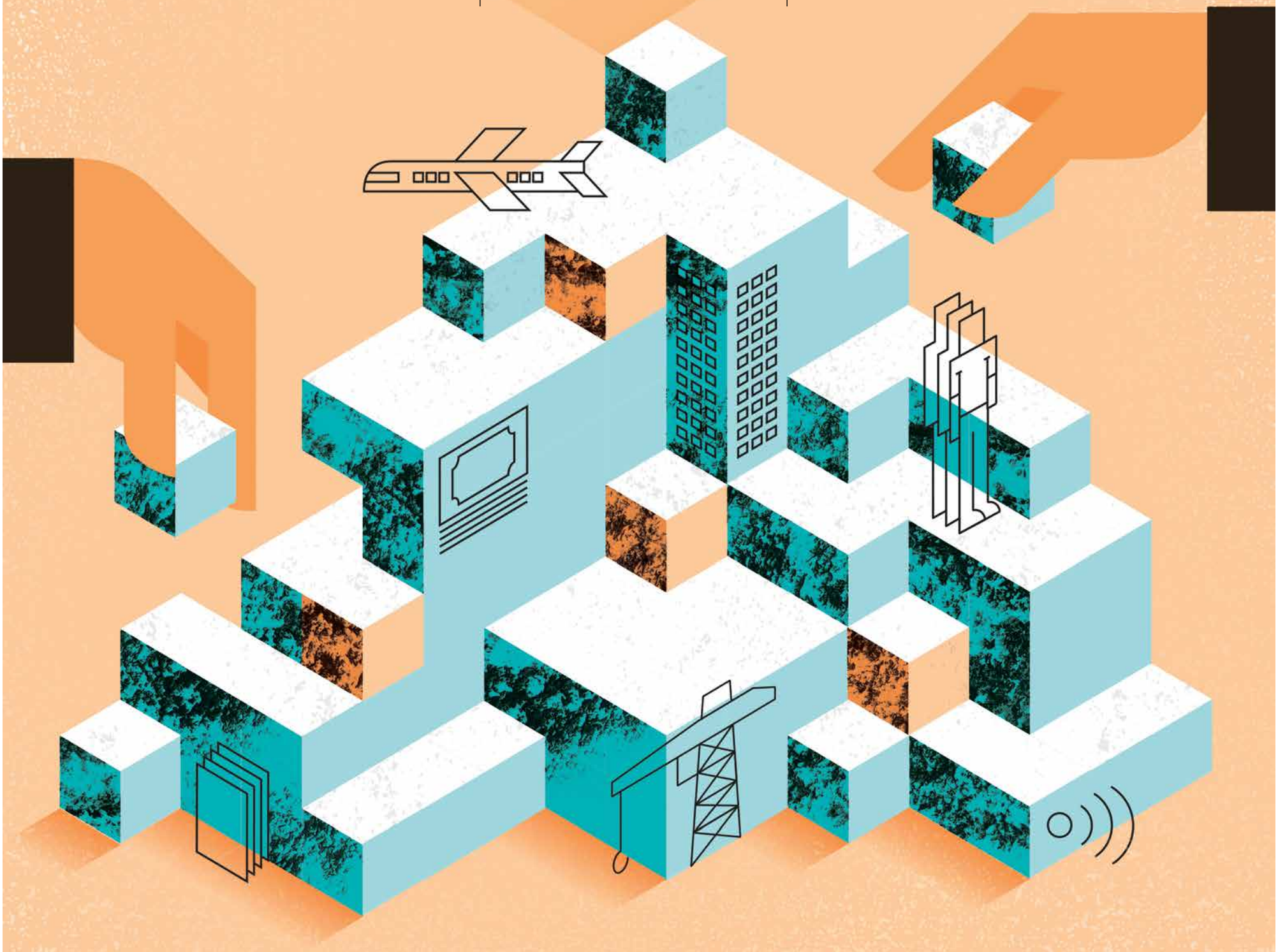
ASSET MANAGEMENT



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ASSET MANAGEMENT

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BOARDROOM

Catching up with data-driven technology

Asset management is being transformed by connected smart technology which, when embraced by the C-suite, can give a welcome boost to business

JAMES HURLEY

On the face of it, John Deere might not look like the kind of organisation that is at the cutting edge of technology. After all, the American company is in the apparently earthy trade of making agricultural equipment.

Yet John Deere is taking a much more forward-thinking approach than some businesses when it comes to asset management. Its products, such as combine harvesters and tractors, come equipped with sensors that transmit mechanical data and enable it to inform farmers if a component is likely to fail, potentially around one month before the event.

It's hoped that the so-called predictive framework analytics could save farms thousands of pounds by preventing unexpected periods of lost productivity. Anticipating problems with assets should ultimately reduce maintenance costs.

The benefits of such predictive maintenance of assets have been discussed for many years and the rise of the internet of things, with everyday devices connected to the internet, is expected to yield a revolution in how everything from transportation to buildings, power networks and factories are looked after.

Mark Taylor, technical innovation manager, IT, at the Institute of Chartered Accountants in England and Wales, says the rise of connected devices is already changing how assets are managed.

So, for example, owners of a haulage fleet will have much better information on the state of their lorries and should be able to spot issues at a much earlier stage, reducing downtime and saving money.

"The location, condition and maintenance requirements of assets can be tracked with real-time information. The benefits of this are huge, it will mean companies can identify operational risks in near real time and hopefully mitigate them," says Mr Taylor.

Data could even inform future design improvements to prolong the lifetime of assets.

Yet adoption of such a predictive approach to asset management in many areas has been slow. That may be because of the lack of attention that even traditional asset management gets in some organisations.

Four out of every five asset owners do not have a complete understanding of what assets they possess, their condition or the required maintenance activities and budget, according to a global survey conducted by Arcadis, the engineering consultancy.

Sergio Flores/Bloomberg via Getty Images

John Deere's agriculture equipment comes fitted with sensors that enable predictive maintenance

Bad asset management ultimately damages productivity, or output per hour. Poor maintenance strategies can reduce a manufacturing plant's overall productive capacity between 5 and 20 per cent, according to Deloitte.

Richard Williams, UK head of asset services at CBRE, the property giant, says investment and management cycles can affect asset management. "A very buoyant market in recent years has meant that asset managers were spending more time buying and selling property, than actually actively asset managing each property," he says. Now transactions are slowing down, assets are being more actively managed.

