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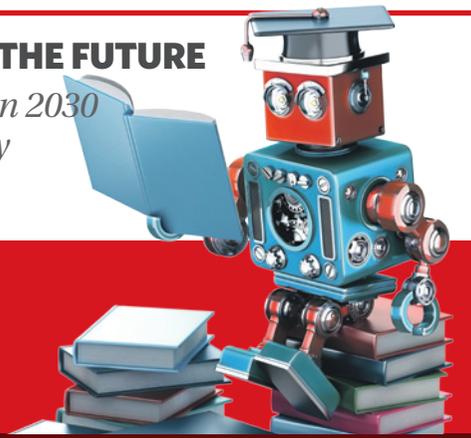
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# To make the UK of 2030 a success, we need to tackle the skills drought

## OPENING SHOTS JOANNE FREARSON

**B**Y 2030 in the UK, it's likely we'll be using artificial intelligence and holographic assistants to make appointments, checking our personal biological data to give us tailor-made health-care treatments and being driven around in driverless cars.

The UK has many plans that point to a more connected 2030. The government has committed to infrastructure projects such as the third runway at Heathrow, and High Speed 2 (HS2), which will link London, Birmingham, the East Midlands, Leeds and Manchester together, and is going ahead with the new Hinkley Point C nuclear power station.

Hinkley should help the UK meet its energy needs and avoid nine million tonnes of carbon dioxide emissions a year, the third runway will help improve business competitiveness and tourism, while HS2 will link the north and south with faster connections.

Investments have also been made in science, research and innovation to focus on new technologies such as smart and clean

energy, robotics, AI, autonomous vehicles and biotechnology.

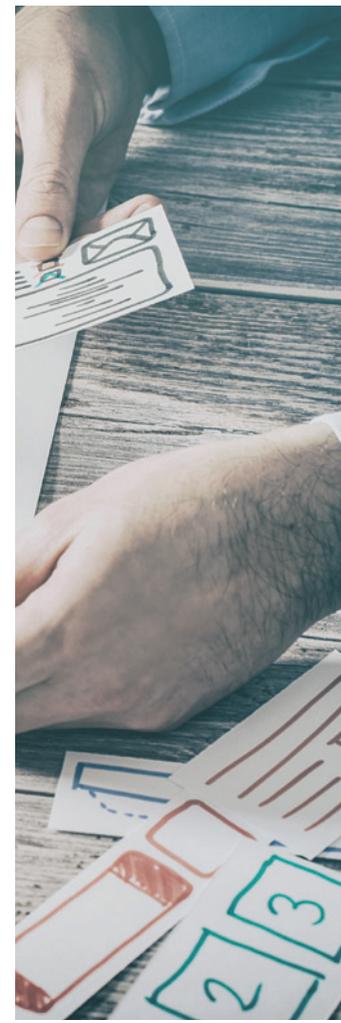
Assuming Brexit actually ends up happening, by that time the United Kingdom will have been out of the European Union for 10 years – and hopefully found its place in the world.

In order to make the UK a prosperous nation for years to come, it is important we get the strategy right today. Although these new infrastructure projects will be good for the economy, there are some challenges that still need to be addressed to make sure things remain on track.

To deliver this infrastructure, the country needs good managers to put these projects together. But a big challenge currently for the project management industry is a skills shortage – without the necessary skilled workers, the delivery of planned major construction projects could come under threat.

Presently, EU nationals take up 27 per cent of construction jobs, according to the Institution of Civil Engineers, and it is not yet known whether EU citizens

*“Without the necessary skilled workers, the delivery of planned major construction projects could come under threat”*



living in the UK will be allowed to stay. Although it is early days in the Brexit negotiation process, the proposals Theresa May has advanced have not been considered acceptable by the EU delegation. And if EU nationals are not allowed to stay, that could put further pressure on the construction of new projects.

A strategy must be put in place to tackle the skills shortage in project management and other sectors. Businesses need to invest in training programmes to give people the skills they need for roles in infrastructure.

This could include practical work experience courses for students doing courses in the field, which combine study and industry apprenticeship programmes as well as professional development courses for people already in roles.

There are exciting prospects for the UK in 2030 – it still has a head-start in the tech sector compared with the rest of Europe. But for any of that to count, we need to urgently address our training and manpower shortages.



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# Mapping out the future

With the way we live and work facing upheaval, skilful project management is more crucial than ever if people and businesses are to weather the change

While we will see many professions replaced by increasingly advanced systems in 2030, the core elements of project management will still require human judgement and insight

**P**ROJECT MANAGEMENT is all about adapting to change, so it's not hard to predict that this Chartered profession will have anticipated the risks and made the most of emerging opportunities in 2030.

With the Association for Project Management (APM) opening a Register of Chartered Project Professionals in Spring 2018, over the next 12 years we will have a significant number of assured and skilled professionals who can lead the delivery of projects for the public benefit.

The PwC *World in 2050* report forecasts that the world economy could more than double in size and that emerging markets will continue to be the growth engine. Growth will be delivered through both increasing the number and complexity of the projects to be managed worldwide.

While some of these forecasts may be wrong or arrive at varying speeds, how do we ensure that projects continue to succeed in the future? What trends and drivers in society, technology, economics, environment and politics will have global impacts on the way we deliver change through projects?

## The future of projects

The Association for Project Management (APM), in collaboration with Arup and the Bartlett Faculty of the Built Environment at UCL, published the *Future of Project Management* report, which forecasts what the world might look like in 2040. Using this we can predict how the project profession will reach its full potential in 2030.

## Digital revolution

The number of mobile devices and connections surpassed the number of people on the planet less than five years ago, driving rapid advances in digital technologies. In moving towards greater automation, companies need to rethink the role of people and provide training to prepare their employees for this new work environment.

Work will be transformed as artificial intelligence and robotics grow more sophisticated. High-frequency trading algorithms have been in use in the finance sector for some years and other professions such as the legal and medical professions are exploring possibilities for automation. Human-machine collaboration will open the way to virtual and network-based companies as everything shifts online and project management will be needed to ensure a consistent approach is taken across the disparate digital platforms. Key project control functions carried out today are potential areas for automation in project delivery. As companies redesign jobs and



workforces, questions arise around the eventual limits of automation. Even in a future where professionals across the world have been gradually replaced by increasingly capable systems, core elements of project management will still provide an irreplaceably human combination of leadership, analysis, integration of specialists, and ethical behaviour. So will this be where the future project manager's role lies?

## Digital impact on construction

The PwC *Global Construction 2030* report forecasts that construction output will grow by 85 per cent to \$15.5trillion worldwide by 2030, with three countries – China, the US and India – leading the way and accounting for 57 per cent of all global growth.

The application of digital technologies in construction can make organisations more efficient, currently saving 10-15 per cent, so investment in technology will be key in creating a sustainable future.

## Globalisation and virtual teams

Virtual teams will be the norm in 2030 but this will bring challenges. Technology can bring together a team of global specialists but employers will need to recruit people who can manage a virtual workforce. With more short-term projects, the traditional nine-to-five will be replaced with working on demand at any time. Strong project management will be required to provide governance and clear and consistent communications across virtual teams.

## Diverse workforce

By 2030 there will be more older than younger people in the workforce. In 2013 the number of people aged 65 or over working was 28 per cent in Europe and could rise

to 50 per cent by 2060. Equally, by 2020, half of the global workforce will be millennials. Multi-generational workforces will become the norm and this will bring new challenges balancing their different skills and experience. It is also predicted that men and women will share family responsibilities more equally, with women making up two thirds of the net growth in higher-skilled jobs until 2025<sup>1</sup>.

## The gig economy

In Europe the number of freelancers grew by 45 per cent in 2013 to almost nine million, and *Forbes* predicts half the US workforce will be independent workers, contractors and temporary workers by 2020. Digital technology has driven the boom in the "gig economy", where online marketplaces connect businesses and organisations with freelancers. Employers have access to skills on an ad hoc basis, requiring fewer staff on their payroll, but this poses challenges in terms of job security, staff loyalty and approaches to training and professional development.

