons Digital, Culture, Media and Sport Committee, there are close to a thousand such events in the UK every year. In 2019, music festivals contributed a combined total of £1.75bn to the UK economy.

Stakeholder diplomacy

When staging a festival, you're effectively building a makeshift town from scratch. That means providing food, water and sanitation for the thousands of people who will make it their home for the best part of a week. That includes the army of food and drink vendors, security teams, facilities crews, performers and sound engineers. No surprise, then, that universities now offer degrees in festival management: such a task is guaranteed to leave project managers fighting fires.

For Paul Spencer, the pyrotechnics began when his Americana festival, Maverick, was still just an idea. Spencer wanted to stage the family-friendly party at a farm park near his home village in Sussex. But his neighbours objected, fearing a wild influx of drugs, public defecation and graffiti. Spencer stresses the importance of diplomacy. He says he attended countless meetings, got embroiled in endless licensing applications and presented a meticulous case to the police. Yet with the villagers mobilising against him, the council refused permission.

But Spencer was holding a trump card: his farm park venue already had an event licence of its own. "I had to bulldoze the whole thing through and do the festival for a couple of years, much to the disgust and horror of the village, until everybody calmed down," he says. Fifteen years later, the festival is an established success, with around 4,000 Americana buffs turning up each year. He still won't show his face in the local pub, but says people have long stopped complaining.

Clockwise from top: coordinating vendors and entertainers is just one part of the festival jigsaw; Ireland's Kaleidoscope festival in full swing; Rob Gorham with his wife Josie; Maverick festival faced an initially frosty reception from local stakeholders

Camp Bestivals; Sophie Boleyn; Ste Murray

Clean Bandit live at Camp Bestival. Below left: some festival-goers prefer their fun to be slightly more sedate. Below right: if people cavorting in costumes is your thing, Kaleidoscope in Ireland is the festival for you.

A seamless experience

Once the venue is secured, festival planning becomes a vast machine of thousands of intricate moving parts. Here's just a small selection: securing funding and sponsorship; sourcing infrastructure, including stages, fencing and toilets; booking a mix of acts that will delight your audience; finding food and drinks traders of the required standard and, increasingly, ethical values; assembling a loyal team who'll deliver the right service; and putting detailed plans in place to keep all stakeholders safe. Then there's branding, marketing and sales. The list is endless – and that's all before the first truck even arrives on site.

Spencer points out that it takes him a couple of weeks to turn the fields of the farm park into a festival. "I'm not going into a theatre, it's a farm with loads of barns and outbuildings," he says. "Yet every detail has to be right – the showers, the toilet experience. People need it to be easy to park, and to get from their vehicle to the site. They need good food and good beer, without having to wait long to get served. Then the sound has to be right. You can't have spill-over from other stages."

Festival-goers want a seamless experience. Mandy Johnson has project managed a host of festivals, including Love Supreme, an annual jazz festival in the village of Glynde, East Sussex. She highlights the work that goes into crowd dynamics there – predicting people's behaviours, and balancing the numbers at each different stage at various times through the long weekend. She says it's joined-up communication that ensures things run smoothly.

"Things are always changing – the line-up, the availability of supplies and how many people buy tickets," says Johnson. "It's like a jigsaw puzzle, where every piece has a knock-on effect. So every single planning assumption needs to be rechecked every year. You need a clear organisational structure of who's looking after what, where people are constantly checking that everybody's looped in as things evolve, and that nobody is making assumptions."

"It's like a jigsaw puzzle, where every piece has a knock-on effect. So every single planning assumption needs to be rechecked every year"

One year at Love Supreme, Gregory Porter, then a relatively unknown jazz singer, was appearing low on the bill in a tent with limited capacity. Just weeks before the festival, he had a hit record – too late to change the billing to accommodate the now surging demand. For Johnson, it was tempting to rush him to a bigger stage at the last minute, but that risked sparking further unseen issues. "It's often less risk to manage the known problem," she says.

Mandy Johnson

Sorcha O'Reilly

Paul Spencer

'Like a cliff edge'

But when considering unexpected impacts, none can match Covid-19. The vast majority of festivals in 2020 were cancelled, and the sector's revenues dropped by a whopping 90 per cent. Many were canned the following year too, with widespread question marks over insurance. As festivals are typically seasonal, one-off occasions, it meant an entire lost year for many events companies – two for some. "March 2020 was like a cliff edge," says Sorcha O'Reilly, artistic director of Kaleidoscope, a 15,000-person family festival in County Wicklow, Ireland. "You got the sense that everything was going to be gone." Two years on and the impact is still being felt in everything from ticket sales to the timelines for booking acts and the availability of staple supplies.

"Key infrastructure has been redirected into the construction industry and to Covid testing and

Camp Bestival; Sophie Boleyn

"Covid reinforced that not every decision has to be based on a strong framework; you can think out of the box"

vaccination centres," says O'Reilly. "Warehouses that used to have thousands of panels of fencing, for example, are empty right now. Festival staff and crew are very thin on the ground too, because so many people had to pivot to other work to survive. Crew costs have gone up as a result. Everyone in the industry here is working through it by trying to define their production specs as early as possible."

Simon Fell is director of festivals and events at Alexandra Palace, which launched its own (unrelated) Kaleidoscope Festival in 2018. He says the pandemic has forced festival project managers to become even more adaptable than they were already. "We're used to making some things up as we go along," he says, "but Covid reinforced that not every decision has to be based on a strong framework; you can think out of the box. When we came back in 2021, we were suddenly making loads of big new decisions. Do we need to wear masks? How do we socially distance people? How do people queue for toilets and bars? It forced us to acknowledge that you shouldn't shy away from doing something differently. In that way, the pandemic period has been really empowering."

Sharing knowledge

It seems learning on the job is very much in the festival project manager's remit. Back in 2008, Bestival's Gorham co-founded the Association of Independent Festivals (AIF), a trade body dedicated to sharing knowledge across the nascent industry. Back then, he says, it was "three or four of us sat in a room, asking where to get fencing and what these new compostable toilets are". The AIF now has 65 member organisations, which cover an audience of 600,000 and contribute over £200m annually to the UK economy. Communicating the issues around Covid, both internally and externally, has been a key concern for the organisation.

An industry back on its feet

Gorham himself has had to learn a lot since that first night fire-fighting – Bestival has been in administration, and the festival faced controversy in 2018 when a 24-year-old attendee died of a drug overdose. Gorham and Josie now run Camp Bestival, a 30,000-capacity, family festival mirroring their own changing tastes as parents of two who still enjoy a party. This year, the festival is expanding beyond its Dorset base to a second site in Shropshire, reflecting an optimism that many in the sector are now feeling, albeit tentatively.

Despite all the added stresses, the festival machine is gearing up again for a return to restriction-free summers. It's sorely needed – and not just for the finances. When the government loosened restrictions in the summer of 2021, Alexandra Palace's Kaleidoscope was the first UK festival of more than 10,000 people to go ahead. For Fell, it was an emotional experience, something he saw reflected in the faces of those lucky enough to be back on site, shaking off the troubles of the previous 18 months.

"I choked up when I announced we could go green on doors," he says. "People were suddenly out again. There was a really special feeling that I don't think I'll ever experience again. It was like the Summer of Love. It gave me a real buzz to walk around the site and think: 'We persevered. We've done it'. And it hit me like a steam train: the festival industry was back on its feet."

RESOURCES

- **Elizabeth Harrin, *Engaging stakeholders on projects: How to harness people power* (APM), apm.org.uk/book-shop/engaging-stakeholders-on-projects-how-to-harness-people-power**
- **APM Podcast, 'How to be a great communicator', apm.org.uk/resources/the-apm-podcast**

FIVE PROJECT MANAGEMENT TIPS FROM THE WORLD OF FESTIVALS

1 **Don't rush to make changes. In an event with so many interconnected moving parts, scrambling to solve problems may simply spark further issues elsewhere. If you foresee a problem, create a plan to manage it instead.**

2 **Stay connected. Unexpected changes will have knock-on effects, so everyone should be looped in at all times as plans inevitably evolve. No one should be working to assumptions.**

3 **Take the rap. Customers have a right to complain when the service they expected isn't delivered. Even if an issue is no reflection on your planning, be open, apologise and get to putting it right.**

4 **Create buy-in. Even a commercial festival is essentially about community, which means building brand loyalty from the ground up. Reward people well, with money, other perks or a great experience, and they'll become evangelists who will repay you in spades.**

5 **Get feedback. Once the project has wrapped up, collect notes from key stakeholders on any issues and any improvements that can be made. That includes outsiders who are affected by your project. A festival, for example, needs landowners and the local community on board in order to flourish.**

SO MUCH MORE THAN HOT AIR

Heidi Genoni, programme lead for Arup+'s Hy4Heat programme, reveals what it has taken to demonstrate hydrogen is a viable alternative to natural gas as a domestic fuel

As the UK strives to meet its 2050 target of net zero carbon emissions, finding alternatives to natural gas as a domestic fuel is high on the list of priorities. The Department for Business, Energy & Industrial Strategy (BEIS) is looking at ways of decarbonising heat, and one option is replacing methane with hydrogen. Launched in late 2017, the four-year, £25m Hy4Heat programme aimed to provide the technical, performance, usability and safety evidence to de-risk the use of hydrogen in homes and lay the groundwork for a community trial.

Leading the programme was Arup+, a team that brought together Arup's programme management expertise with other organisations specialising in energy and hydrogen. Overcoming widespread scepticism in the gas industry about the technical and commercial viability of hydrogen technology, the evidence-based, stakeholder-led approach resulted in a shift in industry mindset and established the foundations for a hydrogen community trial. For their efforts, the team were awarded Programme of the Year at the 2021 APM Awards.

Hy4Heat has all the key characteristics of a volatile, uncertain, complex and ambiguous (VUCA) programme. It was volatile in terms of the flexibility needed to quickly adapt to changes. Being a research and innovation programme, there was a high level of uncertainty regarding the final outcomes, particularly about the timescales of appliance development.

The overlapping nature of the work packages was complex and there were large numbers of different stakeholder organisations involved. The success of the programme lay in the ability of the team to navigate these complexities and achieve results that last beyond the programme's lifetime.

Robust coordination

The programme was set up following the Managing Successful Programmes principles, including identifying programme tranches with associated benefit realisation; and formal gate reviews to assess the continued viability of the programme's business case.

Arup brings programme management expertise and developed Arup+ in partnership with leaders in the hydrogen field: Kiwa Gastec, Progressive Energy, Embers and Yo Energy, which provided a bridge between government (BEIS) and industry. It defined the scope of each work package, identified the most suitable contract and procurement process, managed the delivery of each work package and worked on preparations and plans for a potential community trial. Arup+ was tasked with responding to the key challenge of ensuring robust coordination between the government and industry stakeholders. Arup+, on behalf of BEIS, procured and appointed contractors to deliver the programme's other work packages (numbers 2–10) and they are all part of the wider delivery team (see box).

HY4HEAT PROGRAMME WORK PACKAGES (WPs)

WP1 Programme management (Arup+)
WP2 Hydrogen quality standard
WP3 Appliance certification
WP4 Domestic appliances
WP5 Commercial appliances
WP6 Industrial appliances
WP7 Safety assessment
WP8 Demonstration facilities
WP9 Community trial preparation
WP10 Developing hydrogen gas meters

One of the main reasons for the success of the Hy4Heat programme was the nature of the team: diverse, highly skilled and experienced across a wide range of technical and non-technical areas. With such a varied team, there were initial challenges, some tension and uncertainty. Underpinning the transition from 'storming' to a 'performing' phase was an early investment in an off-site experiential team-building session structured by Arup's occupational psychologists to embed a collaborative approach and unite the team around the shared aims of the programme. This resulted in the co-location of the core team in the Arup office (pre-pandemic), which helped to build a sense of belonging and learning from each other (including BEIS). Success was also celebrated, with regular and ad hoc social events following key milestone delivery; and importantly, communication channels were active and open, including regular meetings, shared digital platforms and 'health check-ins'.

Changes and challenges

In early 2018, Arup+ staged an initial event to introduce the programme to key industry players, including gas distribution network leads, appliance and fuel cell manufacturers, trade associations and academics. Getting a guest list together was challenging; the hydrogen naysayers were in plentiful supply. Drawing from Arup+ contacts and 'warm-up' calls, a good turnout of 120 was achieved. But the message from attendees was that hydrogen would be near-impossible to introduce, and that the programme timescale for appliance development was not nearly sufficient, as prototype appliances took nearer five years, not two to three, to develop. This presented a challenge, but also an opportunity for Arup+ to demonstrate otherwise.