Another problem is that business plans and executive tenures can be shorter than asset lifespans. "Asset plans tend to be on a three-to-five-year cycle whereas a property's life cycle and indeed leases are much longer than this," says Mr Williams. "The asset plan often reflects short-term thinking, when a building is long term. We need to combine the short-term [planning] with a long-sighted approach."

However, Julian Rose, founder of Asset Finance Policy, a regulatory affairs consultancy dedicated to serving the UK asset finance industry, says he is not convinced that industrial boardrooms are as ignorant of the importance of asset management as the Arcadis study suggests. "Consumers may struggle with some of the functions of their new washing machines, but businesses don't have the luxury of not reading the instruction books," he says.

That said, he concedes there is an issue when assets begin to reach the end of their lifetime. "Where businesses can struggle is with the disposal of assets, as they aren't experts in valuing or selling equipment, or in clearing the confidential data that now sits on so many different machines," says Mr Rose.

There are particular weaknesses in the UK when it comes to business investment, which has inevitable knock-on effects for asset management. Labour has been relatively cheap and flexible for many years, so it has been tempting to delay upgrading equipment, ultimately harming productivity.

Business investment was constrained during the financial crisis due to an inability to borrow. Access to finance is thought to be less of a problem now, but there has been a fundamental shift in UK companies' demand for external finance. Over the last six years, they have become much more likely to want to grow under their own steam than seek financial backing.

If businesses are unwilling to borrow or sell equity to upgrade plant and machinery, they are probably less likely to invest in new ways of managing the assets they already have, which would require an overhaul to how they work.

Indeed, the structures of some industries are simply not set up for the new world of data-driven asset management. The transition could be painful. Take road and rail maintenance, for instance, where many jobs are reliant on routine manual checks. And installing sensors is one thing, understanding data is quite another. New recruitment strategies will be required to bring companies towards the new paradigm in asset management.

Malcolm Evans, director of the UK Manufacturing Accelerator, a specialised investor in early-stage manufacturing companies, agrees that the Arcadis survey was too gloomy, at least when it comes to industry. However, he concedes there is some catching up to do when it comes to what he calls "smart asset management".

He concludes: "A degree of automation is very long standing in manufacturing – and it continues to become more joined up and shrewder in its analytics. But there is something of a time lag between the possible and mass adoption." ◆

eMaint 2017

80%

of maintenance time is spent reacting to issues rather than proactively preventing them

Plant Engineering 2018

1/3

of plants/factories spend more than 10 per cent of their operating budget on maintenance

44%

of unscheduled downtime in plants/factories is a result of ageing equipment

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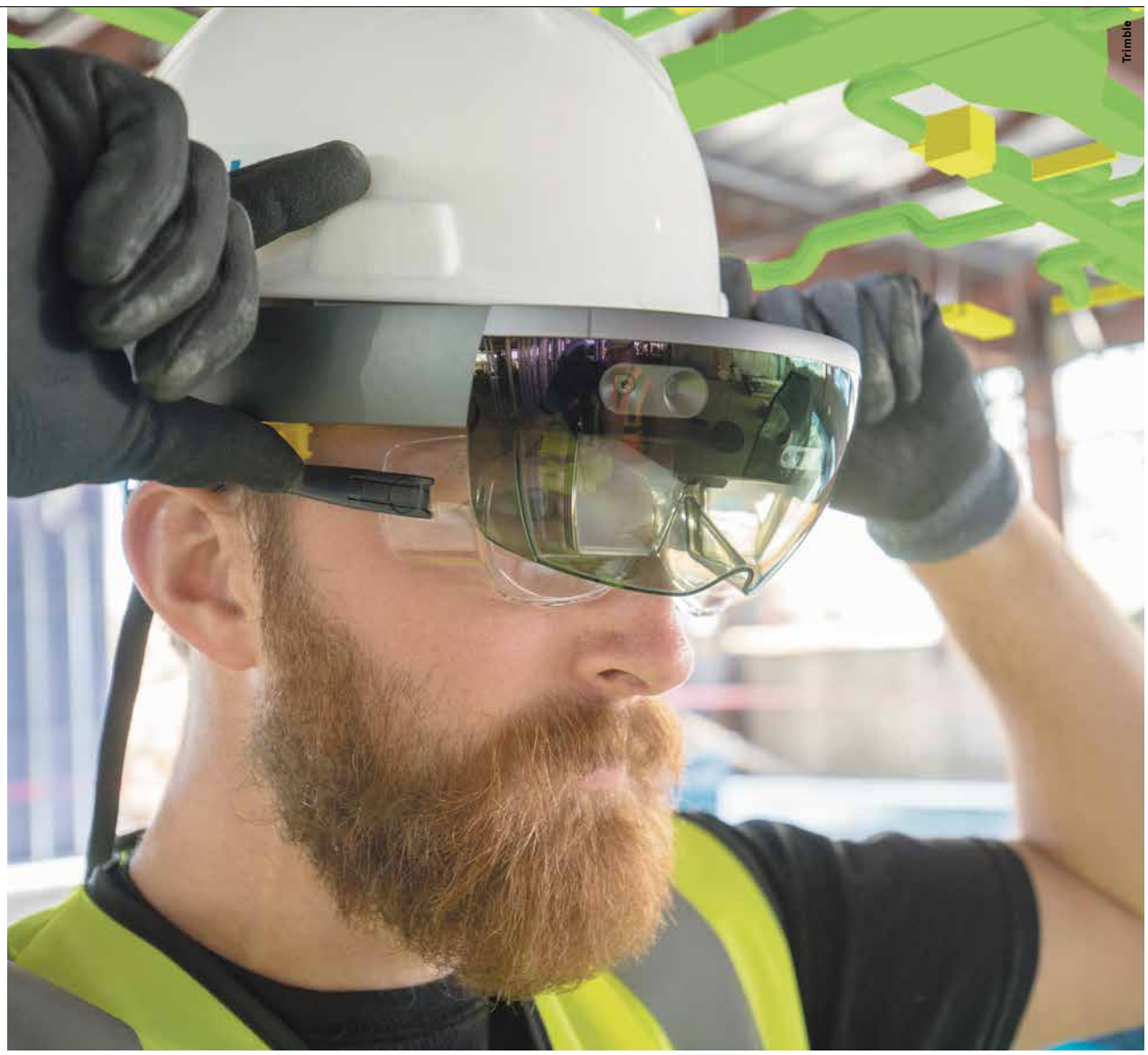
VIRTUAL AND AUGMENTED REALITY

Focus on new realities for hazardous work

From training mine workers in evacuation procedures to reducing plant downtime during routine maintenance, new ways of displaying information are becoming powerful asset management tools


Trimble

Trimble Connect, used with Microsoft's HoloLens headset, employs mixed reality to give workers in industrial settings the ability to review virtual models overlaid in their physical environment

RUSS SWAN

Virtual and augmented reality, born of computer gaming, are finally growing up and getting real jobs. In industries as diverse as emergency services, mining and manufacturing, digital information delivered through headsets or other novel methods is allowing businesses to maximise uptime during maintenance and minimise the consequences of accidents.