The project profession provides the opportunity for people to develop a set of transferable skills that is well suited to the gig economy. Suitably qualified people can commit to a project, make a difference then move on. Professional bodies, such as APM, will adapt to this entrepreneurial market place by providing specialist training and ongoing skills development as expected of a trusted Chartered body.

## Changing corporate culture

With more millennials entering the workplace, employers need to focus on emerging expectations about work-life balance as well as providing the highest-quality equipment

for this generation of technologically savvy employees. Continuous learning will be an important factor and well-managed projects can drive this to be the cultural norm.

## "Co-opetition"

While innovation has traditionally been developed in-house, more companies are forging alliances with competitors. By sharing common costs as well as inviting public contributions through crowd sourcing, Peugeot, Toyota and Citroën created shared components for a new city car, marketing it under their own brand names.

This "co-opetition" allows businesses to get their ideas to market faster and we will see more organisations adopting this model as projects require it.

## Brave new world

While we will see many professions replaced by increasingly advanced systems in 2030, the core elements of project management will still require human judgement and insight, to provide leadership, ethical behaviour and the integration of specialists. Stakeholder management and remaining agile and responsive to change will be crucial to the success of projects in the future to ensure customer satisfaction as well as cost and time savings. As the newly Chartered body for the project profession, the future looks promising for APM and one where we may achieve our vision of a world where all projects succeed and is a life skill for all.

## INDUSTRY VIEW

John McGlynn is chair of the Association for Project Management

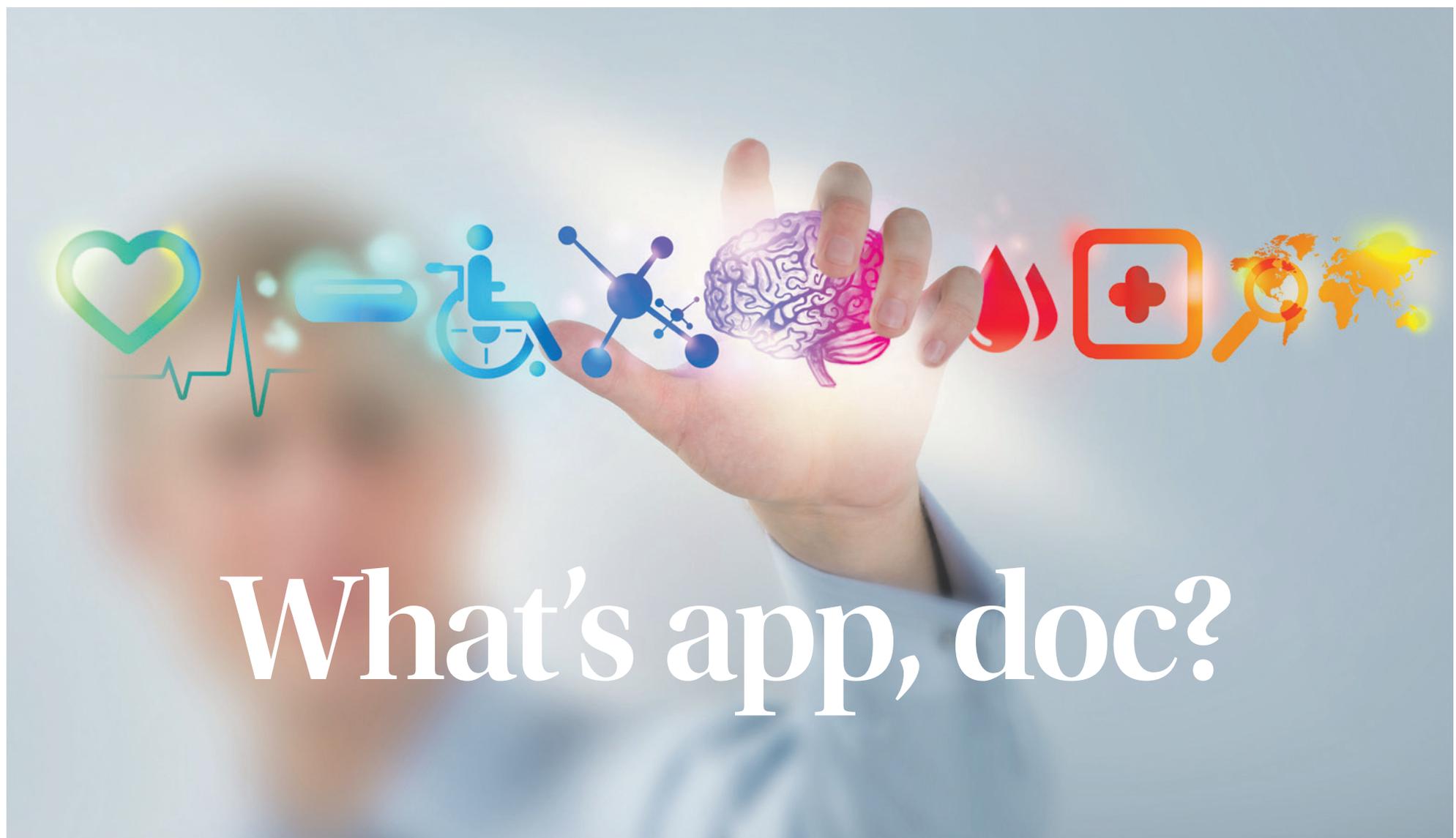
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1. See [www.arup.com/fopm](http://www.arup.com/fopm) for detailed references

84%

Percentage of project professionals who expect they will need to take on new skills and training in the next five years



# What's app, doc?

Joanne Frearson talks to **Stephen Brobst**, CTO at Teradata, about how data-driven healthcare could make for more accurate – and far cheaper – diagnosis and treatment by 2030

**S**TEPHEN BROBST, CTO at Teradata, turns up to our meeting at their UK headquarters in London Bridge in a summery mood, wearing a Hawaiian shirt and jeans. For good reason – the native Californian is a big name in the technology industry, currently ranked the fourth most influential CTO in the US, above those of Amazon.com, Tesla and Intel. I'm here to talk to him about how data is driving the next industrial revolution, and how it will be used in the UK by 2030.

"Improving the quality of life should be the number one priority," he says. By 2030 in the UK, Brobst believes sophisticated deep-learning techniques will be able to analyse our personal data and our individual biological make-up to provide us with the best treatments for illnesses, thus helping to reduce the costs associated with providing medical assistance.

"Treatments by 2030 will be much more individualised to a specific person based on the data about them," he says. "That data will include their genomic structure and family history of illness, not just their own history. It will also include the results from the treatments of lots of other patients with similar ailments so you can figure out what works best."

As the commercial world uses data to make better decisions, says Brobst, so it also has the potential to help us make personal decisions about many different

*"We absolutely can have unique treatment for every individual – even to the point of unique drugs" – Stephen Brobst*

aspects of our lives. Progress has already been made, with technology currently being developed that can capture data about a diabetic patient's blood sugar levels via a sensor inside a contact lens. "By monitoring that, you can decide how and when we can intervene with a diabetic to keep them out of the emergency room," says Brobst.

But despite this progress, some hurdles need to be overcome until data can be used in the ways Brobst suggests. The delivery models and the way we are analysing data, he explains, will have to change.

He says: "With the data continually doubling in size, eventually we will have to get to a new generation of massively parallel processing technology, which will likely use quantum computing." The problem here is that quantum computers are only in their infancy, although Brobst is confident they will exist by 2030 and be capable of processing exponential amounts of data quickly.

Another concern Brobst thinks we will have to tackle relates to the use of data in healthcare – as machine learning gets more sophisticated, he explains, it could make patients uncomfortable because they do not understand how the decisions are being made. "We need to be able to explain why we make decisions," he says. "Why are we recommending the doctor do this surgery instead of this other surgery?"

He explains that doctors could need to have a greater understanding of the medical

research behind a procedure, to demonstrate why it is the best course of action. "We need to be able to reverse-engineer the decision in order to explain the decision," he says. "That is not doable yet, but by 2030 I believe it will be."