Time was of the essence. Arup+ needed to appoint consortia to develop appliances, and invitations to tender (ITTs) needed to be issued. The team embarked on a comprehensive stakeholder engagement programme, building its industry contacts with the help of trade organisations, holding webinars, delivering presentations at conferences and conducting in-person pre-procurement engagement sessions with manufacturers. Extensive work went into contacting people in hundreds of organisations, explaining Hy4Heat and encouraging them to form consortia.

The pre-procurement engagement sessions were vital in helping to mobilise consortia of manufacturers and supply chains; they included Q&As and facilitated roundtable discussions. They were also a crucial source of guidance for Arup+ as it put together the ITTs. The ITTs would be make-or-break for the programme: they had to make the two-year product development timescale feel as realistic and achievable as possible to encourage consortia to come forward and participate. Simply presenting them with a two to three-year deadline would not work.

Arup+ broke down the demanding timelines and asked consortia to demonstrate key components at regular intervals, making the 'impossible' milestones now seem achievable, and dramatically accelerating the innovation cycle to develop prototype products.

BEIS adopted contracts and a procurement process that promised work package consortia that they would be able to retain most of the intellectual property rights

It was a core condition that manufacturers develop only boilers that fit existing spaces

On Arup+'s advice, BEIS adopted contracts and a procurement process that promised work package consortia that they would be able to retain most of the intellectual property rights attached to the new products. This provided a welcome incentive to the manufacturers and consortia to meet the programme's timescales. Arup+ was able to provide a bridge between government and industry, defining the scope and brief of each work package, identifying the most suitable contracts and procurement process, and managing the delivery.

The programme was seeking to encourage a major change of mindset within the gas industry. Ironically, this could only be achieved if businesses judged the likely impact of taking part to be minimal. For that reason, and to make the new hydrogen appliances easy to install for consumers, Arup+ made it a core condition that manufacturers develop only 'like-for-like' products – boilers that fit the same cupboard-type spaces as current gas boilers, for example.

A final crucial element of the ITT to boiler manufacturers was the new concept of 'hydrogen-ready' appliances. Among Hy4Heat's policy team, the

preference was for the new boilers be 'dual-fuel' (ie able to operate on methane or hydrogen). The technical specialists, though, wanted hydrogen-only boilers to be developed. The disagreement became a stumbling block, until the concept of the 'hydrogen-ready' boiler was put forward: an appliance that runs on natural gas until the supply of hydrogen becomes available, at which point a small number of components are replaced, converting the boiler to the new fuel. It was uncertain how this compromise concept would be met by industry, but the boiler manufacturers responded positively.

Covid-19 also had an impact, and a specific risk register was set up in March 2020. This comprised a tracker for each individual manufacturer detailing how Covid-19 was impacting on them and the specific delays they were impacted by. This resulted in a more granular level of detail to allow Arup+ to see how we could support them and assess the impact on our own risk.

Transforming the possibilities

In just a few years, the Hy4Heat programme has instigated a transformation in the mindset of industry towards a hydrogen future, and put the UK at the forefront of international efforts to develop safe, high-performance hydrogen technology for heating. By adopting an evidence-based, stakeholder-led approach, Arup+ mobilised manufacturers, supply chains and academic partners to collaborate on developing the boilers, meters, cookers, heaters and other appliances that will be central to a community-level trial – the first step towards large-scale conversion.

In 2017, that trial was no more than an idea; today it is a priority for the UK government. With a relatively small budget, the programme has unlocked hydrogen innovation across the gas industry. Consortia were encouraged to develop fully working prototypes within the timeframe and lay the foundations of an entirely new customer-focused hydrogen appliance market. In a short time, the programme has moved UK hydrogen heating technology from a Technology Readiness Level of 1–2 to 8–9 on the scale: ie from a position of academic knowledge and understanding to one of commercial market-readiness. The programme encouraged the development of products that are like-for-like, 'hydrogen-ready' replacements of existing appliances, maximising their convenience and acceptability for customers.

Unforeseen bonuses have arisen, in that emissions of nitrous oxide from burning hydrogen are around 50 per cent lower than from methane

Unforeseen bonuses have arisen too, in that emissions of nitrous oxide (another greenhouse gas) from burning hydrogen are around 50 per cent lower than from methane. This has helped stimulate new scientific research to investigate and explain these findings. Hy4Heat has managed to create a reputation as a flagship programme in the field of hydrogen and has created a 'brand identity' attracting interest from industry, academia and public bodies, and raising awareness and shaping the public perception of hydrogen. The flexible and adaptable approach adopted allowed the programme, among other things, to stretch the available budget and time left to achieve more, for example in terms of commercial appliances development, enhancing appliances installation standards (IGEM and BSI), and adding scope to the safety assessment work package to provide more comprehensive results.

The Hy4Heat blueprint for governance, programme management and delivery has already been successfully adopted for other Arup programmes, but also by BEIS. Examples already replicated by BEIS on other programmes include the innovative approach to procurement based on competition, using a range of methods and tools to engage and communicate with a variety stakeholders; and programme administration good practice with comprehensive document management. Not all of these positive outcomes were envisaged at the start of the programme; some of them are the product of the organic evolution and the success of Hy4Heat, but they are completely consistent with the innovative nature of this programme.

A truly meaningful project

From a team member's perspective, Hy4Heat has significantly contributed to developing skills and experience both in programme management and in the hydrogen field. This is particularly true for graduate members of the team, who had the opportunity to be at the forefront of an innovative and complex programme and acquire skills and experience that will be extremely useful in their future career.

As project professionals, it is important that we maximise the potential of our talented teams and that we always encourage and challenge alternative thinking and different ways of approaching problems. I truly believe that it is in those spaces – in embracing the differences between disciplines – that the innovation comes out.

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HOW TO

APPLY BENEFITS MANAGEMENT

Harris Vallianatos, **Laura Geddes-Brock** and **Jamie King** discuss the advantages of a benefits-led delivery culture – and offer advice on how to create one

When a project or programme is first initiated, it is the desire for beneficial change that is the driving force behind the investment. Too often, however, once underway, organisations maintain a rigid focus on schedule and cost, realising too late that the benefits have been compromised. As project professionals, we may feel comfortable within the confines of time, cost and scope, but can we claim to be successful if an initiative fails to have the desired impact for our stakeholders and customers?

Benefits that speak for themselves

Benefits management seeks to address this for transformational change programmes by introducing a set of practices and processes that ensure benefits are identified, quantified, tracked and optimised throughout their life cycle. As a practice, it has a proven track record. We know that when organisations commit to prescribed processes for reporting benefits realisation, an average of 38 per cent more projects meet or exceed their forecasted return on investment (ROI); and that these practices

contribute to implementing an organisation's strategies successfully. Despite this, many organisations lack capability in this area and senior leaders remain unaware of its potential.

There are other advantages too. A benefits-led delivery culture results in programmes that are much more closely aligned with strategic priorities and, due to greater attention being paid to measuring benefits, an organisation gains an improved ability to evidence success. To be fully effective, this culture should also embrace identifying dis-benefits (impacts perceived as negative by stakeholders) as this encourages transparency in decision-making and prevents overly optimistic assumptions, leading to more accurate forecasting.

Culture as much as practice and process

Benefits management is as much about culture change as creating new practices. It requires project professionals to rethink the basis upon which they manage projects and ensures that decision-makers listen closely to the views of stakeholders. Without the accompanying culture change, there is a risk that it is seen purely as an add-on activity and, as a consequence, its full potential value is not realised. These organisational changes usually fall under the remit of a benefits manager, who acts as a facilitator and promoter of change while also helping representatives from the business identify and own the benefits.

While introducing organisational change is rarely straightforward, the good news is that you do not need to be a benefits expert to optimise ROI using benefits management. The following tools and practices will support the efforts of both benefits experts and novices...

1 Set up a benefits management forum

Awareness of why and how benefits management is done is key to its successful introduction, and one method to start the transformation is to set up a benefits management forum. The forum should consist of members from across the project delivery community, not just those with benefits in their job title. The group can be used to create a sense of shared purpose, share knowledge and ask for help, and understand the barriers to adoption.

Agendas should be relevant to the needs of the members; for example, if several programmes are early in the planning phase, a focus on benefits identification tools would be beneficial. Engaging content will be crucial to maintaining interest, so consider inviting external speakers or using interactive content, such as polls, to gather feedback. Finally, try to get senior leadership involvement, but be cautious about using them as chair, as this can sometimes create an environment that is too formal and suppress open discussion of issues.

Another technique for early in the project life cycle is to run a benefits identification workshop. This brings together stakeholders to organically identify benefits, gain consensus of what the project is trying to achieve and what benefits they deem most important.

2 Create a portfolio benefits repository

Creating a portfolio benefits repository can help in understanding the totality of investment within your organisation and the positive impacts you are trying to achieve. Very rarely do organisations have a view of all the benefits that individual projects and programmes have identified. The absence of this information can lead to over-programming, a lack of strategic alignment and double counting benefits.

A portfolio benefits repository is a database of all the benefits identified by projects and programmes. It is important from the outset to be clear about the scope of the repository – which projects will be included, what data fields are most important and what you will do with the information. Although project documentation is generally the source of the data needed – business cases, benefits maps, benefits realisation plans – the responsibility for keeping it up-to-date needs to be clear.

Creating a repository can also help answer questions that have not been asked before, such as:

- **What are the most common benefits across our organisation?**
- **How are we contributing to our organisational objectives?**
- **What percentage of benefits have been quantified, with realistic targets set?**
- **How many of our benefits have been achieved?**

The repository will also highlight any gaps in the existing benefits management offering. It can provide useful evidence for a mandate to implement further process improvement and strengthen the capability offering for benefits management within your organisation.

3 Use a benefits and measurement dictionary

To help drive consistency and support projects with the challenging task of quantifying benefits, another useful tool is a benefits and measurement dictionary. Typically, there is a lot of enthusiasm for benefits management at the start of a project; however, this tends to subside when it comes to the question of measuring them.

A benefits and measurement dictionary lists a set of common benefits, suggested measures and the data owners. When creating your dictionary, take a top-down and bottom-up approach. Look at organisational objectives and think: what benefits would need to be realised to achieve these? Look at business cases and pull out the benefits that have been identified. Share this list with a large group of stakeholders to gain consensus that these are the right benefits.

Work with analysts to help identify the best measures for the agreed list of benefits. They should have lots of data that is routinely collected to demonstrate realisation. Where this isn't the case, indicate in the dictionary how else these benefits could be measured; for example, using a case study approach. Creating a dictionary helps projects with the difficult task of quantification, but if you work within a portfolio or programme management office and need to aggregate benefits, it also means a standard set of benefits and measures that can easily be collated.

4 Use benefits or logic maps

A key development occurred in November 2020 with the release of the Treasury's *Green Book Review*. The review emphasised the importance of a clear understanding of a project's contribution to strategic goals within a business case. Benefits management can help to strengthen strategic cases by identifying benefits and measurement metrics that directly align to project and organisational objectives. Benefits or logic maps are commonly used as a visual representation of these relationships and can be excellent communication tools, as they demonstrate the links between the drivers behind the desired change, the outputs required to achieve it, the benefits and outcomes that result, and their contribution to strategic objectives.

5 Apply value management

Large programmes often provide an opportunity to do more for stakeholders than a traditional technocratic business case process would bring about. One approach is to apply value management – a complementary discipline that aims to balance the best outcomes with the resources available. For example, the needs of a local community can easily become overshadowed by the larger and nationally more significant benefits of a large project. Running value management workshops to identify ways of measuring the benefits that a diverse set of stakeholders have identified will inform benefits realisation planning and contribute to delivering a project that reaches the best outcome possible for everybody.

When assessing delivery options, there may be occasions when evidence demonstrates that the option providing the highest economic ROI does not necessarily deliver the outcomes that stakeholders need. This is a very difficult message to convey, but you should find that combining benefits management and value management increases transparency about why an option with a lower economic ROI is a more prudent option to pursue.

Making the case for change

Benefits management will not only help to focus minds on optimising the desirable outcomes of projects (and mitigate the undesirable outcomes), but it can also enable a new way of thinking about the consequences of projects, how they affect stakeholders and ultimately how they contribute to delivering better value for money. If your organisation uses a value for money framework, integrating the principles of benefits management into it will ensure that benefits realisation underpins decision-making.