The two main categories of computerised realities find very different applications. While virtual reality (VR) is largely restricted to training and education, augmented reality (AR) may be the next most powerful tool in asset maintenance and management.

VR is gaining ground as a training delivery method, boosted by revelations that the medium leads to higher knowledge retention than conventional classroom or video training. The founder of Stanford University's Virtual Human Interaction Lab, Professor Jeremy Bailenson, estimates that VR users retain a third more information from their immersive experience than from other methods.

The Stanford lab is widely recognised as being at the leading edge of human-machine interface research, undertaking studies as diverse as developing new control gestures and creating racism-awareness VR to allow users to walk in the virtual shoes of others.

VR training offers further advantages when applied to hazardous working environments. Suzanne Edwards of e-learning consultancy Enlighten says VR is the current best method of overcoming a common *Catch-22* in industrial training. "Many mine operators have a restrictive permitting system that means new employees cannot go underground without training, but the best way to get the training is by going into the mine," she says. "Using VR means more experiential learning."

> **Immersive headsets are becoming a universal training tool**

Ms Edwards is engaged in the work of computer technology industry association CompTIA, which reports on how early adopters are using the technology. Its December 2017 research brief shows that employee training is the top VR application, with customer engagement and virtual meetings also popular. Simulation and on-the-job information are the least adopted applications, so far at least.

This pattern is likely to be reversed, CompTIA suggests, quoting market intelligence firm IDC's predictions that retail showcasing, on-site assembly and safety, and process manufacturing training will become the prominent apps of the technology. IDC estimates the VR-AR global market was worth about $11.4 billion in 2017 and will soar to almost $215 billion in 2021.

The idea of using a virtual environment for training is far from new, having been used in aviation for decades. Complex flight simulators run to millions of dollars, but are a sensible investment because, unlike an airliner, they cost nothing to crash.

Having some similarity, an alternative to the ubiquitous headset is to project images seamlessly into a dome or cylinder, in the manner of some novelty 360-degree movies. BP's European Acetyls plant at Hull is an example, where a virtual 3D chemical plant simulator projects images of any point within the factory, providing a convincing illusion of being there.

The advantage? According to Peter Halliday of Igloo Vision, the technology provider: "A headset can get in the way of training. It's an individual experience where you can't see each other or make eye contact. We call our approach shared VR."

Immersive headsets, however, are becoming a universal training tool. Cheap but workable VR can be had using equipment like Google Cardboard, costing just a few pounds, rising to £100 or so for better quality equipment such as Samsung Gear. These require a reasonably powerful smartphone to provide images and sensors.

Of more interest for corporate training are tethered headsets, which take their input from a computer to which they are connected by cable. Examples of these include the Sony PlayStation VR and the Oculus Rift, at £300 to £500. These systems display one of the best current manifestations of Moore's Law, becoming inexorably cheaper and more powerful as they become commoditised.

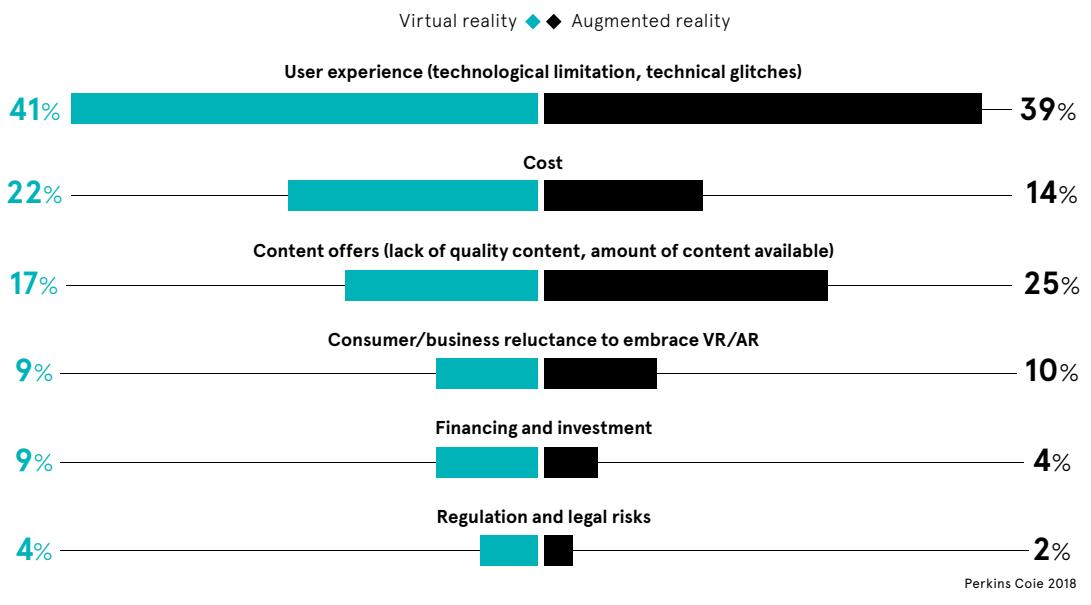
VR is becoming an everyday technology, but for many the most exciting area is AR where information is superimposed on a real-life view of the world. This is expected to have huge implications for asset management, enabling maintenance and repair crews to be fed vital information in real time and returning live data streams including images to a control suite.

Zahra Bahrololoumi, managing director and lead of Accenture Technology in the UK and Ireland, makes no apologies for evangelising the technology. "We estimate that half of all maintenance projects overrun by 30 per cent," she says. "We want turnarounds to be boring, predictable and, above all, safe."