Although there are concerns of a Big Brother-type scenario emerging, with virtual doctors watching our every move and telling us not to eat the last slice of pizza, Brobst thinks the data should simply provide patients with a constructive set of choices. By 2030, he believes, the concept will have been normalised, and people will see the benefits of using data to improve healthcare. He envisions a scenario where the average person will be able to know when to see their doctor based on the data. "In the future devices will be able to tell you, when is the right time to go to the doctor," he says.

He offers a vehicle maintenance analogy: "If you open up the car manual, it will tell you should change the oil every X miles, or change the tires every Y miles. This is called milestone-based maintenance.

"There is a lot of data analysis to figure out whether the distance is 15,000 miles, not 10,000 miles, but in reality there is a distribution within which things are going to fail. This is where most people need to do maintenance." However, he points out, the problem is that everyone is unique and so drives differently. What might suit one driver as a maintenance check-up might not be

necessary for another person. And doing check-ups when you don't really need to could end up being expensive.

In much the same way people's individual genomic make-ups can be used to tell whether we need to go to the doctor for a check-up. And once we get there, instead of treating everyone who has a disease with the same treatment, they can be tailored to that genomic structure.

Brobst says: "It may mean some people go to the doctor more than once per year and some people go less. It is based on the individual healthcare needs that optimise quality and cost of care. The annual physicals are exactly when you need them to happen. Not too late and not too early."

At the moment, he says, it is too complicated to develop treatment for each individual person. "But with the kind of data they might have available by 2030 and the kind of learning algorithms and computing capabilities, we will be able to do that work. We absolutely can have unique treatment for every individual – even to the point of unique drugs for each individual."

In the long run, Brobst believes that however things develop, the cost of healthcare will fall as people will not be going to the doctor unnecessarily or be given treatments unnecessarily. And by processing data far faster than we are currently able, people can be provided with the individual treatment they actually need.

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# Welcome to the new reality: why AI and AR will be as crucial as email and the internet

Joanne Frearson talks to tech billionaire **Bhavin Turakhia**, inventor of team messaging app Flock, about how sci-fi technology will be as important in 2030 as email is today – and even give us a sixth sense...

**B**HAVIN TURAKHIA, CEO of Flock, has been a serial tech entrepreneur since his teens – last year, he finally made it on to India's rich list after selling the ad tech firm he started, Media.net, for \$900million.

Meeting me at a Park Lane restaurant for coffee, like most successful tech entrepreneurs he's casually dressed in jeans and T-shirt and has a relaxed and friendly manner about him.

Only in his 30s and already a billionaire, Turakhia has built all his companies organically without the aid of any investment. He is now on his 11th venture, Flock – a communication app for teams at work, which grew from a personal passion of his to enhance organisational productivity and efficiency and improve the processes behind managing projects.

"One of the things I am a stickler for is always being personally productive," he says. "I do a lot of things to enhance my own personal productivity in my work environment. Flock was created from that passion.

"Think of it like a WhatsApp for enterprises, a well-known competitor to Slack. Not only does it make communication much more efficient for teams and enterprises, it takes all the things that waste time for teams and collaborations and eliminates those wastages."

Since Flock launched in 2014, surveys have shown users to have reduced their in-person meetings by 60-70 per cent, reduced email traffic by 50-70 per cent and increased internal knowledge sharing by 200 per cent.

Turakhia has big plans for Flock – by 2030 in the UK he expects machine learning and AI algorithms to be an integral part of the software. He says: "The most important one, in my opinion, is going to be AI followed by augmented reality. AI is going to be ingrained in all of the tasks



and things that we do. The commonplace tasks that help you with scheduling – replying to most of your emails and your messages and handling a large chunk of your communication – all of that is going to be delegated to AI."

Sooner or later, Turakhia believes, the only tasks that will remain exclusively human ones will be those that involve the kind of strategic decision-making which requires the context only a human would have – the sci-fi movies are indeed becoming reality, it would seem. "Today my assistant might call up your assistant to sort things out," he says. "In the future it is all going to be AI and bots, technology communicating with technology making things happen and making decisions on your behalf.

"For instance, if I want to catch up with five people at 5pm today, AI will figure out on my behalf the five people in the channel if they are actually free at 5pm and say hey, wait a minute, so and so is not available at 5pm – would you like to propose an alternative?"

5m

The number of people worldwide currently using team messaging software such as Flock or Slack

Turakhia expects that, over time, through a process of machine-learning, AI will be able to begin to recognise more complex types of patterns – by 2030, he expects, it will also be able to produce actual reports based on these.

As far as the other hyped future technology, augmented reality (AR), goes, Turakhia thinks that by 2030 it will be used as kind of a sixth sense overlaid on top of the usual five.

By way of example, he explains, if you are at a conference and I meet you for the first time, if I am wearing an AR headset or glasses it can overlay information about you, or fetch your LinkedIn profile dynamically using facial recognition software from a database.

Turakhia concedes that many of these trending technologies are currently in the same stage of developments as the Internet was in the 90s and that there is still some way to go, but he believes that, as people get more familiar with them they will soon become as vital a part of life like the internet is now.

"Today, checking for a Wi-Fi connection is sometimes the first thing people think about doing before performing other essentials," he says. "Both AI and AR are going to become like that 15 years from now."

Turakhia sees Flock as being at a similar stage to that of email 25 years ago. Currently, five million people actively use team messaging worldwide, but in about 10 years' time he thinks there will be close to a billion users who will be regularly using team messengers for all their productive work and collaboration.

"Today you use smartphone and devices to use Flock. Tomorrow, Flock will exist inside your smartglasses – I'll be able to initiate a video caller inside my glasses, or I can communicate with people through audio."

There's little doubt that by 2030 the way we communicate to manage projects will change significantly – even email as we know it may be a thing of the past. It could be that AI assistants and AR headsets will be helping us get things done.

# Government must commit to increased productivity and quality of life, says CBI report

Study also calls for progress to be made on infrastructure projects such as Hinkley Point and Heathrow

JOANNE FREARSON

**T**HE OBJECTIVES for the UK economy by 2030 should be increasing the nation's productivity levels and improving living standards, according to a report by the Confederation of British Industry.

The CBI's report, which was written in response to a government green paper on industrial strategy, said that: "Productivity levels are an important part of assessing our economic success and international comparisons suggest we still have some way to go to become more competitive. A reasonable lead target for UK productivity should be to reduce the gap between the worst performing regions and the best performing regions by 15 percentage points by 2030."

Earlier this year, the government announced its industrial strategy green paper, with the aim of improving living standards, increasing economic growth and productivity across the whole country.

The plans identified 10 pillars including investing in science, research and innovation, developing skills, upgrading infrastructure, encouraging trade and inward investment and creating the right institutions to bring together sectors and places.

These initiatives are all part of the government's plan for the future of the country in the wake of the triggering of Article 50 to kick-start the UK's departure from the EU, and some progress has already been made. Last year, the government

20%

The amount by which UK productivity lags behind that of Germany and France, according to the CBI's report



Projects such as Heathrow's third runway need to be quickly developed to boost the economy, says the CBI

committed an extra £2 billion a year to make the UK more innovative by 2020, planning a third runway at Heathrow and giving the green light to Hinkley Point C as well as approving the first two phases of High Speed 2 construction.

In its *A Modern Industrial Strategy: UK 2030* report, the CBI said: "We know that better-connected cities have increased productivity: the CBI's work on regional growth found that every 1m increase in the population that is within 60 minutes travel

time of a postcode area corresponds to an additional £0.50 in GVA per hour."

Research has showed the UK's productivity currently lags major competitors such as the US and Germany by well over 20 per cent and has one of the most uneven regional distributions of income among Western economies. Meanwhile, UK infrastructure also compares poorly to competitors, ranking 24th in the world for its quality.

The CBI said: "The government must continue to focus on delivering much-needed

major infrastructure projects. As a first step it should ensure that progress is made to deliver a third runway at Heathrow alongside a broader aviation strategy, including maximising the role of regional airports, which ensures our long-term capacity needs are met.

"It must also quickly develop plans for other major projects such as Crossrail 2 and Northern Powerhouse Rail, both of which would provide a major uplift to our economy and future competitiveness."