Consistency also comes from having clear tools, processes and guidance on how to approach benefits management. Of course, every project is unique, and any benefits strategy must be flexible enough to be tailored to suit a project's needs, although the underlying principles of optimising benefits remains throughout. Flexibility is a key pillar of benefits management, and you should not be afraid of adapting approaches to suit.

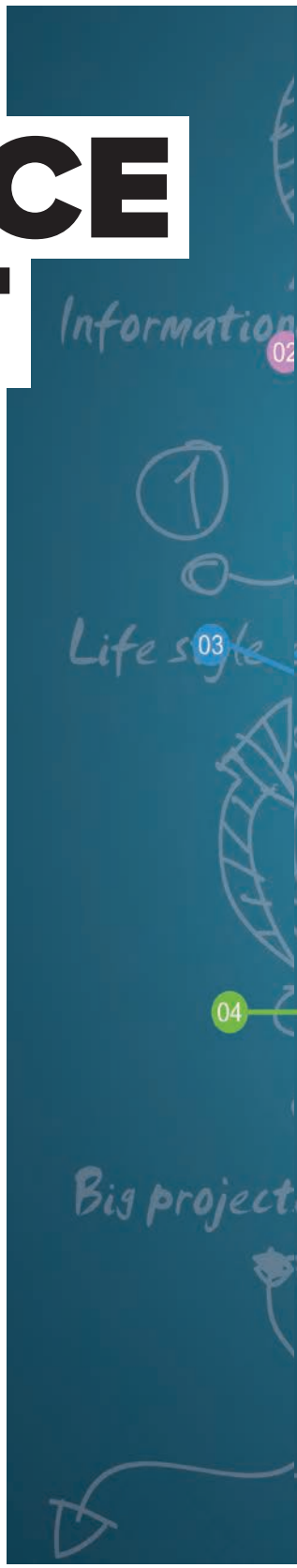
Finally, when introducing a benefits management framework to your organisation, it is useful to identify the kinds of impact (both positive and negative) that your projects typically deliver and have the potential to deliver. These common, high-level benefits, plus the supporting tools, practices and processes, form the backbone of an effective benefits strategy.

Harris Vallianatos is project delivery benefits lead, and Laura Geddes-Brock is head of rail benefits, at the Department for Transport; Jamie King is benefits management lead at National Highways

RESOURCES

- HM Treasury, *Green Book Review* bit.ly/3oDuqdH
- APM, 'What is benefits management and project success?' bit.ly/3oAQmpT
- APM Research, *Benefits realisation management and its influence on project success and on the execution of business strategies* bit.ly/3GxnFQN
- APM, *A guide to using a benefits management framework* bit.ly/3HFl0ps
- APM Community Podcast, 'Optimising portfolios using benefits and value management' bit.ly/3HU7wq9
- APM Community Podcast, 'Creating successful programmes using benefits' bit.ly/3GQpSqJ

USING NEUROSCIENCE FOR PROJECT SUCCESS



Carole Osterweil's new book provides a valuable guide to the human side of running projects, using insights from neuroscience to understand why some projects fail – and how we all have the power to better control our emotions and behaviour to help them succeed. In this extract, she looks at the antidote to a toxic project culture: psychological safety and a growth mindset culture

Psychological safety is "[t]he belief that the work environment is safe for interpersonal risk-taking… feeling able to speak up with relevant ideas, questions or concerns. It is present when colleagues trust and respect each other and feel able – even obligated – to be candid." This definition from Amy Edmondson, in her 2019 book *The Fearless Organization: Creating psychological safety in the workplace for learning, innovation and growth*, is deceptively simple and the ramifications are profound.

Think of the organisations, project teams and leaders you know. How many demonstrate a disconnect between aspiration and reality? They want to be known for delivering great results and finding creative solutions. Yet many just get stuck because of invisible dynamics that play out on a daily basis.

You see it when a team member keeps quiet, even though they can see something is clearly going wrong. You see it when a contractor doesn't mention a different way of working in case they get laughed at. And you see it in ritualised board meetings and team meetings where groupthink prevails or the risk of being cast as the dissenting voice is just too high.

When psychological safety is low, we secretly fear being punished, humiliated or ostracised for speaking the truth as we see it. Low psychological safety gets in the way of team performance and project delivery. And when you can't deliver the outcomes you've promised, it gets in the way of personal success. If you are wondering about the


01
02
05
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Analysis
Contact
Business
Teamwork
Power

evidence, take a look at Edmondson's book, which includes numerous case studies, or check out Google's Project Aristotle.

Project Aristotle

The multi-year research programme Project Aristotle set out to identify what makes Google's most effective project teams so successful.

Julie Rozovsky, one of the lead researchers, explains the findings: "After examining 180 project teams and 250 variables, we discovered that who is on the team matters far less than how the team members interact, structure their work and view their contributions. It comes down to the group's norms of behaviour and five key dimensions:

- **Psychological safety** – is it safe to take risks and be vulnerable in front of each other?
- **Dependability** – can we count on each other to do high-quality work on time?
- **Structure and clarity** – are our goals, roles and execution plans clear?
- **Meaning of the work** – are we working on something that is personally important?
- **Impact of work** – do we fundamentally believe that the work we are doing matters?

"Project Aristotle demonstrated that, of these five dimensions, psychological safety stands head and shoulders above the rest – it is a pre-requisite for the other four."

Psychological safety is the key enabler for building a high-performance culture. It is not soft or about being nice. It is about creating a climate that is characterised by trust and respect so that people feel safe to take interpersonal risks.

At its simplest, people with a fixed mindset believe that human qualities such as intellectual skills are carved in stone and not open to change: you either have them or you don't

Risk management gets lots of attention in projects. But its main focus is on risks 'out there'. How much time do you spend talking, or even explicitly thinking, about personal risk? I'm not alluding to the risk appetite of key stakeholders (even though that is important). I'm talking about what each of us personally sees, and experiences, as risky in our dealings with others. For example, what do you do with that momentary thought – 'dare I push back?' – when the finance director challenges your figures at a project board meeting? Do you stop to consider possibilities, or do you rule it out immediately?

I want to divert the discussion for a moment away from psychological safety (a group phenomenon) to focus on your attitude to personal risk. Whatever your answer to the question, 'dare I push back?', I suspect you'll gain additional insight through considering your response in the context of the next section on mindsets.

The growth mindset

The term 'growth mindset' was coined by psychologist Carol Dweck to explain why some children love learning and readily embrace new challenges, while others, those with a 'fixed mindset', are wary of new challenges and actively avoid them. Her subsequent research showed that these two terms apply to people at large.

At its simplest, people with a fixed mindset believe that human qualities such as intellectual skills are carved in stone and not open to change: you either have them or you don't. This belief brings "an urgency to prove yourself... it simply wouldn't do to look or feel deficient". People with a fixed mindset tend to evaluate every situation with questions like:

EIGHT KEY TAKEAWAYS

1 **Groups and team environments amplify emotions.**

2 **Our innate need to belong increases complexity.**

3 **Excess stress can trigger a cycle that plays out across the wider project system and adversely impacts delivery.**

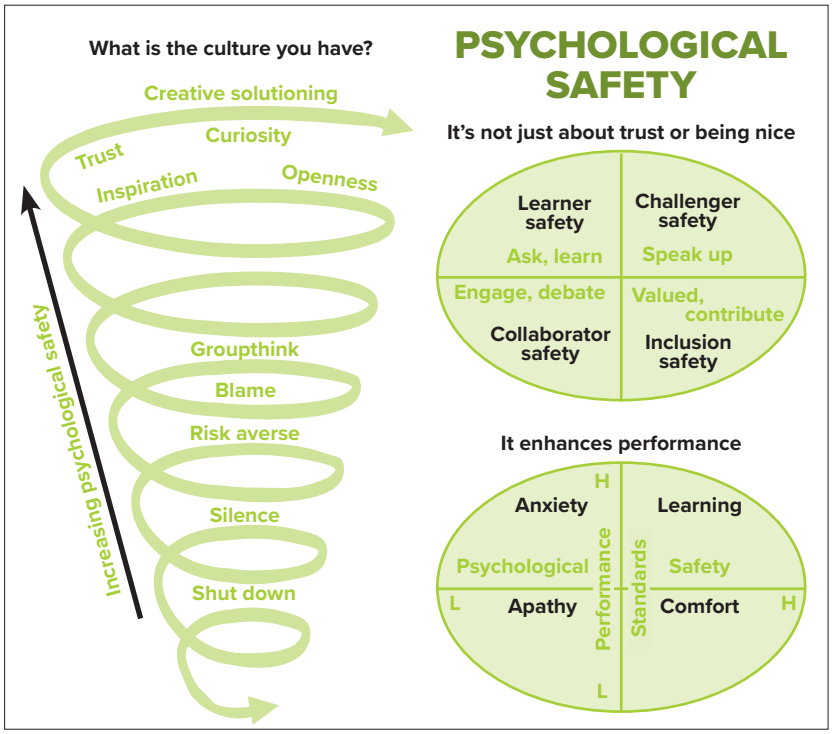
4 **We need leaders who, despite the overload and stress, can slow down, rather than becoming more transactional and process-driven. Those who don't run the risk of creating a toxic environment where high performance is impossible to achieve.**

5 **Individuals with a growth mindset believe everyone can change and grow, failure is something you learn from and new challenges are to be embraced. The opposite is true for those with a fixed mindset.**

6 **Creating a high-performance culture means actively nurturing psychological safety to support interpersonal risk-taking/a growth mindset culture.**

7 **If you're not intentionally cultivating psychological safety, you will be adding to complexity by making a VUCA world more VUCA – and reducing the chances of successful delivery.**

8 **We all need the skills to counteract this pull to complexity.**



The figure on this page shows psychological safety is a pre-requisite for creativity, collaboration and learning. Without it, we inadvertently trigger avoidance behaviours and add to the complexity of delivery. Psychological safety is dynamic and emergent – it depends very much on what is going on in the external environment, who is in the team and what is happening for them. We cannot assume that, just because psychological safety was high six weeks ago, we will stay at the top of the spiral.

The growth mindset culture

The Neuroleadership Institute puts a slightly different spin on the same terrain. It speaks about the need for a growth mindset culture where "most, if not all, employees hold the dual belief that improvement is both possible and the purpose of the work employees do... They uplift one another, welcome new ideas and strive to get better. They do not point fingers, shut people down or assert themselves as geniuses." It doesn't matter whether we are talking about psychological safety or a growth mindset culture – both need deliberate fostering.

When we understand how the human brain works, it becomes obvious that creating and nurturing psychological safety, ie a fear-free environment, is key to successful project delivery – no matter your job title. This means learning to recognise and contain your emotions in order to: be better able to contain the emotions of those you interact with directly and indirectly (your customers, team, sponsors, stakeholders and suppliers); be better equipped to read the situation clearly or less likely to trigger a threat response in others; and be able to respond flexibly to retrieve the situation on the occasions when you do.

Emotions are contagious, and stress can quickly force things to get out of hand. Put all this together and the bottom line is clear. If you're not intentionally nurturing psychological safety, the way the human brain works means that you will unwittingly be making a VUCA world more VUCA (volatile, uncertain, complex and ambiguous), reducing the chances of successful delivery. Whatever your role, you need the skills to counter the pull to complexity.

People with a growth mindset believe that human qualities are things to be cultivated through effort, strategies and help from others

will I succeed or fail? Will I be accepted or rejected? They are fearful of new challenges because of the inherent risk: if I make a mistake, I'll show my shortcomings and that would be a bad thing.

People with a growth mindset believe that human qualities are things to be cultivated through effort, strategies and help from others. Yes, people start in different places, but everyone can change and grow through application and experience. This brings a completely different attitude to success and failure. Success is about growing and developing. Failure is something you learn from – it's vital for future growth. New challenges are to be embraced, not avoided.

Think about yourself for a moment – at work, at home, with your family, with hobbies. Where do you have a growth mindset and where do you have a fixed mindset? What is, or was, encouraged? What impact has that had? Now think about your projects. What is encouraged and what are you encouraging? Can you see how that relates to psychological safety? I said earlier that psychological safety is a group phenomenon. We need to actively cultivate it.