Leading the charge in the AR field is the Microsoft HoloLens, a headset that looks like it may succeed where Google Glass failed. But Microsoft doesn't have the field to itself and other players, including Toshiba with its DynaEdge and Epson with AR Moverio, are also determined to make this market their own. ◆

Biggest obstacles to mass adoption

Survey of virtual/augmented reality technology companies, investors and consultants



Perkins Coie 2018

OPINION COLUMN

‘What energy and focus could an improved culture liberate from your disparate tribes?’

Picture your last budget meeting. Imagine a colleague had said: “You can create more value for us all than me from spending this £5 million. You spend it!” If such behaviour is normal in your organisation, congratulations. You’re lucky to work in such an enlightened culture – and you may even be leading a good asset management organisation.

Fear of strangers or the “other” is endemic in our world. Competition and even confrontation occurs between nations, races, sports teams or, indeed, social media echo chambers. I am increasingly seeing professions in the same light. Their identity arises from pride in expertise or a small community, but such differentiation can also cause defensiveness and unproductive, territorial behaviour.

Whether or not I’m right, it is well known that internecine warfare is more fun than inclusive and well-behaved collaboration towards common goals. The popularity of so many cartoons emphasises how pervasive and common such behaviour and experience is.

Terms like “stovepipes” or “silos” may be used to describe unhelpful division between departments, functions or other communities within an organisation. Interfaces are usually where customer service and other processes break down, but I have yet to find a director of interfaces. The risks and losses engendered by interfaces between groups are, I would argue, a rich area for better management theory and techniques. In engineering terms, this is called systems engineering. But I want to address culture and leadership rather than process.

Asset management, as set out in ISO 55000, is essentially about achieving your goals as certainly as possible at minimum cost over time. It is a philosophy of avoiding short-termism and of using structured thinking to help overcome silos and create value. Savings come from avoiding the losses and friction between functional groups, and behaviours such as “lobbing over the wall” that can occur, for example, between completing capital projects and starting to use them.

The knowledge, techniques and standards developed over the last 20 years or so are being translated into education, training and qualifications. We are now deliberately “professionalising the discipline” and working with universities to help not only graduates but top managers understand the potential value and benefits they can gain. This is being applied to government, public and private companies in most sectors.

Actually, what we are really doing is integrating the contributions of a variety of professions within an organisation. By creating a framework that facilitates collaboration and getting the best value from each professional, the overall result is improved. Part of this requires translating the language and aims of functional professionals into a better holistic process. Collaboration is easier when you understand the real messages in language you recognise. Many years ago, I told engineers I mentored to learn the language of business – money.

This is not about utopia or beautiful people being nice to each other. This is hard-nosed business sense. Leaders need to create the conditions for the right behaviours and implement processes that cross the organisation, directly linking the organisation’s purpose to all activities – the line of sight.

Can you pass the sandwich test? When did you last ask someone from a wholly different community in your organisation to lunch with you? Nothing complex or expensive; just ask: “How could our department help you more?” Try it.

What energy and focus could an improved culture liberate from your disparate tribes? Many employees long for this. You probably know how to do it. Is it an opportunity for you? Worth a little investigation, don’t you think?

David McKeown
Chief executive
IAM – The Institute of Asset Management

Commercial feature

Digital transformation of maintenance

The asset management industry is teetering on the brink of full digital transformation, as organisations look to software to help reduce costs, improve productivity and boost sustainability

Digitisation is sweeping through industries, transforming processes, turning business models on their heads, and enabling organisations to boost efficiencies and reduce costs dramatically.

Much of this digital transformation has already occurred in white-collar territory such as marketing, finance and human resources. However, traditional blue-collar industries are now staring down the barrel of modernisation, poised to make the leap from pen-and-paper systems to software solutions.

In the world of maintenance and asset management, the rise of cloud computing – the foundation and true enabler of digitisation – is democratising maintenance software, allowing companies that previously couldn’t access such transformative technology to deploy it at a manageable cost with a quick-and-easy set-up.

“Digital transformation at the organisational level is a game-changer when it comes to improvements around quality, production and longevity of physical assets,” says James Novak, president and chief operating officer at Fiix, a cloud-based computerised maintenance management system (CMMS) software provider.

Fiix’s solution helps businesses organise their maintenance departments, ultimately leading to less unplanned downtime, higher productivity and better overall business performance.

“We’ve seen customers reduce maintenance costs by seven to nine times, simply by moving from reactive to preventive maintenance. You can’t do that if you’re organising maintenance on paper, pen and clipboards – you need software.”

40-50%
of operational budgets are often spent on maintenance management

7-9times
reduction in maintenance costs by implementing a preventive maintenance strategy with a CMMS

$6.05bn
global enterprise asset management market by 2022, up from $3.44 billion in 2017, thanks to demand for software solutions

Being able to plan maintenance proactively is an essential component of understanding the true cost of operations in any industry. If an organisation is able to anticipate maintenance and downtime, then it can budget time and resources accordingly. However, many organisations still undervalue and deprioritise maintenance, pigeonholing it as a cost-centre rather than a potential source of value.

This mentality can have dire consequences. “Issues like industrial accidents, waste, chemical spills and manufacturing scrap are so often due to poor maintenance. This is where we start to see a really interesting intersection between our work at Fiix and sustainability on a global level,” says Mr Novak.

“When we keep physical assets running in peak condition with proactive maintenance, we can mitigate the harmful effects of downtime and decrease overall environmental impact, similar to how maintaining an old car decreases its carbon emissions. If you multiply the effects of maintenance on individual assets and apply it to a whole factory, a whole industry or, in a perfect world, globally then you start to understand the real impact that maintenance can have.”

But despite the financial, operational and social boon of implementing an enterprise maintenance and asset management solution such as Fiix’s CMMS, many organisations still struggle to embrace digital transformation. Change management and internal resistance to technology are big concerns for asset managers already feeling the pinch of increased productivity demands, as well as time and budget constraints.

“What we’re starting to see is that a lot more companies understand why systems like ours are important, but struggle with the what and the how. This is where we partner with teams to work through change management exercises, to really make sure key stakeholders at every level of the organisation understand the value of the software and see how it can make their jobs easier,” says Mr Novak.