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# How everything will hook up to your mobile phone in UK 2030

*Business Reporter* talks to O2's **Patricia Cobián** about how mobile tech will be interwoven into everything we do – and how the UK is at the forefront

SPECIAL REPORT  
DAVID CRAIK



**T**HE CHIEF financial officer of mobile group O2 points to her earrings and smiles.

*Business Reporter* has just asked Madrid-born Patricia Cobián whether in ten or 15 years' time mobile phone handsets – so ubiquitous today – will still be here in their present form, or have passed into history with the telegram and the gramophone.

"I can't say with certainty but perhaps by 2030 I will be making and listening to phone calls using earrings just like these," she says. "It maybe sounds crazy now but I do believe I will be able to go into a jeweller and buy earrings that will connect me when my mum calls from Spain. It may also be commonplace to communicate through other connected wearables such as clothes. Whatever it will be, you'll be able to go out and not need to carry a handset as we do today."

It may be wise to mark Cobián's words – she has some previous success when it comes to future-gazing. "I remember back in 2003 when I was working in professional services in the US. I was part of a group talking about the opportunity for data connectivity in the consumer space," she says. "I remember building this idea of a man sitting in a barber's chair having a haircut while regularly checking his BlackBerry device. BlackBerry was the big thing then! We thought maybe it was too far-fetched. We thought that it was never going to happen, but 14 years on it is a day-to-day experience now. It's why when I think of the next 15 years I get so excited."

Today, sitting in the vibrant O2 branch in the Westfield shopping centre in West London, you can sense that excitement about the potential of technology. Upbeat music plays and

coffee is offered to customers who eagerly walk around the bright devices on display.

It isn't just handsets. Customers, and *Business Reporter*, don Virtual Reality glasses and are whisked away to adventures where dinosaurs run straight at you out of a forest, where you can drink with Mongolian farmers or take a boat down the Mekong river. The feelings of wonder and optimism are not just marketing jargon but very real. Technology can be good for the soul, it seems.

O2 has its own dedicated department looking at such new trends and technologies to try to figure out what will become critical to consumers and businesses over the next few years. "They have the long-term vision hats on. They are the ones looking at those earrings that I want!" Cobián laughs.

O2 is also developing new services such as O2 Home, where customers can manage their central heating and other devices via an app on their phone; or O2 Drive, where an app can use GPS to rate your performance behind the wheel and suggest feedback.

It is part of a push towards greater use of personalised services and cognitive intelligence techniques such as its new voice-recognition customer service device Aura. Cobián, who took up the role of CFO last September – she has ten years' experience at O2's parent company the Telefónica group – believes this focus on customer service and customer products will only intensify in the years ahead.

"Mobile is pervasive. It has changed the way that we do business and live our lives. Around 90 per cent of Facebook users access it via mobile. My children's school will reach out to me on my mobile, as does the GP and local council. It has become the primary medium of communication and that's only going to increase. The nightmare a few years ago was losing your wallet – now the nightmare of losing your mobile is just as scary," she states. "With the development of 5G from 2020, we will begin to see the arrival of much higher download speeds, more reliability and the reduction of latency. This is going to help our businesses and technological innovations to thrive."

Indeed, O2 believes 5G will contribute £7 billion a year to the economy by 2026. "You are going to see connected wearables which will track all your health valuables and ensure real-time medical responses," Cobián says. "You will see the real-time management of

*"I remember building an image of a man sitting in a barber's chair checking his BlackBerry. We thought it was never going to happen, but 14 years on it is a day-to-day experience – that's why I'm so excited about the next 15 years"*



Mobile spectrum caps are a big issue for the industry which needs reform, says Cobián





At an event at the O2 Academy, music fans were able to switch concert viewpoints using VR technology



traffic and even real-time monitoring of water pipes. We had a water pipe burst in our street the other day and it took six hours to fix. That was a pretty good response, but in the future you will have engineers there within minutes. You will also see many more developments in the areas of smart cities, more seamless public services, connected cars, connected devices in the home and 3D video calls. That is the power of mobile connectivity.”

Cobián is confident that the UK will lead the way in these developments heading towards 2030. “When we look elsewhere in Europe, you realise that the UK is at the leading edge of digital. Our UK consumers and businesses are more data-hungry and data-sophisticated than any other country in Western Europe. They adopt the latest trends quicker,” she says. “But we will not push technology just for the sake of it. We have a customer-led mobile-first strategy, which means we look at what customers want to achieve and their needs. Then we look at what we can do to deliver that.”

In order to make the 2030 vision a reality Cobián believes more work needs to be done now to improve mobile and digital infrastructure. “When people think of infrastructure they think of government and public sector spend,” she states. “But in our industry, it is largely private investment. We invest £2million a day in our network expanding coverage. Developing infrastructure is key because at present mobile contributes £4.5billion to the economy and a whopping 140,000 jobs. We need it to be fit for the future.”

The government’s Digital Economy Bill, which received Royal Assent earlier this year, singled out the need to enable digital infrastructure through the creation of a new Electronic Communications Code to “cut the cost and simplify the building of mobile and superfast broadband infrastructure”. It outlined new and simpler planning rules for building broadband infrastructure and new measures to manage radio spectrum to increase the capacity of mobile broadband.

Cobián believes such initiatives put things on the right path, but feels the government can do more. “We’d like to see local planning regulations evolve which means that mobile operators can deploy quickly and efficiently. In London, we may be deploying hundreds of thousands of new sensors to ensure 5G connectivity and develop those traffic management



The amount O2 estimates 5G networks will contribute to the economy by 2026

and health applications that we need. We also need to encourage infrastructure providers to increase their collaboration with mobile operators to ensure we are digitally ready,” she says.

Cobián also urges the government to incorporate mobile at the heart of the industrial strategy. “It needs to recognise the reliance of UK consumers and businesses on mobile and how that is going to evolve,” she explains.

Earlier this week industry regulator Ofcom announced a cap on the amount of mobile spectrum companies can bid for in the auction of licences later this year. The cap imposed in order to “safeguard competition” will hit major players BT/EE and Vodafone most.

BT and EE currently cover around 45 per cent of the spectrum at present, with Vodafone at 27 per cent and O2 and Three with under 20 per cent each. By 2020, Ofcom says there will be a 37 per cent ceiling on all useable mobile spectrum that one operator can control. O2 responded to the announcement by stating that it is important that Ofcom presses ahead with the auction quickly so that the whole

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*“When you look elsewhere in Europe, you realise that the UK is at the leading edge of digital. Our UK customers are more data-hungry and adopt the latest trends quicker”*

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country can benefit from the new mobile spectrum as soon as possible.

Spectrum caps have been an issue that O2 has long said needs addressing. Speaking before the Ofcom announcement Cobián said: “We are the only market in Western Europe where there is one operator with more than 35 per cent. If the imbalance isn’t reduced we run the risk of having a situation like Openreach, where one operator has more than 50 per cent of the spectrum. This could affect competitiveness and investments which means we will not be able to make the best of what technologies can provide. The potential to drive productivity and create new services in is huge. As a country, we have the appetite.”

And soon, perhaps, also the jewellery to go with it.

# Project management: what the talent gap means for the UK

FOR THE first time in five years, the Project Management Institute (PMI) is seeing increases in the number of strategic initiatives meeting goals and being completed within budget. We first reported these findings earlier this year in PMI's 2017 *Pulse of the Profession*®: *Success Rates Rise: Transforming the High Cost of Low Performance*.

Other positive news: compared with last year, there has been a 20 per cent decline in money wasted because of poor project performance, with organisations now losing an average of 9.7 per cent – or £97million – for every £1billion invested. Furthermore, organisations which invest in proven project management practices waste 28 times less money because more of their projects, the strategic initiatives that drive change, are completed successfully.

## Critical capability

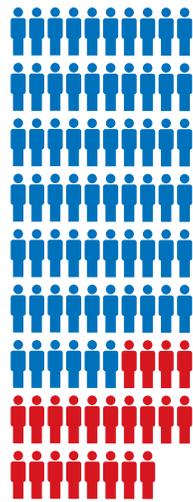
Successful organisations understand the demonstrated benefits of disciplined project delivery: lower costs, greater efficiencies, improved customer and stakeholder satisfaction and greater competitive advantage. Having the talent to implement strategic initiatives successfully is the critical capability that enables organisations to navigate change and achieve their goals.