Carole Osterweil's new book, *Neuroscience for Project Success: Why people behave as they do*, will be published by APM in June 2022. To buy a copy, go to apm.org.uk

EXPERIMENT WITH PLATFORM THINKING

Researchers from the Transforming Construction Network Plus invite project professionals to step up and explore the world of product platforms

What are platforms all about? Today, we live in a platform economy. Every day we use increasingly ubiquitous digital platforms, such as Amazon, Facebook, Google and Uber, to meet our very specific needs for searching, entertainment and travel. But platforms don't have to be digital. Firms providing physical products can also use product platforms to balance variety of offer with productive efficiency by creating product families, or by enabling mass customisable products to meet customers' specific needs.

With product platforms, products are designed around a core, such as the chassis for a car, to which a variety of peripheral components can be added. Usually, the common core remains relatively unchanged and is produced in large volumes, so that firms can benefit from production efficiencies. The peripheral components can then be switched around to provide customer or client choice and variety.

The key thing that makes product platforms so powerful, however, is the interface between the core and the peripheral components: this stays the same. This means that both the core and peripherals can be changed and developed independently, enabling innovation to happen independently in the core and peripheral assets.

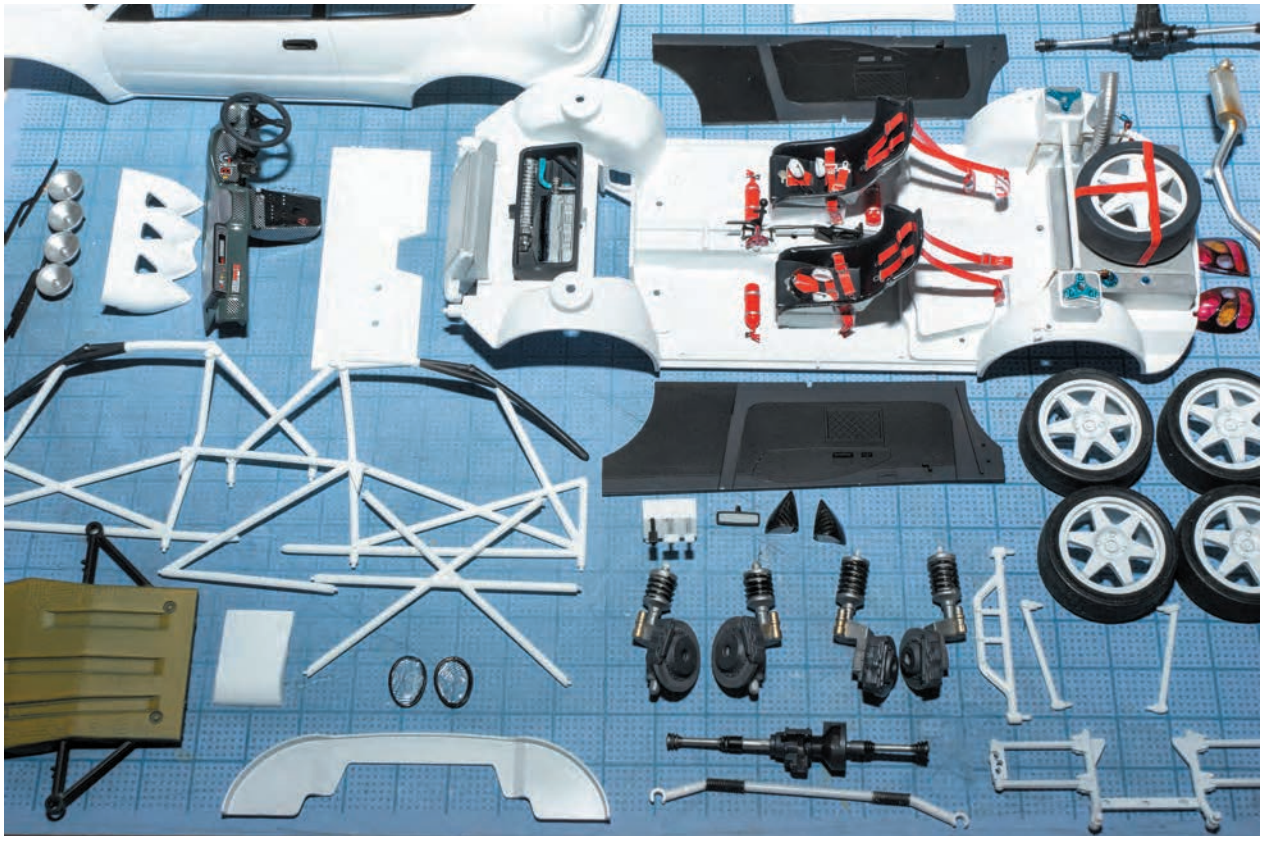
Many manufacturing firms are already using product platforms to create value for customers. For example, Tesla has developed a platform approach to its battery production by introducing Powerwall. This is a product family line of batteries that means that the core asset of the battery used in Tesla's cars can also be used for energy storage in homes and businesses. Here, the peripheral has changed from a car to a building.

We can think of product platforms as supporting a design configuration that enables a known set of components to be configured in multiple ways to develop a wide set of designs from a pre-existing set of products. At the Transforming Construction Network Plus, which brings together experts from a range of disciplines to tackle the most pressing problems across digital, energy, construction and manufacturing, we've been exploring how project-based firms in construction have been adopting ideas around product platforms, and how they are using product platforms to deliver buildings.

With product platforms, products are designed around a core, such as the chassis for a car, to which a variety of peripheral components can be added

What platforms mean for project-based firms

It is well known that project-based firms, such as engineering consultancies, and construction firms deliver highly customised products and services to clients through projects. Focusing on the construction sector, we noted that, traditionally, every time, a design team starts with a blank sheet of paper and designs the building to be delivered. Supply chains and technical solutions are developed to deliver this unique project, with detailed design often deferred until the site supplier is appointed. The use of product platforms changes some of the



unique characteristics of bespoke project-based delivery by encouraging the re-use of core aspects of building solutions.

Examples that kept cropping up in our research highlighted the time that could be saved by having a standard (parametric and detailed) design for an escape stair or toilet layout, or a standard specification for wall types, and a pre-approved supply chain ready to compete to meet these requirements. The interface challenge is already solved for a large proportion of the project, and there's a clearly defined process for creating the building. To meet the client's demand for variety, these core elements and specifications can be supplemented, with the work of integrating a limited number of unique components being value-add. In doing so, construction firms, and more generally project-based firms, can benefit from economies of both scale and scope.

Our research has found that early and detailed pre-definition of core solutions means that firms can procure components directly from well-established third-party manufacturers, rather than an extended supply chain. Project-based firms can also use their platforms to develop stronger relationships

WHAT ARE PLATFORMS?

The word 'platform' has been applied at a variety of scales, including products, product systems, industry supply chains, markets, industries and even across groups consisting of multiple industries. Irrespective of scale and context, platforms share some common features:

- **A set of low-variety core assets (ie components, processes, knowledge, people and relationships). The core assets are replicated multiple times, enabling platform owners and participants to gain a competitive advantage by enhancing production or delivery efficiency.**
- **A complementary set of peripheral components that exhibit high variety. The use of interchangeable peripheral components results in a diversity that creates distinctive offerings to the market.**
- **A stable interface that acts as a bridge between the stable core and variable peripherals, permitting innovation in both core and peripherals. Thinking about organisations, their structure, products, parts and processes as platforms permits a new perspective on each as platform, peripheral or interface. This enables organisations to act as a platform owner, generating opportunities to create and capture additional value.**

Given the enhanced certainty over time and cost that platform-based delivery provides, project managers need to be ready to adapt their advice and procurement approaches

with supply chains, supporting and guiding innovation in the core assets and, as required, the peripheral components.

To fully benefit from product platforms, project-based firms should identify, create and re-use a set of core digital assets (designs, specifications) within and across projects. Not only will this make their design workflows more efficient, but these core digital assets can also be linked to other firms' digital workflows, enabling the efficient transfer of information between project participants. The use of a digital library also means that there can be an efficient recombination of digital components, and the physical components that they represent.

How to take advantage of platforms?

While the use of product platforms leads to greater delivery efficiency and product differentiation, it can introduce challenges for project managers. First, the use and recombination of the design aspects of product platforms challenges project managers to shift attention to portfolios and programmes of projects, rather than individual projects in using a product platform strategy. In turn, this leads towards a re-orientation of the production system to deliver flow and reduce waste.

The second challenge is related to procurement and the competition between product platforms. Construction firms, for example, investing in their own product platforms with coordinated core and peripheral components will be keen to sell their version of the building, but often projects are procured by stages. This shift in the supply of buildings means that clients can now procure buildings differently, choosing between platforms. Given the enhanced certainty over time and cost that platform-based delivery provides, project managers also need to be ready to adapt their advice and procurement approaches to incorporate platform-based solutions as an option to deliver best overall value for their project.

In our Transforming Construction Network Plus project, we have seen construction firms that are already successfully addressing some of these issues, delivering building projects quickly and cost-effectively. We have also seen the traditional role of the project manager being redefined to one of manufacturing and assembly management, ensuring the efficient and effective delivery of the final product.

While we don't know how platforms will transform project-based industries, as product platforms become digitally enabled, there are signs that they are becoming more widespread and our research finds many project managers experimenting with new strategies to gain value in the platform world.

Luigi Mosca and Alexander Zhou are at the Centre for Systems Engineering and Innovation, Imperial College London. Kell Jones and Jacqueline Glass are at the Bartlett School of Sustainable Construction, UCL. Jennifer Whyte is at the John Grill Institute for Project Leadership and School of Project Management, University of Sydney. Andrew Davies is at the Science Policy Research Unit, University of Sussex Business School.

APPROACHES TO DESIGNING A PLATFORM

A TOP-DOWN APPROACH

A top-down approach is quite common. Here, platforms are conceived and designed from scratch before implementation. Yet, in practice, organisations already have an existing and complex product portfolio, organisational structure and route(s) to market(s).

Top-down may only work for newly formed organisations or operating units, oriented entirely to work via a platform model.

A BOTTOM-UP APPROACH

In a bottom-up approach, existing structures are analysed with a view to understanding what is – or might be – common or core to the organisation's structure or offer, what needs to be varied (in order to deliver on the market's expectations of variety) and how the interfaces operate.

Bottom-up platform development may only work for existing organisations that are willing to change, perhaps radically, to adopt a platform model.

FOR MORE INFORMATION, CHECK OUT:

- **Transforming Construction Network Plus web page, bit.ly/3Jv9Mo5**
- **Article: 'Addressing specialization and fragmentation: product platform development in construction consultancy firms', bit.ly/3uTux8Z**
- **Report: *Platform Thinking for Construction*, bit.ly/3rNPn7N**

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ADNOC Headquarters

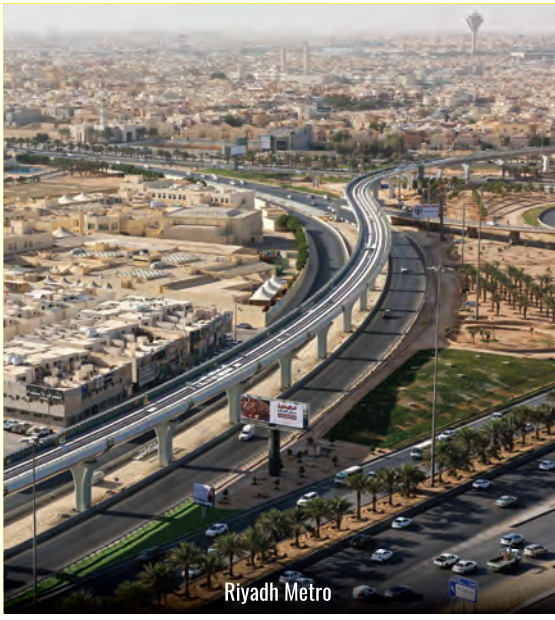

Bahrain International Airport


Zayed National Museum


National Museum of Qatar


IOCL Technology Center (artistic view)


Elite 18 Islamabad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TOWARDS UNDERSTANDING AGILE IN PROJECT MANAGEMENT

Agile is recognised as beneficial to successful project delivery and team performance, and new APM research digs deep to uncover the advantages – and challenges. Here, *Project* presents some of the authors' findings...

Most of the participants who engaged with our research suggest that they view agile as promising and beneficial. Our data was gathered from a systematic literature review of 353 academic papers on agile in the project management domain; six case studies, including 31 interviews in a range of project settings; and an online survey of project managers that attracted a total of 604 responses from a wide range of industries. Almost 70 per cent of survey respondents claim they are going to practise more agile in their projects in the future.