“Digital transformation at the organisational level is a game-changer when it comes to improvements around quality, production and longevity of physical assets

He points to increased accessibility to software solutions as well as drivers such as ageing assets and infrastructure as key factors spurring modernisation in the maintenance and asset management industry.

“The enterprise asset management market is exploding. At Fiix, we’re seeing consistently higher demand from companies that really get why now is the time for digital transformation in their maintenance departments and how technology can improve operations across the board,” Mr Novak concludes.

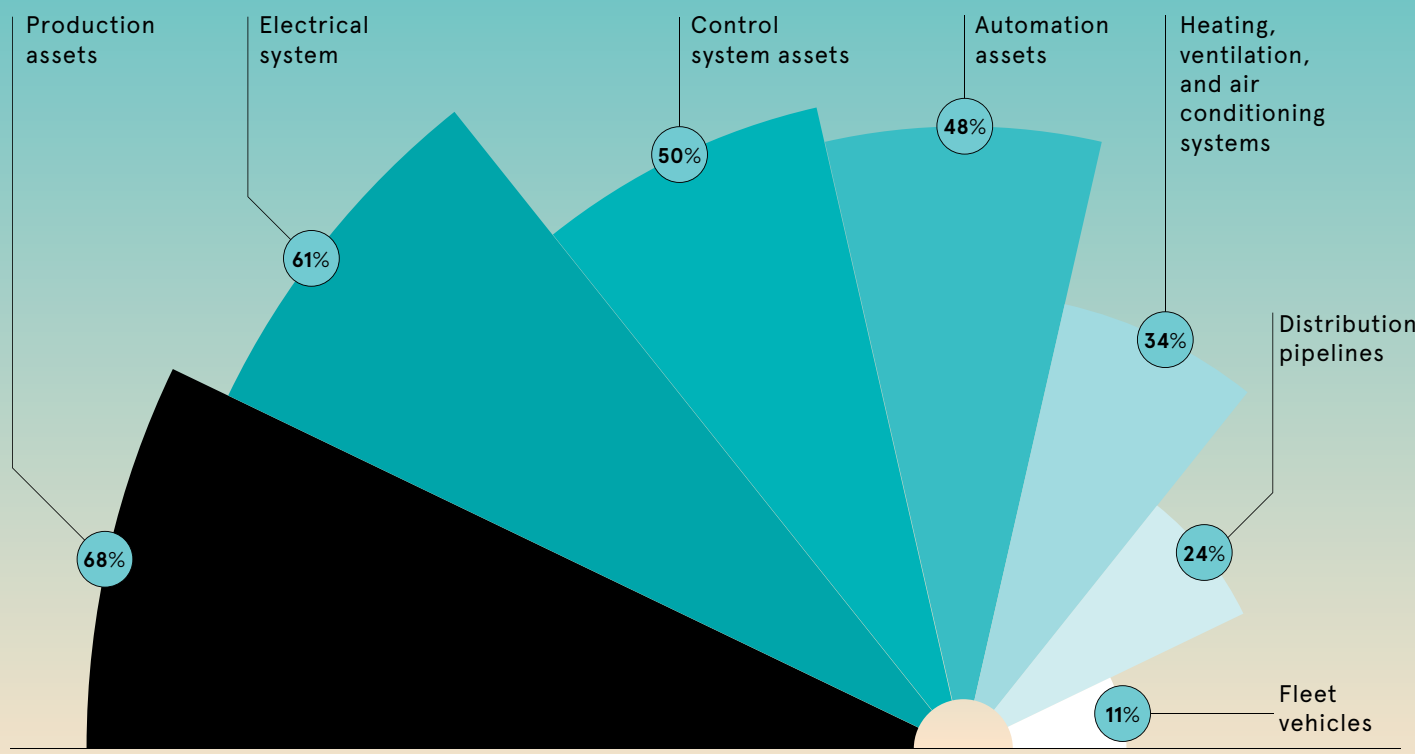
For more information please visit fiixsoftware.com

Fiix

PROACTIVE v REACTIVE

"Run to failure" can be a costly way of managing assets within a business, especially for industrial firms that rely on their machinery and equipment running smoothly and efficiently. Being able to eliminate asset defects proactively at an early stage can save unnecessary spending down the line, while investing in predictive maintenance technologies can prevent problems arising in the first place

Assets managed by predictive maintenance
Cross-industry survey of plant managers and engineers

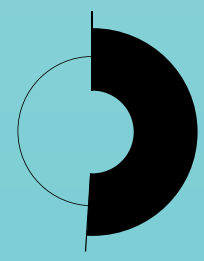


Plant Services 2017

80%

of maintenance time is spent reacting to issues rather than proactively preventing them

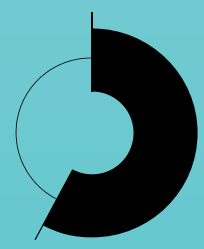
eMaint 2017



51%

use a predictive maintenance approach with analytical tools

Plant Engineering 2018

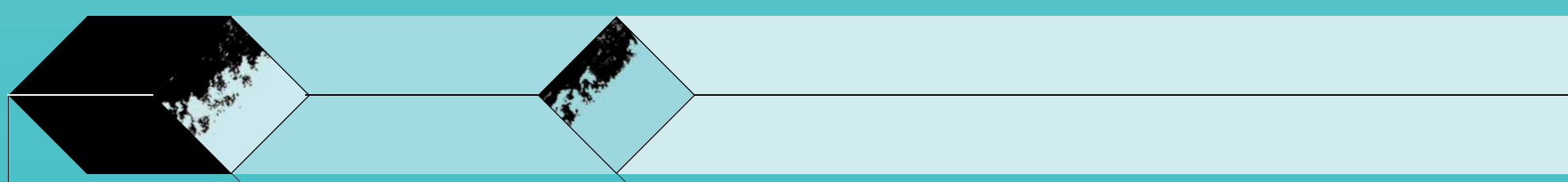


57%

still employ a run-to-failure or reactive maintenance strategy with some equipment

Plant Engineering 2018

Industry attitudes towards maintenance
Cross-industry survey of plant managers and engineers