It's not surprising that from now through to 2027 project management professionals will be in high demand, because of the expected creation of millions of new positions and the finite number of qualified job candidates. These factors will result in a talent gap that will affect a number of high-growth industries.

This is a subject we've explored extensively at PMI – most recently in an analysis performed for us by the Anderson Economic Group (AEG). Findings released in *Project Management Job Growth and Talent Gap 2017–2027* found that by 2027, the project management labour force is expected to grow by 33 per cent across 11 countries: the UK, Australia, Brazil, Canada, China, Germany, India, Japan, Saudi Arabia, the UAE and the United States.

## Risk to GDP

According to the analysis, nearly 22 million project management jobs will be created during the next decade – and by 2027, employers will require nearly 88 million individuals working in project management-oriented roles. Within the United Kingdom, the project management profession is expected to have 168,196 new job openings between 2017 and 2027. The talent gap puts at risk a total of nearly £161billion – or \$208 billion – in GDP over that ten-year period for the 11 countries



By 2027, employers worldwide will require 88 million individuals working in project management roles, compared with 66 million today



assessed; and £2.09billion – or \$2.7billion – in the UK alone.

Given these implications, it is important that the government takes steps to do what it can to address the challenges. One step taken recently in the US was to pass legislation that reforms federal programme management policy in four ways: creating a formal job series and career path for programme managers in the federal government; developing a standards-based programme management policy across the federal government; recognising the essential role of executive sponsorship and engagement by designating a senior executive in federal agencies to be responsible for programme management policy and strategy; and sharing knowledge of successful approaches to programme management through an interagency council on programme management.

In the UK, an area in which progress can be made is infrastructure. The UK has made significant investments in infrastructure in recent years, adding improved capacity to the transport system and improving journey times. Yet airport expansion and the need to invest further in transport infrastructure outside London are critical to support further economic growth. Of course, complex initiatives like infrastructure projects require skilled project managers.



The UK needs to continue to develop the skills necessary to build the workforce of the future and ensure it maintains pace with the technological developments that will drive economic growth.

## The Brexit effect

The shadow of Brexit is dominating everything. The result of the recent general election and the talks that began on June 19 add an extra layer of complexity, raising the question of the long-term stability of the Conservative minority administration, and its ability to secure the legislation that is necessary to achieve a stable Brexit.

As organisations in the UK find themselves competing for the finite pool of critical talent, it's essential that they implement leading practices for finding, retaining, and developing qualified project personnel. Some three-quarters of organisations rank project management leadership skills as most important for the successful navigation of complexity in projects, according to our research.

Demand is high for practitioners who have a necessary mix of competencies. To be successful in today's marketplace, senior leaders and their organisations need project, programme, and portfolio managers who excel not only at technical skills but also leadership and business/strategy acumen.

We have found that when organisations focus on developing talent internally – specifically focusing on the technical, leadership, and business management skills of their project professionals – 32 per cent more projects meet original goals. At PMI, we refer to this broader skill set as the “talent triangle.”

Most organisations report that technical skills are the most difficult to find but the easiest to teach. As a result, global organisations are choosing to hire individuals who possess more nuanced skills in such leadership areas as stakeholder communication, negotiation, and collaboration/analysis – and then provide training to develop their technical skills.

Project management professionals must recognise and embrace the opportunities and advantages that the talent gap affords them. There's time for organisations here in the UK to realise the implications of the widening gap between employers' need for skilled project management workers and the availability of professionals to fill those roles, and take steps to close those gaps by hiring, developing, and nurturing project management talent.

## INDUSTRY VIEW

Mark A Langley (left) is president and CEO, Project Management Institute [www.pmi.org.uk](http://www.pmi.org.uk)

# Inspector Dogberry



Flying cars, hoverboards, and clothes that dry themselves are only a handful of the predications in *Back To The Future Part 2* that ultimately didn't come to fruition. But one thing director Robert Zemeckis and his team of writers foresaw was the use of drones in our everyday life. The Inspector, lest it be forgotten, is a big fan of chasing drones, so he can't wait for 2030, when our parks will be filled with the things.

It was in December 2016 that Amazon made its first drone delivery in the UK, arriving at its destination only 13 minutes after being ordered. Now Amazon has announced increased investment in the technology, with a new development centre in Cambridge. The 60,000ft<sup>2</sup> faculty will be located in the heart of the city and is expected to open this autumn. The centre's main focus will be on Prime Air, the service which uses drones to deliver packages in 30 minutes or less.

Amazon also announced that it has invested £6.4 billion in the UK since 2010, and the development centre is another part of that investment. It will employ more than 400 workers which will include opportunities for people with all types of skill levels. The Minister of State for Digital and Culture,

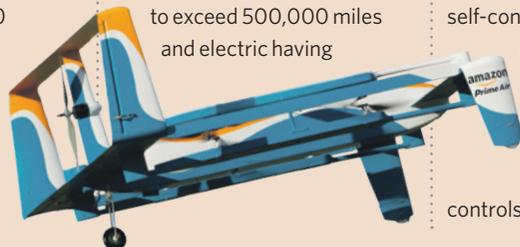


Hoverboards are still under development, but *Back To The Future* did successfully predict drone technology...

Matt Hancock, said: "This is fantastic news [and] another vote of confidence in the UK as a world-leading centre of invention and innovation."

By 2030, 95 per cent of US passenger car miles will be served by using self-driving, electric, shared vehicles, according to a research report by RethinkX, which looked at several variables in the car and oil industry.

The report explained that TaaS (Transport as a Service) will be four to 10 times cheaper per mile than buying a new car. TaaS costs will be driven down by electric vehicles being able to exceed 500,000 miles and electric having



far lower upkeep costs. This will save the average household in the US \$5,600 per year which, in turn, will significantly decrease the demand for individual cars and oil. Tony Seba, RethinkX co-founder, said: "We are on the cusp of one of the fastest, deepest, most consequential disruptions of transportation in history."

Once the preserve of science fiction movies, by 2030 it looks like holograms will finally crossed into everyday life. Microsoft first unveiled the HoloLens at a press event in Redmond, Washington in January 2015. It was the first self-contained, holographic computer, and allowed users to interact with holograms in the world around them. Eye movement controls the cursor and simple

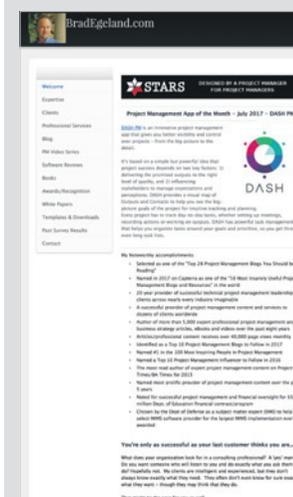
hand gestures enable the user to open apps and interact with the holograms themselves. As of now, the HoloLens has been mostly used in the business sector, as well as by surgeons at the University College London hospital, professors at Case Western Reserve University, and even by NASA to help simulate space for astronauts. There's currently no set date for the HoloLens 2, but early reports seem to indicate a 2019 release.

BY CIARA LONG, ONLINE REPORTER

Best of the blogs

**BradEgeland.com**  
www.bradegeland.com

Brad Egeland's blog was named one of the ten project management blogs to follow in 2017 by TaskQue. With more than 5,000 expert articles and 25 years of IT experience, Egeland demonstrates a strong understanding of his subject. In addition to his blog, Egeland also offers his professional services and will write articles for your website.



**PM Times**  
www.projecttimes.com

PM Times writes in-depth articles, blogs, whitepapers, templates, and webinars. Some of their latest articles include, "Three Must-Have Skills For The Introverted Project Manager," and "11 Reasons Why My Project Manager is Better Than Yours." They also hold conferences about project management, bringing together experts throughout the field.