The potential for agile in project management

In contrast to the traditional or waterfall approach of project management, agile is recognised as offering enhanced transparency, visibility and even 'honesty', due to better sharing and management of information, which then serves to improve decision-making. The teams are empowered in a sense to 'vote' on the plan, enabling them to have their voice heard and to share the detailed information they have. This is also shown to give the teams purpose and motivation.

It must be stressed that being agile does not mean 'being without a plan'. This is a common misconception among organisations adopting agile, and an 'excuse' often claimed by teams who either don't understand agile or are attempting to cut corners. On the contrary, many interviewees claim that, because of the enhanced transparency, communication and team alignment within agile projects, agile project teams and individuals are more disciplined and have shown improved productivity and responsibility. Agile team members are motivated and accountable to each other, making them more collaborative and flexible, and better at sharing resources in an atmosphere of 'gentle competitiveness' shaped in the workspace.

The benefits of improved visibility and the more controlled reaction offered by agile are not only found among project teams; stakeholder communication and collaboration are also enhanced through implementing agile and shifting to agile mindsets. In terms of the suitability or potential use of agile in project management, a relatively common view (reported by some of the participating practitioners) is that the use of agile depends on the industry, scale or environment of a project.

However, other experienced project and agile professionals disagree, taking the view that the core value is in how agile thinking is applied and how it is used for communication and collaboration. Agile, if not limited to specific tools or methods, can be used in a wide variety of projects and organisations with suitable tailoring and appropriate organisational support. We have found agile being used effectively in a range of industries and project types.

Agile can be suitable for complex problems. We found that, contrary to the common misunderstanding, agile can be scaled, and can work well for large and complex projects when well applied. This is because,

when team size goes up, in contrast to traditional project management, agile can maintain the communication required to remain relatively stable. Agile makes a large number of teams align with the project's goals. Using current frameworks, such as the Scaled Agile Framework (SAFe), can offer a structure for interdependency and collaboration. Interviewees from Case A (see sidebar) claim that their agile project teams have the greater flexibility needed to cope with changing complexity and uncertainties, including fast people turnaround, which for large projects can happen quite often.

The efficiency and efficacy of agile come from its features of transparency and reiteration, and result in less risk and more predictable outcomes. Agile avoids the problem of 'diffusion of responsibility' and promotes 'respectful roles'. And the core agile values of flexibility, adaptability and responsiveness mean agile methods can be successfully applied to various types of projects in a tailored way.

This is an edited extract from the APM and University of Southampton research report *Towards Understanding Agile in Project Management*, which can be downloaded at apm.org.uk/research

A CASE STUDY IN AGILE

Case A is an interesting, large-scale project (in terms of budget, timespan and people involved) embracing agile and so far succeeding in implementing its use within a contrasting sector (ie defence/ central government) with a hierarchical organisational structure and waterfall project management as traditions. The project involves creating an ecosystem for medical services for the UK defence and military at international scale. The long-term project involves a budget of £200m and hundreds of team members, with a blend of in-house professionals and contractors.

The project started as a traditional waterfall project and then switched to agile after both internal and external stakeholders realised that the project was costly and barely delivered. Despite a slow and difficult transition period, the Scaled Agile Framework (SAFe) was adopted and adapted to coordinate all project members involved, as well as other main stakeholders. Gradually, since 2017/2018, it has successfully developed a set of mechanisms, including flexible contracting and supportive induction/ training for staff, and has been delivering project objectives effectively – nine out of 10 project deliverables set in its most recent 18-month PI planning have been achieved, meeting the quality requirement and within budget, despite the pandemic.

The adoption of agile has advantages in terms of flexibility, adaptability and responsiveness, as it offers more transparency and visibility, and a more controlled reaction. Stakeholder communication and collaboration are also enhanced through the use of agile and agile mindsets. One interviewee who has served 30 years in the organisation claims that such a remarkable success has never been achieved before, and due to the complexity and uncertainty involved for this large-scale project, it would not be feasible without agile. "It's the only programme in 30 years that we... just bucketed a load of capability together and said this is what we're going to deliver... and I'm delivering that to performance, cost and time for the first time ever."

PROJECT ME

The upheaval of the past two years has given us pause for thought, so we asked project professionals how they plan to change, develop and improve themselves to become even better in this comeback year

Life is about learning

Reshika Gordon-Tamang, P3M consultant, DAS

The past two years have been tough for everyone, but one thing that has brought positivity to my life is mentoring. My take on how to improve your project management career skills this year would be to find a mentor or become one. What skills (not just technical) can you gain from a mentor or being a mentor to someone early in their career? Life is all about learning and broadening your knowledge.

Bring your skills to a school

James Pearce, portfolio analyst, Rolls-Royce

Reflecting on 2021, a key experience that enabled me to accelerate my project management career skills was taking on a school governor role. Complementing the theoretical and experiential development opportunities available in my job at Rolls-Royce, the voluntary role unlocks a different, complex environment in which to practise key project management skills. Awareness of how to communicate and engage with different people is essential in project environments. This has been a useful and transferable skill in school board meetings, along with exercising financial and risk management. Being part of a governing board has given me critical thinking skills, enabling me to ask the right questions when presented with information – something that helps me when presenting my own work in the workplace, with a better understanding of how I should communicate information. Connecting project management with school governance offers personal and professional development potential while benefiting the operation of schools – enabling the education of the project managers of the future.

Research, be positive and prepare

Charlotte Craig, IT project manager, Frontier Agriculture

Having hit my 10-year milestone as a project manager, here are my four goals this year to improve my career skills:

- **Research.** Use free resources to learn. The APM website has an incredible breadth of resources available to project professionals.
- **SWOT.** Complete my SWOT analysis (strengths, weaknesses, opportunities and threats) and identify actions for development.
- **Positive mindset.** Always assume 'positive intent' – a fundamental of Patrick Lencioni's *The Five Dysfunctions of a Team*, which is worth a read!
- **Time.** Schedule time to 'think and be'. Allow myself time to prepare and reset to turn up to meetings as the best version of myself.

Keep asking: so what?

Jerome Evans, group programme director, Meggitt

You have a risk register, a charter, a project management plan and project reviews. Now ask yourself: so what? Every successful project and project manager has the above elements (as do most unsuccessful ones). They are important, but do not guarantee success. It's what you do with them that matters. As you reflect in 2022, look in the mirror and ask yourself: so what?

Contribute as a volunteer

Peter Pepper, senior delivery manager, Methods

My focus is to continue my personal development by volunteering as a mentor and a guest speaker for APM. The APM volunteering sessions enable all participants to share knowledge and experiences from a variety of business sectors and industries. Alongside this, I will continue with my APM training and aim to pass the next level of certification.

Understand thinking patterns

Mark Reeson, director, M R Project Solutions

This year, after such a devastating 18 months, I have decided to look at project management through a new lens. Having discovered some research that has been carried out in the US into neural behaviours, I am interested to discover how they have aligned this to project management and how our brain works to make the right decisions. By understanding this and reading through the material on the NeuralPlan website, I am hoping this will help me understand the true impact of the pandemic on how we think and how this can help me become a more effective project manager. By making the connection between thinking patterns and project management skills and techniques, I hope this will lead to new roles and a broadening of my horizons.

DEAR SUSANNE

"In the wake of the pandemic, my team and I seem to work much longer hours and be more on edge. We are mentally tired and under constant pressure to deliver. I am beginning to worry about the human impact. How can I help my team?"

Susanne Madsen is an internationally recognised project leadership coach, trainer and consultant. She is the author of *The Project Management Coaching Workbook* and *The Power of Project Leadership* (second edition now available). For more information, visit www.susannemadsen.com

Thank you for your question. Unfortunately, you and your team are not alone in facing this issue. First of all, have a conversation with your team about the impact stress is having and take the warning signs seriously. In extreme cases, stress can cause burnout to the point of no return. The short-term implications are also worrying. Studies show that when people are under pressure their IQ levels drop significantly. Blood and oxygen are diverted away from the prefrontal cortex towards the 'fight or flight' response. That means that people's thinking narrows and they lose the ability to think creatively and make sound decisions. Not a good position for any project team to be in.

It's good to talk

To combat stress, you have to build a culture where you and your team can express how you feel. You want to create an environment where it's okay to show vulnerability, to ask for help and where people care about each other's wellbeing. Ask team members how they are coping and encourage them to speak up when there is too much work on their plate. Sharing our problems is a healthy response to stress. It creates a sense of camaraderie and raises awareness about the issues.

Creating a project culture where you actively work to minimise stress is not your responsibility alone. Senior executives, project managers and team members all play a role. Project sponsors and programme managers need to set realistic deadlines and not expect staff to be self-sacrificing superheroes. As the project manager, you need to help ensure that project plans are realistic and that there is sufficient contingency in place. You're also responsible for the creation of clear role descriptions, along with a common way of working. Being able to talk about how you will work together as a team, and what behaviours you expect from each other, is a vital step in creating the best possible set-up.

Keep your own stress in check

In addition, each team member has a role to play in minimising stress in their own lives. Essentially, each person is responsible for noticing how they feel physically, emotionally and mentally. The same is true for you. Are you operating within your zone of peak performance, or have you got to an unhealthy place where stress has become chronic? Perhaps you have aches and pains, you are unable to sleep at night, you are irritable or you constantly worry.

If you recognise any of these symptoms, it's time to take action. Scale back the number of hours you work and unplug in the evenings and weekends by switching off your phone. Get enough sleep and exercise. Make time for friends and family and focus on activities outside of work that give you energy. These activities don't have to take up a lot of time. I know people who have successfully lowered their stress levels by walking their dog more frequently, by playing the guitar or by taking a few minutes to sit in stillness and focus on their breathing.

Don't push yourself too hard

But perhaps the real problem isn't understanding what to do about stress, but rather why we don't do what we know is good for us. Many project professionals – and perhaps you're one of them – are high achievers who thrive on going the extra mile. They find it difficult to ask for help and may even be so caught up with work that they don't realise when chronic stress creeps up on them. Or if they do realise, they choose to push through it. To combat stress, we all have to take responsibility for our own wellbeing. We can't blame everything on external circumstances. We each have to look inwards and be honest with how we're feeling and set our own boundaries.

Do you have a question for Susanne? Email mail@susannemadsen.com

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PUBLIC REGISTER OF ChPPs

The following individuals make up the latest cohort to achieve Chartered Project Professional status with APM. Congratulations to you all, from those based in the UK and Qatar to Singapore and China! For details of the criteria for achieving chartered status and the routes to get there, visit apm.org.uk/chartered-standard, where you can also view the full Register of Chartered Project Professionals.

First name	Surname	Country
Henrietta	Achampong	UK
Amit	Agarwal	AUS
Henrik	Ahren	UK
Tom	Alderton	UK
Grant	Anderson	UK
Moganakrishnan	Athmanathan	UK
Andrew	Bailey	UK
Helen	Bayley	UK
Samantha	Bestwick	UK
Gurdish	Birdi	UK
Charles	Blackmore	UK
Jim	Blair	UK
Eddie	Borup	UK
Briony	Bragg	UK
Caitlin	Bragg	UK
Nigel	Braunton	UK
Rhys	Bright	UK
Anita	Brooks	UK
Luke	Brotherton	UK
Sebastian	Brown	UK
Kate	Bunting	UK
Mark	Burger	QAT
Graeme	Calvin	UK
Stuart	Cameron	UK
Daniel	Cavanagh	UK
Hamish	Chalmers	UK
Kumar	Chinnaswamy	UK
Nigel	Chisnall	UK
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Robert	Forde	UK
Matthew	Fryer	UK
Paul	Futter	UK
Sarah	Golding	AUS
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HOW TO

ACHIEVE SUCCESS BY PUTTING EMOTIONAL INTELLIGENCE FIRST

Jess Tray, APM's Young Project Professional of the Year, worked on an NHS mental health service that gave hard-to-reach communities the pandemic support they needed, reports **Charles Orton-Jones**

The pandemic – as if we need reminding – has been a menace not only to the lungs, but to the soul. Loneliness has soared. Home workers have piled on the pounds, stuck in front of computer monitors. And the torrent of bad news led to the Office for National Statistics observing the biggest decline in morale on record.

Some communities had it worse than others. Ethnic and religious groups in particular were disproportionately affected by the pandemic. Good Thinking, an NHS mental health service, wanted to help these hard-to-reach groups. But how? Jess Tray had a few ideas.