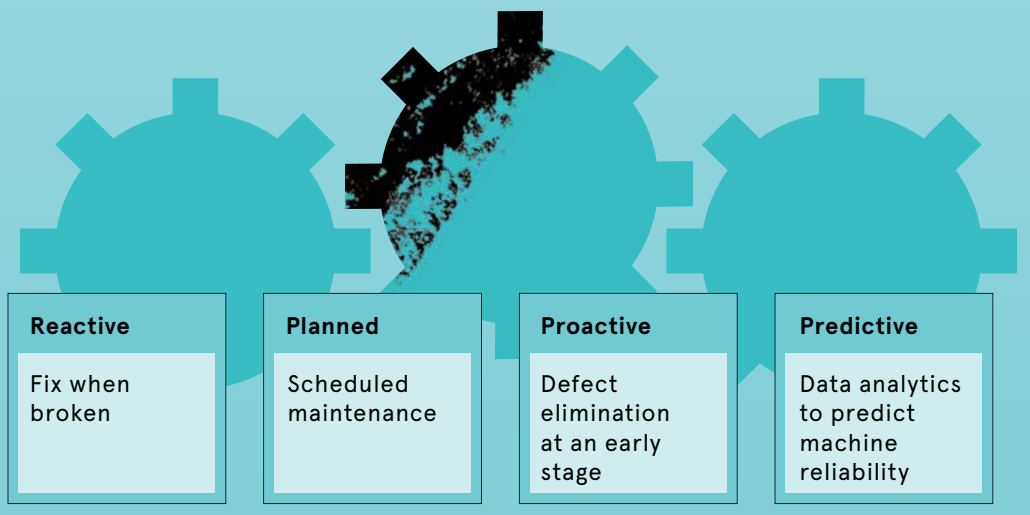


6%
It's a necessary evil

16%
It's a cost centre, and we need to control costs carefully

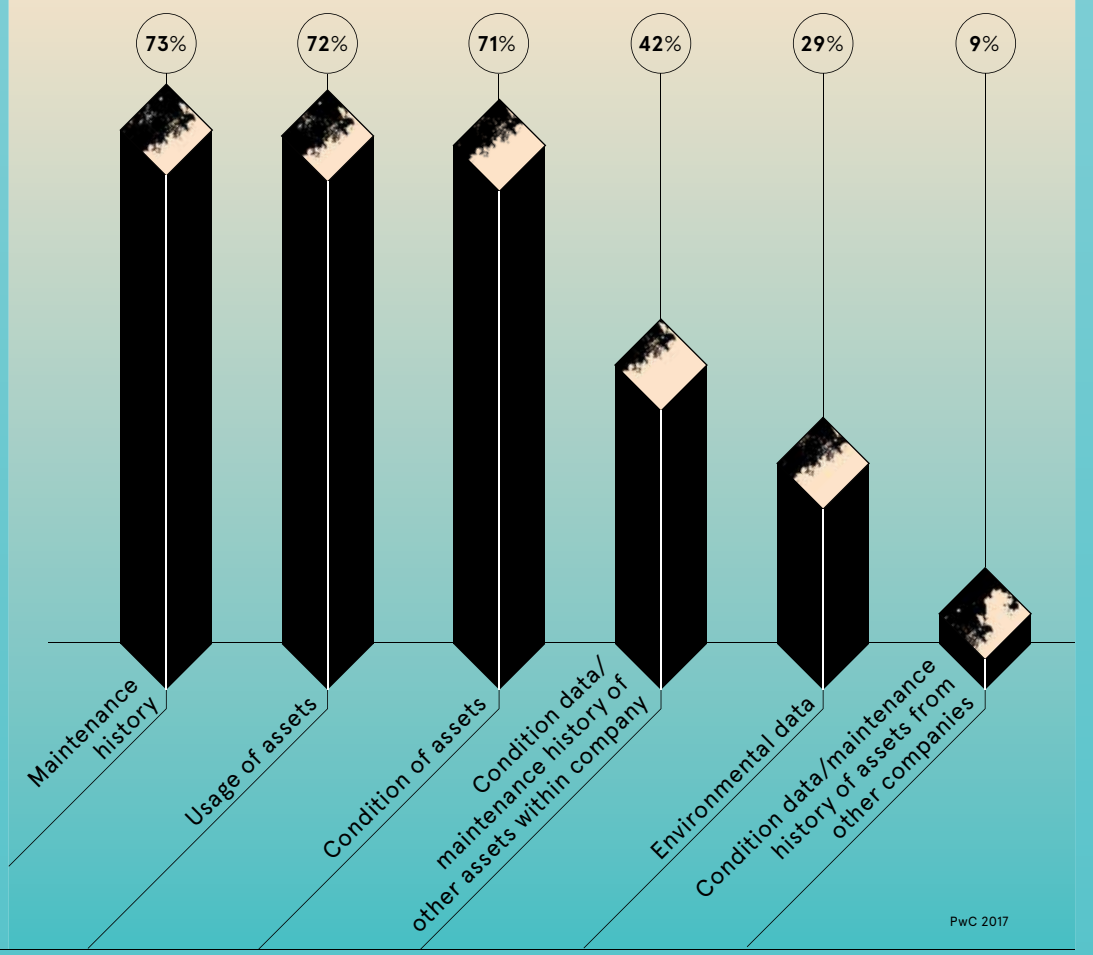
44%
It's a cost centre, but we need to spend to keep equipment running