**Herding Cats**  
herdingcats.typepad.com

Glen B Alleman provides a good framework on how to achieve in project management. His blog was also named one of the top ten project management blogs of 2012 by Top Management Degrees. Clear, concise and knowledgeable, Alleman always makes for an engaging read.

**PM Hut**  
pmhut.com

Protect Management Hut publishes a variety of content on project management and organises it into "a collection of articles, covering the whole process to manage a project, from project initiation to project closure, including all the necessary templates." Suffice to say, their material is comprehensive, well rounded, and easy to follow.

## STAFF PICKS: THE BEST NEW MOBILE APPS



**Trello (Free - iOS, Android)** Organise your projects with this workflow application, alone or collaboratively. Trello lets you create checklists, attach files, and categorise boards for each project.



**Meistertask (Free - iOS, Android)** This project management system allows you to work on projects in real time with other team members, and its project boards are completely customisable.

# Agile thinking keeps businesses competitive

**B**USINESSES WANTING to stay relevant in the 21st century should embrace Agile thinking and ways of working, says Mary Henson, chief executive of the not-for-profit Agile Business Consortium.

The pace of change is now so rapid that organisations need to operate far more flexibly than they have done in the past if they are to survive and thrive.

It's not just the speed of change that makes traditional, hierarchical, process-driven ways of working redundant. Public and private sector organisations

now operate in a VUCA world: Volatile, Uncertain, Complex and Ambiguous. Change can be fast and unpredictable, and the causes and consequences are often unclear and difficult to ascertain. Think Brexit.

Agile thinking enables organisations to respond to opportunities and threats, wherever they come from, much more rapidly and with a constant eye on customer value.

This management approach, and complementary frameworks developed and championed by the Agile Business Consortium, are relevant at all levels throughout an organisation.

At chief executive and director level, Agile thinking positively impacts areas as



diverse as human resources, budgeting, achieving strategic goals and product development. For example, the engagement and empowerment that Agile leadership encourages in the workplace motivates staff

and leads to much better performance – and hence profit.

An Agile business is one whose boardroom keeps its strategy under constant review; allocates resource on a rolling basis; understands the importance of collaborating with stakeholders; aligns change with its strategic goals; and encourages small commitments with a defined value.

This discipline of continually adapting to change and listening to and learning from frequent feedback avoids business plans being out of date before being signed off, helping businesses stay ahead of their competitors.

Agile is no longer a "nice-to-have", it's an essential ingredient for a healthy, flourishing business in the 21st century.

## INDUSTRY VIEW

Mary Henson (far left) is chief executive of the Agile Business Consortium contact [info@agilebusiness.org](mailto:info@agilebusiness.org) [www.agilebusiness.org](http://www.agilebusiness.org)



# Business Zone

Four pages of analysis and expert comment

## The evolution of a project manager

89%

The percentage of project managers who recognise the need for more creativity and flexibility in project management, as agile methods become increasingly popular

*“One of the most important factors determining the success of projects and project managers is best practice”*

**P**ROJECTS ARE investments that organisations make to help them meet their strategic goals – and project managers play a key role in delivering these investments. To successfully deliver a project and add value, a project manager needs to meet current organisational needs and anticipate future demands.

This juggling act means that project managers need to broaden their competencies. In addition to managing the project itself, they will also manage internal and external change, and be responsible for identifying which projects best align themselves to organisational business goals.

In a recent benchmarking survey by AXELOS, the custodians of PRINCE2® three quarters of respondents (76 per cent) agreed the business environment is more competitive now, while 74 per cent agreed that budgets and timelines were tighter. Perhaps this can go some way in explaining the changing role of a project manager. Project management is increasingly seen as a valuable and important business skill required to deliver value across organisations.

This is great news for aspiring and developing project managers as they gain experience in multiple aspects of the business, and steadily move towards senior management.

The survey also revealed that 89 per cent of project managers recognise the need for more creativity and flexibility in



project management, and that agile methodologies are increasingly taking over the traditional way of delivering projects.

PRINCE2® is the world's most-practised project management method. Since its creation, at least two million PRINCE2 exams have been taken in more than 150 countries worldwide.

The PRINCE2 2017 update puts a new and powerful emphasis on ways to tailor the method to the needs of different organisations and environments, to projects of diverse nature and scale, and to the professional priorities of the person managing the project.

The launch of PRINCE2's new guidance, *Managing Successful Projects*, will provide project managers with a proven structure of principles, themes and

processes and will integrate the ever-greater importance of flexibility and agility.

Advances in business practices and technology, combined with an increased focus on getting more for less has put pressure on successful project management. A qualified project manager who can take best practice guidance, emotional intelligence and soft skills such as diplomacy, communication, and relationship building, and be able to tailor their project delivery to the ever-changing environment, could become the business leader of tomorrow.

Ultimately, one of the most important factors determining the success of projects and project managers delivering value is best practice.

A certification on PRINCE2 is now more relevant than ever. Professionals with PRINCE2 certifications are and will continue to be in high demand.

From January 2018, PRINCE2 certifications and examinations will be delivered through PEOPLECERT, the global leader in the assessment and certification of professional skills. The collaboration of PEOPLECERT and AXELOS heralds a bright future for project management professionals, giving them the reliable, steady foundation of knowledge from which to grow into valuable partners and strategic leaders.

### INDUSTRY VIEW

[www.peoplecert.org](http://www.peoplecert.org)  
[communication@peoplecert.org](mailto:communication@peoplecert.org)

## In the UK of the future, project management must be open for all

**I**F THE UK is to benefit from projects which will bolster the economy and enhance its connectivity, our industry must have a skills pipeline trained and ready to deliver projects in one of the most challenging and diverse environments to date.

As the Chartered body for the project profession, APM has identified key areas which remain essential for the UK government to focus on if the profession is to remain able and primed to deliver essential projects across all sectors up to and beyond 2030.

For tomorrow's society, we need to deliver more for less and, in these extraordinary times, we need to manage change effectively, efficiently

and to capitalise on the opportunities available while driving forward new and innovative ways of working.

A key challenge is identifying current and likely skills gaps across all trades and professions, to help deliver future prosperity. To recognise these gaps an audit of UK current and future skills deficits would highlight emerging and current gaps to guide new skills pipelines and training.

At the grassroots stage of those entering their first careers, there must be a focus on promoting the benefits of apprentices to employers, and potential apprentices to coincide with improved career guidance which promotes certainty and clarification in a system which until now has been



a victim of tinkering from government.

Secondary school children now selecting their GCSEs will be the generation entering our profession and charged with delivering our

infrastructure from 2030 through to 2070. Equipping them with strong core skills – literacy, numeracy and digital – is vital if they are to be ready to deliver in a fast-paced digital world.

The need for project managers is growing and remains vital to continue to expanding the UK economy. To ensure industry has the professionals ready, APM is working with universities, training providers and apprenticeship partners in order to ensure the project management profession remains an open and easily accessible career choice for all.

### INDUSTRY VIEW

0845 4581944  
[www.apm.org.uk](http://www.apm.org.uk)

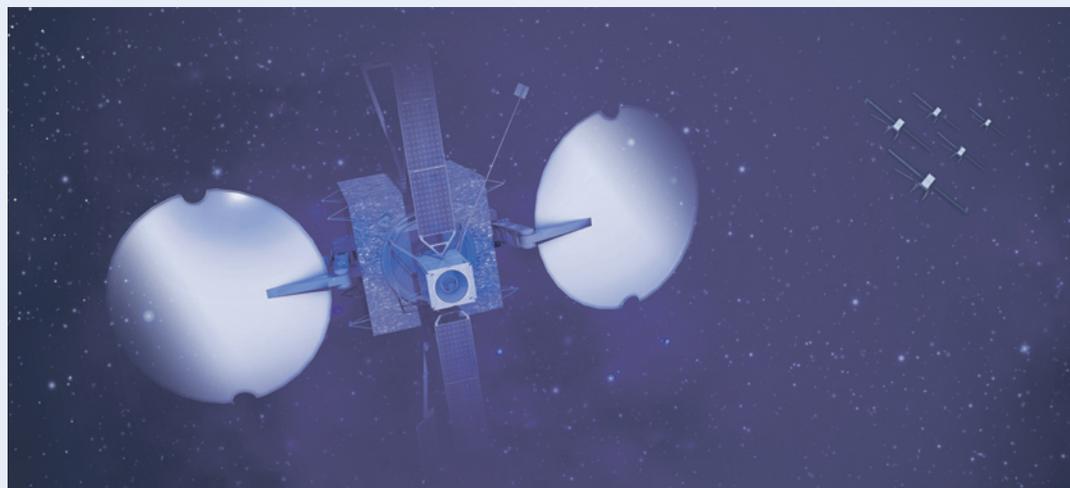
# UK 2030: getting a package delivered. To your spacecraft. Or to your Moon habitat...