"I thought, 'Ah great! The first and maybe only time that I'll get to put my degree to use,'" she recalls.

Tray got a first in theology from Cambridge University in 2016, and her grounding in religious concepts suddenly became extremely useful. As a senior consultant at Gate One, a digital and business transformation consultancy, Tray's job was to create and produce content for Good Thinking to help religious groups suffering during Covid.

Weaving together wellness and faith

"In times of hardship, some people turn to faith communities more than they would otherwise," says Tray. "A survey of the Punjabi community found people were looking to their friends, family and faith for support through the pandemic, and not necessarily the NHS. We needed to offer mental health support in a culturally competent way, including to people who might feel more comfortable accessing support in their native language. I was brought in to structure the approach, engage with the faith communities and create content to help members of these communities with their mental health."

The result was a set of online resources and videos that delivered detailed guidance on mental health and wellbeing to faith and belief communities in a truly original way. "To design content with London's Muslim communities, we formed a working group with Newham Council; Dr Imrana Siddiqui, GP and clinical lead for mental health at North-East London Clinical Commissioning Group; and the Newham Muslim Forum.

Dr Siddiqui suggested mapping the NHS Five Ways to Wellbeing onto the five pillars of Islam and seeing if that would converge. It felt a bit forced, but triggered our thinking of how we could bring mental health and faith together."

Sensitive collaboration as a powerful tool

Tray's knowledge of Islam allowed her to contribute to this group, navigating sensitive areas. "As a working group, we worked with members of Newham's Muslim community to pull together Quranic references and aspects of Muslim life to shape a version of the Five Ways to Wellbeing from an Islamic perspective." For example, a core principle of Islam is *Zakat*, or charity. The content suggests: "Getting some essential supplies for a vulnerable neighbour. Even if you don't have much, the Prophet (PBUH) still encouraged giving 'even half a date' [Sahih Al-Bukhari]." And: "Just smiling at others; this is a form of charity in Islam as per the saying of the Prophet (PBUH), 'a smile is a charity' [At-Tirmidhi]."

Jess Tray

Current job

- Senior consultant, Gate One

Education

- University of Cambridge, theology and religious studies, 2013–2016
- Cambridge Judge Business School, management studies

Hobbies

- Netball; assistant manager of Maccabi GB under-18 girls' football team: "We are going to the Maccabiah Games in the summer. It's like the Jewish Olympics. I think a lot of the skills I've learned there are transferable. But I will not be touching a ball in front of any of the players; they are much better than me."

Tray recalls with pride: "We got endorsement from the Muslim Council of Britain, the British Islamic Medical Association and the British Board of Scholars and Imams, who could circulate the content through their existing community networks." Content went viral via WhatsApp and Facebook. The success of the project prompted further commissions. By March 2021, Tray and the team had engaged over 30 organisations and produced 40 pieces of content, far in excess of the brief, and on time and within budget too. The impact saw her named Young Project Professional of the Year at the 2021 APM Awards.

For Tray, a major payoff was the collaborative approach with the NHS, Newham Council and Muslim community organisations. "It wasn't just a tick-box exercise. It felt powerful, bringing together people in the same room who wanted to make a difference."

"If I just want to be productive, I can stay at home. But if I go into the office, I want to chat"

Emotional intelligence as a must-have skill

For project managers, there's a lesson here in the value of emotional intelligence, or EQ. A role like this requires an informed and aware disposition. Tray is clearly a natural, but works at it too. "I think it can be taught," she says. "Even if it's just learning how to listen to someone. I did a course as part of Gate One's Mental Health Ally training, which involved role-playing with three people, one of whom is just observing and giving feedback. You learn there are times when people just want you to be quiet and give them space. It's worth doing."

She argues that EQ is even more important in the Zoom age. "We are more likely to ask people how they are doing and have conversations with clients," she says. "We've all been disrupted and have been collectively going through a difficult time for nearly two years. Video calls mean we are looking into people's lives, seeing a cat or a child in the background. I think it's humanised things a lot more."

Going into the office has changed. "If I just want to be productive, I can stay at home," says Tray. "But if I go into the office, I want to chat. People really value that, in a way they didn't when they were in the office five days a week.

"We have annual awards for six values, one of which is empathy. It's a big part of being able to get on with the people you work for and with."

Another lesson is how accumulating knowledge can pay off in unlikely ways. Her degree in theology meant Tray could bring together a variety of religious and cultural groups productively. "A great way to improve EQ is to read; even fiction can help," says Tray. Her advice is to keep working at EQ. Theoretical knowledge is great, but when a crisis hits, project managers need more profound skills to draw on.

JESS' FIVE TOP TIPS FOR AMBITIOUS PROJECT MANAGERS

1 Use visual updates

I like to engage people by using video when I can. The software I use is called Wondershare Filmore – not a very catchy name, but it works well. I use free vectors if I can find them. People take footage on their phones. We use templates and stock images. Canva is useful, too, for graphics and short animations. Video editing takes a bit of practice, but it's worth it.

2 Join a book club

Reading can be a great way to develop your EQ. I joined Gate One's book club, which met virtually during lockdowns. I discovered some really interesting books, such as *Invisible Women* by Caroline Criado-Perez, which talks about the gender data bias. For example, crash test dummies are man-sized, so cars don't protect women as well. *Start with Why* by Simon Sinek looks at how leaders inspire. And *The Power of Moments* by Chip and Dan Heath is about how certain moments can have a disproportionate impact on us.

3 Find your mentors

I have informal mentors at Gate One – my line manager Grace Blundell; Caro Ruttledge, who heads our People Change practice; and Tom Mottram, who was my manager on my first project at Gate One. They've been relentless cheerleaders. They've pushed me to challenge myself and believe in myself. It's something I've genuinely benefited from since starting. My advice is to find people who will champion you and help you like that. You can repay the favour and champion other people and build that into your work.

4 Bite off more than you can chew

Transitioning into a new project can be a big step up. In my current project, my reaction was: 'I can't do this, I haven't done anything like it before.' It's important to realise there will be a learning curve in a new role, as you work in ambiguity and without all the answers. Over time, you can research the new role and work it out. You need to trust that you can cope. Project management gives you a core set of skills and will help to anchor you if things feel overwhelming or unfamiliar.

5 Search for the right culture

This is the third company I've worked for, and in the first two I didn't quite click. Nothing wrong with them, but now at Gate One, I definitely feel like I fit in. If things don't feel right, keep pushing and searching. You may even need to take a leap of faith. I was ready to leave consulting after the first two years, and only came for an interview at Gate One because it was a few doors down from my old workplace.

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PROJECT: TO VOLUNTEER AS CHAIR OF A CHARITY

Michael Higgins, founder and project controls consultant at Xacom, lends his skills as a volunteer on the board of Preston Vocational Centre

Based in Lancashire, Preston Vocational Centre (PVC) aims to advance the education of children, young people and adults in the Preston area. Its cause is close to my heart, and since becoming involved with the charity, I've consistently applied my project management skills to help the organisation achieve its mission and improve its performance.

This award-winning charity has a far-reaching impact and is leading the way in educational establishments that provide vocational training in construction and support services for those children and young people for whom mainstream education may not necessarily be the best fit.

PVC was established in 2009 and has had over 6,000 learners come through its doors. In 2013, the charity joined Preston's largest social housing provider, Community Gateway Association (CGA), as its subsidiary, so becoming an integral part of the employment and skills agenda across CGA communities. In 2021, the centre was named Educational Establishment of the Year at the Be Inspired Business Awards, which is a real testament to the dedication and hard work from all the staff.

Transferring my project skills

I joined the board of PVC in 2018, and in 2020 was honoured to take up the position of chair. When I was first made aware of the opportunity, I wasn't so sure how transferable my skill set would be. In fact, my skills were instantly transferable and put to good use. As set out in the charity's governing documents – and like many organisations – the board of trustees is responsible for its governance, ensuring that it is effectively and properly run and meeting its overall purpose. Despite the considerable differences in structure and size of charities and boards, all trustees and all boards, whatever the sector, share some fundamental responsibilities that play into the capabilities of project professionals.

In summary, chairs are trustees with a specific role on the board. As specified in the charity's governing documents, the chair can either be elected or appointed, and is responsible for chairing meetings of the trustee board. Other responsibilities of the chair include supporting and supervising the head of staff or operational manager; acting as a channel of communication between board and staff; acting as a figurehead for the charity; leading board development and ensuring its decisions are implemented; and taking urgent action (but not making decisions unless authorised) between board meetings when it isn't possible or practical to hold a meeting.

It's surprising just how transferable project management skills are.

Parallels between the project profession and the areas a trustee is involved with are clear to see

Teamwork makes the dream work

Just like a project manager, the chair is supported by numerous team members with a unique skill set. The trustees' roles and responsibilities include: furthering the charity's overall purpose as set out in its governing documents; setting its direction and strategy; ensuring the work of the charity is effective, responsible and legal; being accountable to those with an interest or stake in, or who regulate, the charity; being clear about the people who carry out work on behalf of the charity (trustees, staff, volunteers); and ensuring the board operates effectively.

Parallels between the project profession and the areas a trustee is involved with are clear to see. At each board meeting, the trustees review the document pack, which includes information on operational, financial, governance and HR elements. Each area is collated by the respective specialist in that area and really brings together a broader picture of how the centre operates as a whole. The specialists also attend the board meeting so that the trustees can challenge and better understand the content of the information in the pack.

Preston Vocational Centre provides vocational training to advance the education of children, young people and adults, supporting their personal development and equipping them for further education, training and employment

Monitoring and managing the charity's performance

From the information provided in the board packs and the board meeting, the trustees make sure that operational plans and budgets are in line with the charity's purposes, strategic aims and resources; performance is strong against the charity's strategic aims, operational plans and budgets; and there is a collective decision on what information is needed to assess delivery against agreed plans, outcomes and timescales. Trustees share timely, relevant and accurate information in an easy-to-understand format, and they consider information from other similar organisations to compare or benchmark the organisation's performance.

Actively managing risks

The board also retains overall responsibility for risk management and decides on the level of risk it is prepared to accept for specific and combined situations. There is a dedicated risk management process for identifying, prioritising, escalating and managing risks that the board regularly checks. The risks and mitigation plans are reviewed at each board meeting. One of the areas of risk that we, at PVC, pay attention to is safeguarding, as we work with children and in some cases vulnerable adults.

Stakeholder management

Just like a typical project management situation, there are so many stakeholders involved in the moving parts of the charity. As with a project, it's important to understand who needs to be engaged and influenced, how to navigate socio-political complexity, how to work with people to build support to achieve intended outcomes, and how to collaborate, solve problems and facilitate win-win solutions where possible.

I'm incredibly proud of the centre and all the team members, who make it possible to support and provide educational opportunities to Preston and the surrounding areas. Having completed an apprenticeship myself, I completely get the advantages of blended learning, where the practical and the theoretical collide. Growing up, I was fortunate enough to have a supportive family and development opportunities – not everyone has that privilege. This is what attracted me to the centre – it offers practical learning to those who may not otherwise have had the opportunity, as education is not 'one size fits all'.