Different approaches to maintenance

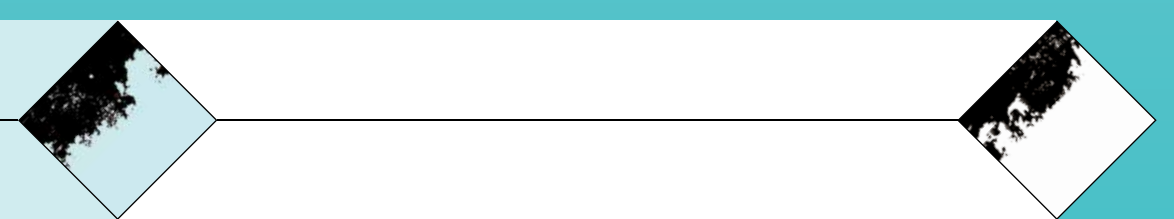


Types of data used for predictive maintenance

Survey of industrial plant managers and engineers



PwC 2017



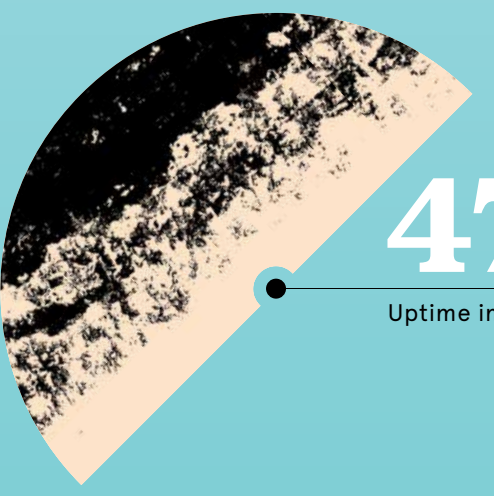
34%

It's a profit centre where we can deliver greater capacity to our plant

Plant Engineering 2018

Primary goal for adoption of predictive maintenance

Survey of industrial plant managers and engineers



47%

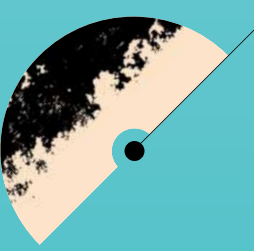
Uptime improvement

17%

Cost-reduction

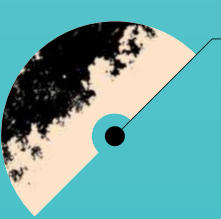
16%

Lifetime extension of ageing asset



11%

Reduction of safety, health, environment and quality risks



8%

Higher customer satisfaction

1%

New revenue stream

PwC 2017

Perhaps the planet's most valuable asset

Successful management of water depends on people around the world realising what a precious and limited resource it is

FELICIA JACKSON

Water is fundamental, whether for drinking, supporting agriculture and livestock, energy or industry, in both developed and developing economies. But 783 million people, one in nine of the world's population, have no access to clean water.

A key challenge, of course, is how to pay for water although, in the UK, privatisation has covered the cost of major investments in infrastructure. According to Ian Gray, global water asset management lead at Arup, £120 billion has been invested in the UK water sector since privatisation.

Historically, however, water has been managed in a fragmented way, which must change through more effective management, says Mr Gray. "We've started to talk about resilience – the way we manage extremes; how we respond to stresses and shocks on the system," he says.

Many operators are beginning to work together, recognising the interdependence which comes from having many players in a supply chain, especially one that ultimately cannot be controlled.

Part of the challenge lies in customer expectations. Bryan Harvey, vice president for utilities in Europe at Jacobs, points out that while oil may sell for around $60 a barrel, water is priced at about $1 a barrel. There are no natural competitors to water providers and even privatised water operators are heavily regulated.

Mamadou Dia, president of AquaFed, says: "There is no real reason to oppose public versus private models, and it is much more interesting to look at institutional models that are enablers for different types of co-operation. The most important thing is that it is clear who has to deliver on what types of responsibilities, so constant improvement in performance is achieved for the benefit of the end-users."

In the UK, more than 20 per cent of abstracted and treated water is lost from leaking mains. Many of these date from the Victorian era, while in Japan key water mains are relined every ten years. Dr Phil Aldous, of Thomson Ecology, says: "Replacing network infrastructure is not just expensive financially. The other costs of congestion and pollution make the task a multi-disciplinary challenge. The lesson to be learnt for emerging markets must be to monitor and maintain physical assets to avoid future replacement legacies."

This can be enabled by the implementation of smart technology linking sensors and collating data to ensure smooth management for the financial controller, operator and asset owner. Bill Clee, chief executive and founder of Asset Mapping, says smart technology enables robust and valid data to be shared across the value chain. "We have an infrastructure that isn't monitoring itself and reporting problems," he says, calling for a more holistic management of resources and services.

Dr Aldous stresses the importance of a strong regulatory regime. "Without a legal regime, the danger is that water authorities control the water resource, and focus on profits and meeting growth, at the expense of environmental sustainability. In Pakistan's Punjab, for example, over-pumping is lowering the water table by half a metre a year, threatening food and water security and making thirsty crops such as rice much harder to grow.

In emerging markets, new technologies are offering an entirely new way to develop and deploy water services. In China, India and Africa there is the potential to replicate the leap made in telephony, without having to manage legacy infrastructure.

This is especially true in rural areas, where there may not be sufficient people to justify major investment by any single utility. Mohsen Mohseninia, vice president of market development in Europe at Aeris, which works with Lorenz in delivering remote water management, warns: "Creating infrastructure that delivers water to these areas and then subsequently monitoring and maintaining this infrastructure can be an incredibly time-consuming and expensive operation."

Paul Marshall, chief customer officer and co-founder of Eseye, says one of the most difficult aspects of deploying water pumps, for example, is that without the skills to maintain them around 65 per cent break within the first two years. The solution, implemented by partner eWaterPay, "closed the circle around both the water cycle and the cash flow", says Mr Marshall.

This solution uses three technologies – mobile money, the internet of things and near-field communication – to manage the provision of clean,

1 in 9

people globally have no access to clean water

65%

of water systems break within the first two years of installation because there is no sustainable method of maintaining them

eWater

01
Young girl filling a pot from a water hand pump in Lahore, Pakistan

02
A herder in Gidewari village, northern Tanzania, using an eWaterPay tap to collect water, which is charged at around 1p per 20 litres, pre-paid on an eWaterPay token using mobile money or cash

low-cost water, accessible 24/7. While installing solar-powered pumps, filtration systems, tanks and taps, local engineers are trained to maintain and upgrade the system. This includes replacing hand pumps or leaky, unreliable outlets with a smartcard reader, communications hub and solar-powered electronic valve.

The system can be shared between families, and water can be measured and paid for. So far 13,000 people have constant access to clean water and provision is forecast to increase for up to ten million more people over the next five years through instillation of 100,000 more taps.

As always there is an issue with affordability. Calculations suggest that using this system will cost $2.50 a person each year, for a minimum amount of clean water. However, Mr Marshall points out that locals have always paid for water, but in different ways, either with their time, walking long distances, with their health, through drinking unclean water, or with education, by making children collect water instead of sending them to school. ◆

The lesson to be learnt for emerging markets must be to monitor and maintain physical assets to avoid future replacement legacies

Work smart, work safe, work everywhere

How the digitisation of plants improves efficiency without compromising safety

Industry faces challenges like never before as its leaders find themselves having to reduce costs, meet the increasing demands of customers and comply with evermore stringent safety regulations. Meanwhile technology is opening up new opportunities at the same time as it disrupts long-established working practices.