**S**PACE IS the last untapped commercial frontier, says Daniel Campbell, VP marketing and business development at Effective Space. Effective Space envisions a future where operating a business in space can be as frictionless, profitable and efficient as it is on Earth.

It is rocket science, but it is not science fiction. Asteroid mining may be a reality by 2025, and off-Earth manufacturing in a commercial space station by 2027. Space tourists are expected to travel around the Moon as early as 2020. With the first planned flight to Mars in 2023, putting a 2030 reminder to send a Christmas package to your relatives in the nearest habitat is not such a bad idea.

Space exploration is no longer exclusively led by governments and agencies. It is now backed by private capital and driven by enthusiastic wealthy individuals. Ambitious NewSpace/SpaceTech companies are working to power this new economy.

Effective Space is building last-mile logistics services in space. Its fleet of SPACE DRONE™ spacecraft will position, maintain, monitor and guarantee space assets in orbit and beyond. Such reusable



£13.7<sup>bn</sup>

The total income of the UK space industry in 2016

platforms (and all-electric too) are not only using existing space assets, but also save Earth resources and reduce energy consumption, clean space debris and ensure long-term sustainability.

Not forgetting your favourite sports channel on Earth, few companies, including Effective Space, plan to offer life-extension services for communication satellites in orbit. Satellite operators are facing increased price competition and financial risks, forced to replace satellites after 15 years of service, while feeding an ever-growing appetite for

bandwidth, driven by emerging markets and premium services.

Stay tuned for an 8K ultra-high-definition coverage in 2020 Tokyo Olympics, and who-knows-how-much pixels in the who-knows-where 2032 Olympics, augmented reality and virtual reality experience included. Satellite servicing is critical in ensuring a continuous and affordable broadcast and data transmission. By 2030, satellites will be built in space, maintained, repaired and orchestrated by a team of devoted and autonomous space robots.

Harvesting space opportunities will require a strong, creative team of explorers who can mix interdisciplinary technical expertise with entrepreneurial skills. Make sure to plan your career accordingly. Billions are now invested in space start-ups – a noticeable shift from the traditional perception of space programmes as too risky and too slow to yield returns. The falling cost of small satellite components and capabilities changes investor attitudes. An industry cliché states that the first trillionaires will make their fortunes in space.

But it can be fun too. A start-up recently raised funding to put small camera satellites in space, delivering remote virtual-reality live experience on Earth. As part of an advertising campaign, a recent attempt was made to launch a chicken sandwich to the edge of space over a high-altitude balloon. In the next decade, NewSpace companies such as Effective Space will work to lower the barriers – inspiring you to envision your own 2030 space application!

#### INDUSTRY VIEW

info@effective-space.com  
www.effective-space.com

## Take a step back and look down: How to get your company's digital future right

Technology has transformed the way we communicate – and effective infrastructure is crucial to keeping people connected

**A** LOT CAN happen in 13 years. 2004 might not seem that long ago, but much of the technology we've come to rely on was either brand-new or just a glint in their inventors' eyes back then.

In that short time, technology has transformed the way we communicate thanks to super-fast 4G networks, platforms such as Android and devices like the iPhone. Another wide-scale reinvention is now on the horizon: digitalisation and the internet of things (IoT) promise a new age of technology-driven business operation, bringing greater efficiency, stronger security and better working environments for employees.

But to fully make the most of it, businesses will need to start planning today for 2030.

#### Making the connections

Our vision of 2030 is one where everything is connected and internet-ready, improving our quality of life. The foundation of this future is a secure and fast network.

Extreme Networks has seen how having the appropriate network in place has helped its clients in the enterprise space introduce new technologies. With many of them operating multiple offices across different markets and geographies, being able to easily connect each location and their employees with one another is vital to their success. Building scalable networks has allowed them to connect more and more devices to those networks in a cost-effective way that remains relatively straightforward. The same logic applies to businesses in retail, healthcare and education.

#### Infrastructure is the critical success factor

So how do you ensure a fast and secure network? Well, the first step should be pausing to look at what will underpin this network. The answer is always infrastructure. But don't just invest in the latest hardware. Strategic (and therefore, successful) leaders will look at whether they already have the



building blocks in place to pursue their vision. The results of this review will help build confidence to start working towards a digital future. It will also provide employees with the confidence of what needs to be done and in turn increase buy-in and encourage innovation at all levels.

#### The best-laid plans

A future-proofed and scalable network will cost time and money. But even with the best-laid plans,

it's likely what we expect will still be somewhat different from what will come to bear. Any plan should provide flexibility to support the internet of things we imagine and any unforeseen "game changers" too. To ensure that infrastructure delivers the results a business needs, plans should be based on a strong network infrastructure platform like that offered by Extreme Networks. Whatever the type of organisation – retail, education, healthcare or otherwise – this will create a digital future that meets the needs of customers and employees alike.

As we look towards 2030 and the benefits of emerging technologies, it is very easy to get ahead of ourselves; taking one step back and ensuring that a strong network infrastructure is in place will ensure the success of every step forward in the future.

#### INDUSTRY VIEW

Sean Collins is regional director for UK and Benelux, Extreme Networks  
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# The future is digital and the decisions are now

**A**T GOODWOOD Festival of Speed I recently flew in an all electric plane, writes Juergen Maier, CEO of Siemens UK. It was an experimental two-seater – but it is a sign of things to come. By 2030 we can expect that a hybrid version of this technology will be sufficiently tried, tested and scaled-up to be running short-haul commercial flights to domestic and European destinations. A key enabler for this technology is digital, smart simulation and optimisation software, without which the performance increase of the battery and motor system to allow it to fly for an extended period would not be possible.

The impact of realising such an innovation is in some ways subtle but in others huge for our society and our industry. Maybe future generations will look back and laugh at the noisy, polluting, smaller planes we used to fly and wonder how we and those living on their flight paths managed. Perhaps, like many other veteran vehicles at Goodwood, old favourites will be on display as fabulous historic icons while everyday commuter planes will be clean, electric and almost silent.

It's exciting to witness these transitions as they rarely happen overnight. These are uncertain times – political volatility has been rife since the UK election and we are still unclear about the many facets of Brexit and what the future holds for business. But now is the time for businesses, large and small, to come together and not let political instability derail Britain's need to invest in new technologies and revitalise its industrial sectors. We are essentially a nation of innovation, and we must demonstrate that the UK has the entrepreneurial spirit to lead a new digital industrial revolution.

We need to have a long-term economic vision for the country. A clear view of what it is we want to make, where we want to be and how we are going to get there. Part of how we can make that happen is by embracing the one area we can be optimistic about when it comes to business policy – and that is industrial strategy. It's one of the few areas of policy left where there is a tremendous amount of consensus. For me, it is all about creating the jobs of the future, creating the new industries of the future and upskilling the workforce.

Successful industrial strategy will be about innovation, new technologies being created in the UK and new industries built around these new ventures. In its most basic form industrial strategy will need a distinct digital



25%

How much more productive UK industry could be if it adopts digital #IDReview

thread running through its core. It will not be about reviving long-gone industries, but rather about building the new ones in artificial intelligence, virtual reality, big data, machine-learning and simulation platforms – the merging of creative, digital consumer tech and industrial. It will be delivered by a new wave of start-ups and SMEs, a few of which will scale up to become significant corporations. It will create the wealth the country needs to fund its public services. It should be a key focal point for economic policy – and the business community should help shape it for the benefit of the whole country.