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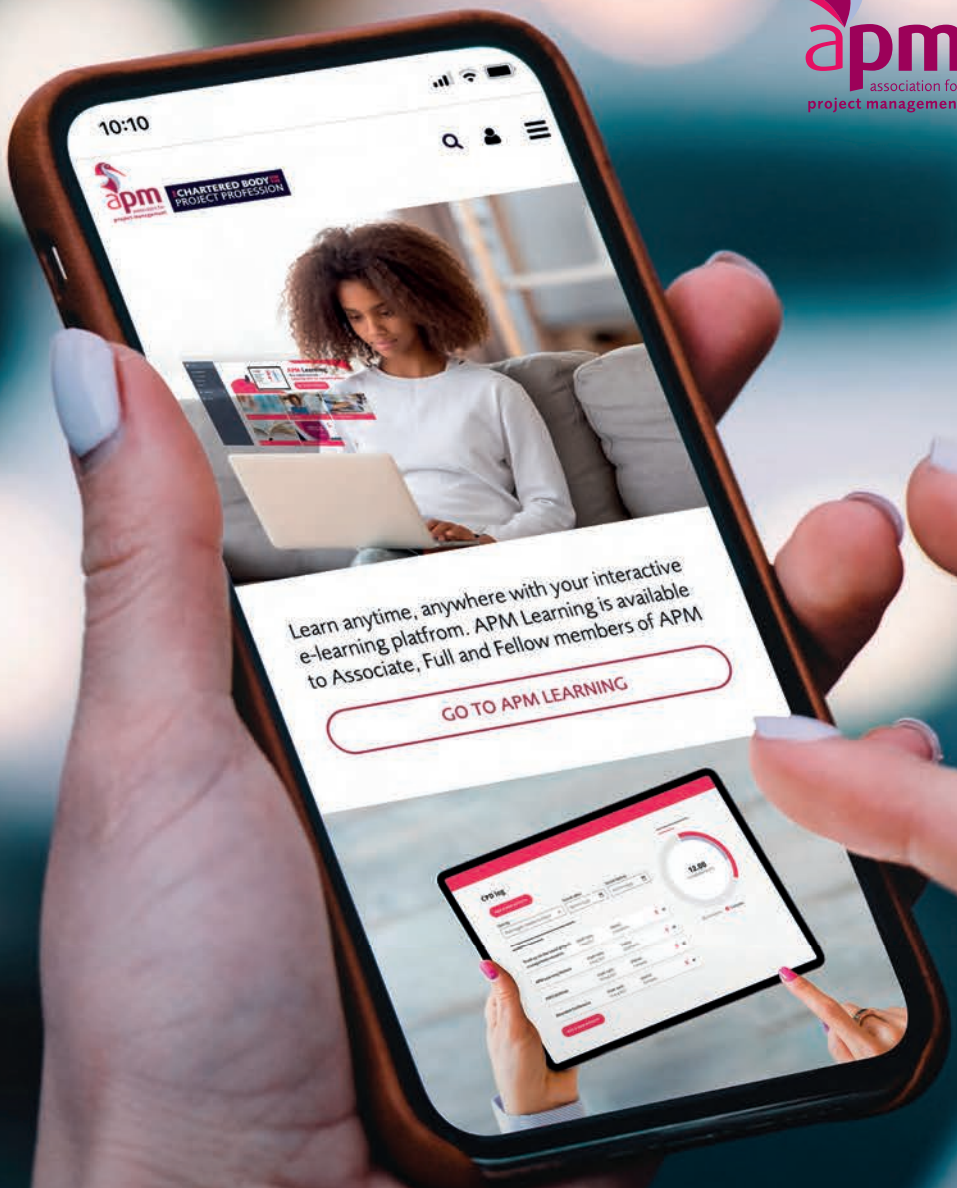

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OFFLINE

Where project management meets popular culture

"Ah, Bond. HR would like a word"

The latest, much-delayed film in the 007 franchise is an advert for the value of HR to project leaders. Lesson one? Don't keep recruiting duff project managers into your project team...

Lots of businesses are reporting staffing problems in the wake of the pandemic. Judging by the travails of the project managers in the latest Bond film, *No Time to Die*, the issue extends to both international terrorists and the security services. (Needless to say, serious spoilers follow...)

The set-up: MI6 head honcho M (Ralph Fiennes) is in hot water. He's been running an off-the-books project that has quite literally blown up in his face, resulting in the supervillain Lyutsifer Safin (Rami Malek) taking control of a DNA-targeting biological superweapon after erstwhile Bond nemesis Ernst Blofeld (Christoph Waltz) steals it from MI6. These are our three main project managers.

The labours of Heracles

We can be clear at the outset that M's Project Heracles was a disaster waiting to happen. Let's look at the evidence.

Moviestills.com

M is an experienced PMO leader. He has clear lines of accountability to his sponsors and the board. And although he obviously requires some licence to operate within established parameters, the least his paymasters can expect is responsible risk management.

What does he do? Recruits Russian scientist Valdo Obruchev (David Dencik) to head the project, who then turns out to be a psycho who's happy to work secretly for both SPECTRE head Blofeld and the mysterious Safin. Has M ever heard of vetting?

But that's not even the worst of M's errors on Project Heracles. Imagine you've been assigned – in the strictest secrecy – a project to develop a potentially devastating bioweapon. Where will you base your project? A secret bunker, maybe, which can easily be locked down? Perhaps a remote island, where any potential lab leak can be contained? How about the 25th floor of a central London office block? Yep, that's the 'covert' location M selects.

That's not all. They've woefully underfunded cybersecurity at the installation – USB thumb-drive access to the database? Really? And you can forget about off-site back-up protocols. In short, this is a litany of basic project errors.

Bond on the run

Where's our hero in all this? Turns out Bond (Daniel Craig) has retired to Jamaica, having been devastated five years earlier by the apparent betrayal of his lover Madeleine Swann (Léa Seydoux). The couple were holidaying in Italy and stopped to visit the tomb of Bond's other 'love of his life' Vesper Lynd. The tomb promptly blew up – courtesy of Bond's old nemesis Blofeld, directing his own little revenge project from Belmarsh prison courtesy of a two-way bionic eye sported by the film's arch henchman, Primo (Dali Benssalah). Smart project managers know they can and should steal good ideas from other projects – not just your own 'lessons learned', but the approaches your rivals employ, too. Pity M didn't look to Blofeld. Forget Slack: that bionic eye gizmo is precisely the sort of cutting-edge tech that can supercharge project efficiency.

Except... this being Bond, his own gizmos come into play. It's very disappointing that Blofeld didn't remember the bullet-proof vintage Aston Martin complete with miniguns when he set up the hit. Lessons not learned. And, frankly, he has his own HR issues. Primo's bomb fails to kill Bond at the tomb. Then despite being massively overmanned (four cars, two motorbikes and a chopper, all full of heavies), Primo still manages to fluff the hit on 007.

Surely Blofeld, his project lead, will take the hint and fire the henchman? Oh, no. He keeps him on the books for five years, eventually trusting him with the office-block raid. We all know some projects go wrong, and everyone deserves a second chance. But this is just inconsistent people management.

M is going to have some explaining to do at the post-project review

Bond is heartbroken, presumably reports back to MI6 that Madeleine is a wrong 'un and heads to the Caribbean. Which makes it frankly remarkable that she turns up as... Blofeld's psychotherapist! Yet more ammunition for HR when it comes to M's annual review. Projects need the right people in the right places, and he's clearly ignored her personnel files.

Safin the hot seat

Confused yet? We've barely started. CIA chief Felix Leiter (Jeffrey Wright) persuades Bond out of retirement to track down rogue boffin Obruchev. In short order, they discover: (a) he's going to be at a massive SPECTRE shindig to celebrate Blofeld's birthday; (b) there's a new 007 (Nomi, played by Lashana Lynch); (c) Blofeld's whole plan is to kill Bond with the DNA-based superweapon (well, bombs and bullets didn't work); and (d) Primo has screwed up again and the scientist is actually working for Safin. Right under Primo's nose, Obruchev re-programmes Heracles to kill the entire SPECTRE high command. Worse still, Bond himself carries the Heracles nanobots, via Madeleine, to Blofeld, killing him too. Who's in charge of this project? Bond's a burnt-out agent clumsily making the

Blofeld has certainly cracked remote working, directing his own revenge project from prison

Moviestills.com

situation worse. Primo is a multiple failure who still, somehow, manages to get hired as lead henchman by the very guy who duped him. Madeleine is clearly the beneficiary of sexist attitudes towards team members considered attractive. The only smart project hire so far is the new 007, who injects not just some much-needed diversity into the organisation, but is also clearly laser-focused on project goals, not personal angst or relitigating past relationship breakdowns.

But perhaps the worst project sin on show is Safin's lack of a clear project goal. We can overlook his poor due diligence in hiring key personnel like Primo. A glance round his missile-proof remote island lair shows the sheer number of people he's had to hire, from gun-toting henchmen to landscape gardeners and weird maintainers of his vast acid pools. It's a great project lesson: no matter the scale of your staffing needs, don't let standards slip.

We all know some projects go wrong, and everyone deserves a second chance. But this is just inconsistent people management

But we never really learn why Safin has gone to all the trouble of stealing a DNA bioweapon in the first place. Sure, at one point, we learn that millions of people would be affected, leading to countless deaths. But why? How is this project going to get signed off? Perhaps he just has a number in mind, but we all know how dangerous it is to have vague project goals – especially when you're about to release a swarm of deadly self-replicating nanobots. Just like M, he has no concept of risk assessment.

At least Hugo Drax in *Moonraker* wanted to wipe out humanity to start all over again with his own seed population. Now that's a clear project milestone. Made in 1979, it had an arguably better car – the Lotus Esprit submarine – and a better henchman with facial modification. We'll take Jaws and his, er, jaws over Primo and his spring-loaded eye any day. And in 2022, ripping up and starting again doesn't seem anywhere near as psychotic as it did in the 1970s.

THE SCORE CARD

We can't really say any more without divulging some terminally bad spoilers. So, let's conclude with some project-related scoring for the three contenders.

	M	Blofeld	Safin
Project risk assessment	Gives the bureaucracy of the civil service a bad name. HSE will have him in disciplinaries for years. **2/10**	Aiming to kill Bond ought to be low-risk. Gathering all your key staff in one place along with a bioweapon? Not so much. **3/10**	Reinforced concrete island lair? Check. Staying one step ahead of Bond? Check. Psyching out his girlfriend 25 years ahead of time? Check. **8/10**
Project team and resource management	Shout-out to Q for saving the day, as usual. And the new 007 looks the real deal. But blowing all that cash on an off-the-books lab? **5/10**	Huge overstaffing of the failed hits on Bond means a miss on budgets. Kudos for remote management via bionic eye, though. **6/10**	Incredible project ramp-up with a really big team and excellent facilities. Hiring Primo was a dud, but overall... **7/10**
Project planning and assessment	Oh dear. When did M think he'd get to deploy Project Heracles? And his control of agents in the field is woeful. **3/10**	Running projects for SPECTRE from prison? Impressive. But if your project brings down the entire enterprise? **2/10**	Classic boondoggle project: lots of moving parts and achievable stage gates, but no clear objective. There are cheaper ways to commit random genocide. **2/10**
Overall score:	**3/10** Take back the knighthood, ma'am. Then send him for PRINCE2 training.	**4/10** Being dead means avoiding the lessons learned meeting on a project that killed the entire board.	**6/10** A project lead you can deploy on the board's more harebrained schemes, which must look good while achieving nothing.

Our winner, then, despite poor project goal-setting and an HR-aneurism-inducing lack of appreciation of work-life balance, is Lyutsifer Safin. Bond, meanwhile, should be looking for his P45...

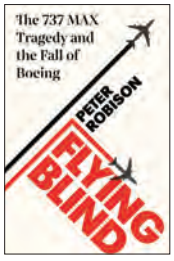
New books, recommended favourites and podcasts to keep you entertained

Andrew Wright analyses the project culture of Boeing, while Jason Sprague considers a net-zero framework

Officials inspect the debris of the crashed Lion Air Flight 610

Alamy

Flying Blind: The 737 Max Tragedy and the Fall of Boeing



Peter Robison
(*Penguin*)

This highly informative book hammers home the effect of focusing on financial performance to the detriment of quality on both safety and long-term commercial performance. Robison describes the engineering-led culture of Boeing that led to its successful jetliners up to the 777, and the pioneering of both technology and technique for complex designs. The culture of openness and integrity peaked on the 777 programme under its leader, Alan Mulally.

The story develops: to compete with the Douglas DC-9 twin-jet, the original 737 design was "quick and dirty", built as simply and cheaply as possible. Boeing strengthened its reputation for integrity, accepting responsibility for a Japanese 747 crash resulting from its faulty repair many years earlier. In 1978, the Carter administration deregulated the US airline market, dramatically increasing the market for small, cheap airliners, unexpectedly placing the 737 at the centre of Boeing's sales. At first the 737 did well, and in 1992 Boeing decided to further update the 737 rather than design a new aircraft. But Robison explains how, after Boeing acquired McDonnell-Douglas (MD) in 1997, the toxic, failed, cost-oriented management culture of MD overwhelmed and corrupted Boeing.

In 2011, the need to compete forced Boeing to develop the 737 further, rather than create a new design. American Airlines ordered its replacement fleet from Airbus, and to win back half that order, Boeing promised the 737 MAX, with financial guarantees of performance. The book details how Boeing's engineers faced the challenging timescales and the extensive changes to labour relations, management structure and culture within Boeing. They delivered on time and to budget, but with lethal quality failures leading to two crashes, killing all 346 souls on board.

This captivating book is well worth reading and gives many insights into the different emphases major projects can experience, and the challenges associated with them. The conflict between engineering excellence and financial performance may come as no surprise to more experienced project professionals, but will be a revelation to others. It brings into sharp focus the dire consequences of finance professionals not understanding the impact of sub-standard design, and of designers missing time and budget constraints without being able to justify that to the project's paymasters. Project success is vitally dependent on striking the right balance between cost and quality.

★ ★ ★ ★ ★

Review by Andrew Wright, author of Project Success and Quality: Balancing the Iron Triangle (*Routledge*)

Speed & Scale: A global action plan for solving our climate crisis now

John Doerr
(*Penguin*)
Speed & Scale delivers a compelling call for action that investment will deliver net zero. Doerr, a savant investor, describes his thesis for a net-zero investment portfolio measured by objectives and key results (OKRs). Doerr's thesis, invest with urgency in net-zero innovation, is on point. Our challenge is in his OKRs that advocate ill-formed solutions. One is left wondering if the benefit would come from applying a systems thinking approach considering the specific political realities of the enormous systemic change. Doerr could have defined the principles that underpin his OKR framework.

A systems approach coupled with principles allows us to consider the limitations of the proposed solutions. For example, in 2021, the lithium price increased by 477 per cent, laying bare rare earth materials as a national interest. Doerr implies innovation will remove these barriers, but he leaves the detail of making change happen to the change-makers themselves.

Discussion of fear, an individual call to action, implies that Doerr is aware of personal responsibility. Change, no matter the scale, depends on each individual person being aware and understanding their role. Still, Doerr's OKR framework does not acknowledge that each person in the developed countries must significantly change their lifestyle. The developing countries must avoid the hydrocarbon trap, but they are taking action. We all believe that the natural environment must be protected, and Doerr should be commended for his summary, multi-sector view and using his wealth and influence to demand action.

★ ★ ★ ★

Review by Jason Sprague, principal of Sprague & Co

My Bedside Books

Jo Jolly, deputy director for programme delivery, Environment Agency

EXPONENTIAL: HOW ACCELERATING TECHNOLOGY IS LEAVING US BEHIND AND WHAT TO DO ABOUT IT
Azeem Azhar
I love how clearly Azhar describes the phenomenal rate at which technology is advancing, the impact this is having and the struggle we have as humans to keep up. I also love the proposal of practical solutions. I believe we all must better understand the changes in technology that have already happened, and will continue to happen, and be actively engaged in ensuring it works to the very greatest benefit.

THE FEARLESS ORGANIZATION: CREATING PSYCHOLOGICAL SAFETY IN THE WORKPLACE
Amy C Edmondson
This book, based on decades of research, describes the importance of psychological safety in the workplace and its direct relationship with high-performing teams. As a project delivery profession, if we are to successfully tackle the climate emergency, we need to collaborate on a scale we haven't yet seen. This will require trust and courage – and this can only happen when teams and individuals feel psychologically safe. It's our role as leaders to create this environment.

THE BOY, THE MOLE, THE FOX AND THE HORSE
Charlie Mackesy
There are two reasons I chose this book. One, it was bought for me by my lovely partner Jon, so will be cherished forever. Two, it's a book about kindness and compassion. In our personal and working lives, this is the most important thing. My favourite quote that sums this up comes from Robin Williams: "Everyone you meet is fighting a battle you know nothing about. Be kind. Always."

We're all ears – podcasts to listen to

Send your own recommendations to emma.devita@thinkpublishing.co.uk

APM PODCAST
It's a special year, celebrating 50 years of APM, so make sure you catch Professor Darren Dalcher's insightful look back at how the project management profession has changed over the past few decades, and what the future might have in store. Don't miss his career-long collection of project failures and how to avoid a similar fate. Other new podcasts include a motivating look at how mentoring can boost your career.

TED BUSINESS
Hosted by Modupe Akinola of Columbia Business School, this weekly podcast focuses on ideas and practical advice to help you get ahead in your career, and unpicking the bigger business conundrums on everyone's radars. Recent topics include how to turn critics into allies, how to find the person who can help you get ahead at work, and an interview with PepsiCo CEO and one of the world's most powerful women, Indra Nooyi, on how the world of work can be reimagined post-pandemic.

MORE OR LESS
Available on BBC Sounds, this Radio 4 regular slot, hosted by Undercover Economist Tim Harford, explains – and sometimes debunks – the numbers and statistics used in political debate, the news and everyday life. Unsurprisingly, Covid-related investigations feature strongly, but the range of subject matter varies from HGV driver shortages and Universal Credit claims to Test and Trace and expensive electricity costs.

DOES A SCORE OF NET ZERO REALLY PASS THE TEST?

Eddie Obeng looks at the plan to sustain life on earth through the eyes of a project professional

'Habitat' describes the long list of things that each living entity needs to survive. Every creature has a unique list that could include somewhere to sleep or grow, or often other living entities to spread seeds or fungi to trade with for trace minerals. Human actions alter habitats globally, and no one doubts that – it has always been so.

Recently we've harnessed almost endless energy through electricity generation and powerful internal combustion engines. For us humans, it's now easy to physically damage habitats, and we've created materials that withstand the natural process of decay like nuclear waste, plastics and car paint. They can persist in the environment for centuries, damaging habitats. We produce and deposit small mountains of these all over the world every month. Our innovations mean that we can change habitats much too quickly for the complex, interconnected and frail web of an ecosystem that interconnects all flora, animals and life to adapt to.

The size of the prize

Last week as I drove the Rolls-Royce for a helicopter flight to a client, I reflected on the UK government's new #NetZero strategy. Until now, 'green thinking', led by the Intergovernmental Panel on Climate Change, meant I could offset all I do by planting trees and installing solar panels to soak up carbon dioxide. I hoped this new #NetZero paper would comprehensively address how we sustain a habitat for all lifeforms.

So, imagine my disappointment to discover that #NetZero is not about humans having a net-zero impact on the habitat. As I read the strategy paper, my frown deepened. I read about 'green buses', wondering where people were going and why. I read how they preferred 'clean' energy that produces nuclear waste to 'dirty' energy that produces carbon dioxide, and wondered how they would build nuclear generation without digging yet more cement that creates huge quantities of carbon dioxide?

Don't hammer in screws!

Now I began to read with my critical project/programme leader's hat on. The strategy read to me like a themed shopping list for a government, written by a novice consultant who had been told the goal was to create a net-zero impact on a few molecular elements: carbon dioxide, fluorides and water! You, as a project professional, would not have set that brief. You would use the appropriate capabilities for the task. To me, it seemed that for the #NetZero strategy, we have turned to consultants, politicians and mathematical modellers, instead of engineers, farmers, fishermen and zoologists. And #NetZero is far too important to be left to theoreticians.

Let's set up a score card we would use to evaluate this crucial programme as project managers (see box).

Professor Eddie Obeng is an educator, TED speaker and the author of *Perfect Projects* and *All Change! The Project Leader's Secret Handbook*. You can join his masterclasses, courses and workshops on the QUBE #SuperReal campus: https://QUBE.cc

A chance to 'save the world'!

As project professionals, the earth's future now relies on us, because we will be implementing the projects that arise from this strategy. Our leadership role is personal – each of us must review the projects we are assigned and work to raise #NetZero to above the pass mark by addressing the issues listed above in our own projects. Get ready for what is coming your way (bit.ly/34E9NXo). You'll find some useful tools from me at https://QUBE.cc/Project-NetZero. I have no doubt that #NetZero will be popular, despite its failed score card, because not even I can resist the lure of a government with pockets bulging with cash on a spending spree!

We would demand to know the scope of the challenge in concrete terms. The narrow focus does not protect and sustain life on earth. What are the concrete outcomes?	F
We would check that the actions that were proposed would resolve the issues without creating worse unintended ones or causing collateral damage to existing habitats.	D
We would be sure the proposed metrics wouldn't encourage people to 'game' the challenge, winning money and bonuses yet leaving the problem unsolved.	E
We would put in place a process to monitor success and check if re-evaluation was needed. The programme is not 'chunked'. Nothing is delivered until all is complete!	F
We would be sure that the inconveniences of the journey are acceptable to the stakeholders (who will otherwise sabotage it). There has been little stakeholder engagement and consultation.	D
We would check that the benefits exceeded the costs. The targets provided are not benefits. The strategy does not balance costs versus benefits.	F
We would ensure it provides a springboard for the future and not an anchor to the past, underpinned by a solid culture of trust.	F

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We've made tracking CPD easy for our members

All individual members of APM can now access our new development, My CPD. Members can use this online tool to set objectives, track and reflect on what they have learned throughout the year.

Find out more at: **apm.org.uk/myapm/cpd**

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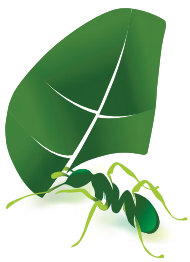
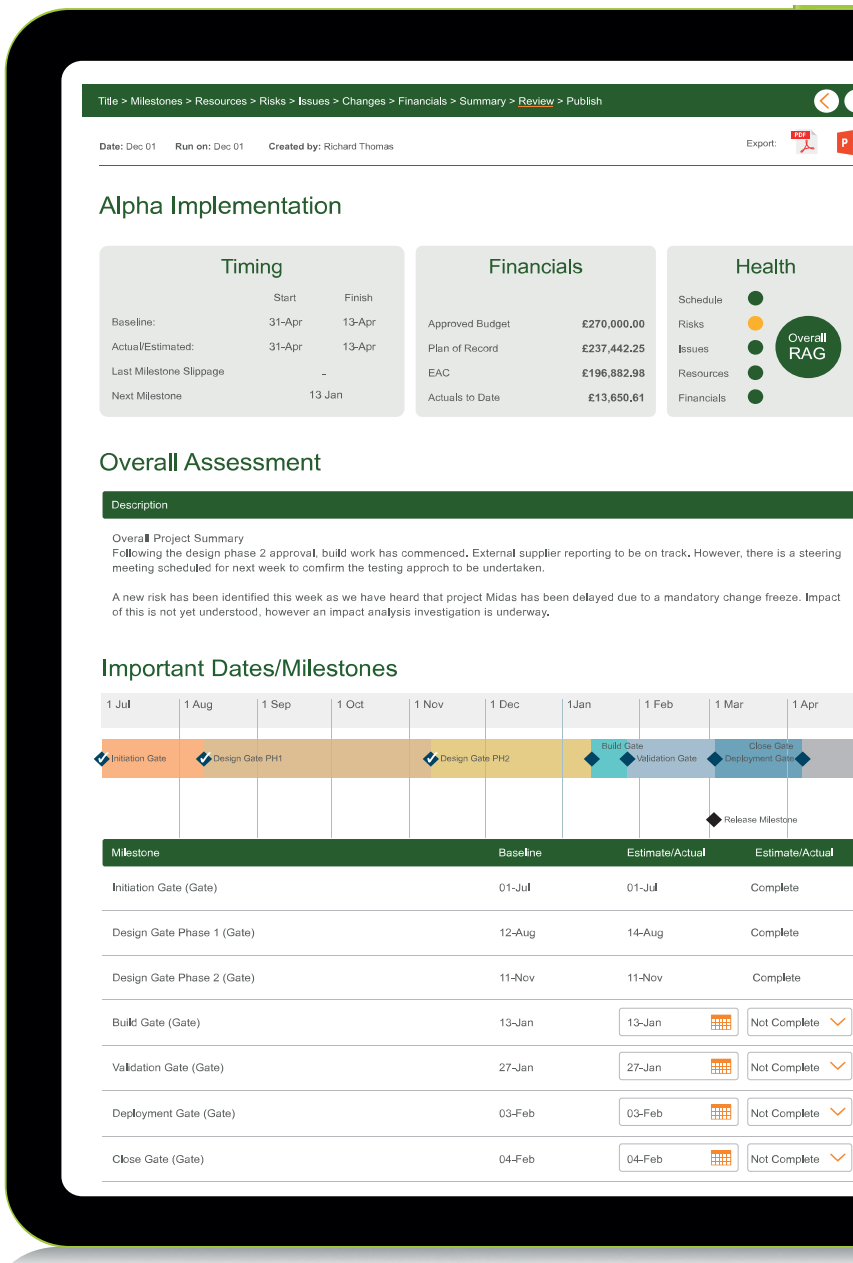


Project Delivery Office

Technology, Process and People as a PMO Service



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