In the UK we excel at digital and have the ingredients for the foundation of a new industrial revolution. I'm already discovering this as I continue to lead a review into "industrial digitalisation" on behalf of UK businesses, reporting to the government as part of the industrial strategy. I've been working with more than 200 companies, large and small, alongside academics to understand how digital can take off in UK manufacturing and industry. The review is about finding how the increasing use of digital technologies can enable industry to become much more productive and

*"We need to have a long-term economic vision for the country. A clear view of what it is we want to make, where we want to be and how we are going to get there"*

competitive, creating more jobs in the process. The early findings are promising. We know that by that by leading, innovating and adopting digital in industry the UK could achieve productivity gains of up to 25 per cent, manufacturing sector growth of up to 3 per cent – delivering annual growth of approximately 0.5 per cent of GDP.

We also need to prepare our cities for the impact of digital, upgrading our infrastructure and transport to cope with new industries and technologies as two thirds of us are destined to live in UK cities in the next 30 years. By 2030 London is expected to have 9.9 million inhabitants, up 15 per cent from 2016 – with that will come 50 per cent more demand on transport services.

We expect to be producing 60 per cent less CO<sub>2</sub> and 25 per cent of our energy will be from distributed energy sources. This means change, even if it subtle, such as commuter planes going electric, needs to happen.

Britain made its way in the world by being at the forefront of the first industrial revolution in the 19th century. It capitalised on the second by leading in methods of mass production in the early 20th century. In the 1970s, we lost our way and missed out on the third revolution of automation. Now is the time to fully immerse ourselves in digital. That way, we will be at the forefront of the fourth industrial revolution and be ready for whatever 2030 promises. I personally believe the overall conditions are better now than they have been for several decades. It's down to today's innovators and business leaders to get involved – to work in partnership with the public sector to ensure longer-term thinking, and make sure businesses invest and innovate to create a digitally led industrial Britain.

INDUSTRY VIEW  
01276 696312  
[www.siemens.co.uk](http://www.siemens.co.uk)

## What are the biggest challenges for the UK to reach its potential by 2030?



**John McGlynn**  
Chair  
Association for Project  
Management

**W**E NEED to learn from the past and invest in skills and training at all stages in people's careers. With increased investment in projects across both public and private organisations, we need to ensure the UK has the right skills in order to deliver success. We need to maintain and develop these skills, and with Chartered status we will have robustly assessed project professionals delivering projects to the highest standards. As technology develops and working culture evolves, we need to provide adequate training so the whole workforce keeps abreast of change.

Front-loaded planning will be required at the highest levels of government and industry to ensure the right projects are initiated correctly and can be delivered on time and on budget.

Our ambition as the Chartered body for the project profession is for project management to become a core skill for all, and with a skilled and trained workforce the UK will reach its potential.

### INDUSTRY VIEW

0845 458 1944

[www.apm.org.uk](http://www.apm.org.uk)



**Mark A Langley**  
President and CEO  
PMI

**B**REXIT REMAINS an obstacle the UK must overcome to meet its potential by 2030. This issue is a serious challenge for many reasons, including the limitations it will place on the nation's access to talent for both public and private sector projects. The UK must account for this reduction in talent by developing new professionals with the skills necessary to clearly define, communicate and execute strategic imperatives, minimise disruptions, manage risks and ensure stakeholder engagement.

The UK's withdrawal from the EU will take years to complete and entail major investment in government programmes. Therefore, the UK government needs a disciplined approach – and the right talent – to navigate this massive undertaking. According to our latest *Pulse of the Profession* research, organisations in the UK have become more mature in their approach to project management and are reducing the amount of money wasted on projects and programmes. This trend must continue as the UK decouples from Europe.

### INDUSTRY VIEW

[www.pmi.org.uk](http://www.pmi.org.uk)



**Juergen Maier**  
CEO  
Siemens UK

**I**N THESE uncertain times, we must stimulate confidence and paint a stronger vision for our economic future. I believe that future lies in the fourth industrial revolution, which the UK must now fully embrace across industry, empowering the value creators who will generate growth. The digital technologies that will drive this revolution, such as the industrial internet of things and AI, will drive a step change in performance for advanced manufacturing and also for our national transport and energy infrastructures, making our nation more competitive and attractive.

The real prize is that this revolution will make us fall in love with the UK's makers and creators again, who will inspire further generations to join the digital revolution as we generate better paid and skilled jobs. This way, we become a far more inclusive society, recognising the value people from all walks of life, whatever their creed, gender or race, bring to our work and together we generate the wealth that can pay for our public services.

### INDUSTRY VIEW

01276 696312

[www.siemens.co.uk](http://www.siemens.co.uk)



**Cameron Stewart**  
Head of PPM product  
development, AXELOS

**P**ROJECT MANAGEMENT will continue to grow as a life skill, but the pace of change within business means that project managers will need the ability to adapt to a series of key challenges by 2030.

These include increased regulation and compliance, keeping up with the latest technology, such as artificial intelligence (AI) and machine learning and ensuring that they have a stronger strategic vision for projects that are aligned to the wider business. With this in mind, it is vital that project management professionals realise the importance of continuous learning – the ability to remain agile and strategic, adapt to new technology and respond to changing regulation will become ever more important.

### INDUSTRY VIEW

[www.axelos.com](http://www.axelos.com)

## Infrastructure 2030: a future so real you can taste it

65%

The percentage of infrastructure professionals who said that design complexity is their biggest issue

Source: survey by Aconex with industry professionals working on infrastructure projects

**T**HE FAR shore and water lie before you. Two seagulls sail past as you stand on the scenic overlook at one end of the future suspension bridge. The bridge hasn't been built yet. That's the point of this exercise. Ten minutes later you shed the headset and bodysuit and offer your feedback to the project team.

Immersive technology is destined to play a major role in infrastructure's future. Project management will include a key "you are there" component, especially for larger and more costly projects. Virtual construction will enable contractors to simulate the construction phase to understand potential risks better, test new safety measures and improve logistics and just-in-time planning. While the sector still lags behind the aerospace and gaming industries in simulation technology, building information modelling (BIM) is a tremendous start.

BIM is in its third iteration as the methodology for creating a digital twin of a planned built asset and capturing what a finished structure will look like. When 3D imaging is joined to powerful scheduling, budgeting, sustainability, and operations and management data, project stakeholders are empowered to make changes that influence the



aesthetics, economics and safety of the finished asset. Access to data generated throughout the project aids in operations and maintenance afterward. As data sets become increasingly interconnected, predictive analytics will assume a larger role in anticipating an uncertain future that includes climate change.

### Big-ticket items

Infrastructure shapes our lives on a far grander scale than other industries. It provides shelter, energy, and the means of navigation and distribution. These are big-ticket items requiring advance planning. A model-centric approach integrated with a common

data environment (CDE) will enable better co-ordination between stakeholders. Improving co-ordination will result in fewer delays and more rewarding outcomes.

The drive for efficiency is long overdue. Infrastructure projects are growing larger and more expensive. Joint ventures and public-private partnerships are necessary to share risk. The Achilles' heel of current infrastructure construction is the infrequency with which projects are brought in on time and on budget. Given the significance of these projects, this is a big deal.

Expenditures totalling £483 billion are committed to infrastructure for the

five-year period ending in 2021, with 60 per cent of funding expected to come from the private sector. The government is committed to investing £100 billion, a 60 per cent increase from the previous period. Large infrastructure projects currently in the works include Crossrail 1 and 2 and the Northern Powerhouse.

### A 'fit-for-purpose' infrastructure

In a report anticipating 2050, infrastructure leader Balfour Beatty cited digitisation, smart maintenance, climate resilience and financial sustainability as necessary for "a resilient, cost-efficient, and fit-for-purpose national infrastructure." We learn elsewhere that successful large projects include early planning and testing options, collection of clear and consistent data, and accountability.

The extent to which we will be rewarded with a fit-for-purpose national infrastructure is yet to be decided. Throughout, infrastructure project managers will continue sharing information and looking for answers. Even when those answers come with a headset and bodysuit.

### INDUSTRY VIEW

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