"Companies tell us about their need to reduce costs and maintain competitive advantage, but their number-one priority is always to ensure that their staff and their contractors get home safely," says Peter Strassheim, managing director of Engica, a software company that specialises in the development and implementation of what the industry refers to as "control of work" software – Q4 CMMS and Q4 SAFETY – systems used to plan and execute work efficiently and safely.

"This is a growing challenge, especially in industries such as oil and gas, where recent falls in commodity prices mean companies are forced to do more with less, while maintaining safety standards."

He points out that the digitisation of plants and the integration of systems can produce exponential benefits when implemented properly. For example, preventing unplanned shutdowns or reducing the duration of planned shutdowns with the aid of modern asset management tools, such as Q4 CMMS, can deliver considerable savings.

However, maintenance work on sites, especially within hazardous environments, also requires safety assessments to be performed before work commences. Documents such as risk assessments, isolations/LOTO (logout tagout) and safety permits are essential to maintain ISO-level safety standards, and handwritten paper documents can take considerable time to plan and prepare, which could lead to corners being cut and safety compromised.

What a one-day reduction in planned shutdown can save

*1,000MW at $60/MWh multiplied by 24 hours

$1.4m

*50,000 barrels a day at $60 per barrel

$3m

*excluding costs and other deductions

A properly implemented digital control of work solution, such as Q4, mitigates risk while increasing operational efficiency

As well as the obvious human aspect, on-site accidents can impact reputation, the environment, share value and can cost businesses thousands of pounds. In some cases, such as Piper Alpha and Deepwater Horizon, that could be billions.

A properly implemented digital control of work solution, such as Q4, mitigates risk while increasing operational efficiency.

Even though maintenance and safety form such a critical role in the performance of many companies, Mr Strassheim finds a very mixed picture. "In an era when many are talking about digitisation and the internet of things, we're regularly surprised to see how many companies are still using paper or basic electronic methods, such as spreadsheets, to manage and perform such important tasks," he says.

Technology, especially systems and devices that facilitate mobile working, offers great opportunities.

"Many of those companies already adopting these latest technologies are reaping the rewards by ensuring procedures are followed safely. Online approvals can be achieved quickly, permits generated at the touch of a button, as well as live dashboards and instant reports that help provide management and teams with the information they need to make fully informed decisions quickly and easily," says Mr Strassheim.

"Because safety is so important, we've seamlessly integrated it into our latest systems, rather than bolting it on afterwards. We can, of course, deliver the Q4 CMMS and Q4 SAFETY solutions separately or interface them to other corporate systems, such as SAP. However, many clients see major benefits of an all-in-one system that provides a fully integrated solution including work and asset management, logistics, procurement, and safety."

Whether a company wishes to transition from existing electronic systems or from paper, they typically find our digital solution to be seamless, with a rapid return on investment – priceless in ensuring your business runs competitively and just the way you need it to.

"We find that clients appreciate our breadth of experience," says Mr Strassheim. "Because we work across so many different sectors, we can share the best practices from various industries with our clients, helping them to work in a way that is cost effective, mobile and, above all, safe."

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SUSTAINABILITY

DANIEL LEAL-OLIVAS/AFP/Getty Images

Time to join the dots of cause and effect

Asset management and sustainability are almost joined at the hip, but there must be a more systematic approach to environmental issues

JIM McCLELLAND

Good or bad, asset management has an effect on the environment and is also affected by it. The impacts and implications are inescapable – the risk is real.

In short, climate change is on the table, says David McKeown, chief executive of the Institute of Asset Management. "It is on the table because companies have risk registers," he says. "Insurers have to look at real risks; it doesn't matter about the politics, you actually have some facts. Climate change is a clear and present risk."

For Dr Mark Brown, development director, consulting and rail, at Amey, asset management and environmental sustainability are bound together in resource optimisation. "The two are almost joined at the hip," he says. "They are intimately related, although different, in that a lot of benefits from asset management come through better energy efficiency."

Whole-life logic also links the two disciplines, says Ben Smith, director of energy, cities and climate change consulting at Arup. "Asset managers should be well placed to deliver positive sustainability outcomes, because they manage the asset through design, construction, commissioning and operation," he says. "They should be able to take a longer-term view."

Driving the environmental agenda most at present, though, is responsible investment, says Mr Smith: "I think the real step-change comes from the trickledown effect of changes to investment criteria. There is an increased focus around the world on ESG [environmental, social and governance]."

The investment community is starting to see the opportunities in environmental asset management, agrees Dr Lisa Schopohl, lecturer in finance at the ICMA Centre, Henley Business School. "The majority of asset managers regard environmental issues primarily from a risk perspective, especially climate change, toxic releases and water scarcity," she says. "However, I see scope for approaching sustainability as an opportunity."

According to Dr Schopohl, more and more investors want to see their capital invested to generate environmental impact. Though the volume of impact investments might still be comparably low, recent growth is strong and set to continue.

> **A lot of benefits from asset management come through better energy efficiency**

Paul Crewe, executive director and chief sustainability officer at Anthesis, witnessed this investment effect first-hand in his previous experience as head of sustainability at Sainsbury's.

"The Global Reporting Initiative, Task Force on Climate-related Financial Disclosures and European Union Non-Financial Reporting Directive mean investors are more aware than ever how sustainability can not only help manage risk, but create real commercial value," he says.

Despite discernible trends, specifics can vary considerably case to case and place to place, says Christoph F. Biehl, lecturer in accounting, also at Henley. "The order of priority for ESG seems to be governance, then environmental and social – GES," he says. "However, this varies depending on geography. In Japan, for instance, environmental traditionally plays an important role. This is a reaction to environmental exploitation during rapid growth."

Mr Biehl adds that China, while pioneering sustainable finance for asset owners as the world's biggest issuer of green bonds, may also face future environmental pressures. "China will have to move rapidly regarding pollution in the east of the country and desertification in the west," he says.

The UK has already set precedents for political wrong turns, observes Amey's Dr Brown. "The obvious one is diesel power on road and rail, which is a great example of misplaced government policy," he says. "We were all chasing carbon targets and totally overlooked the impact of nitrates and particulates – we didn't understand the science."

The upshot, which Dr Brown dubs "a bit of an inconvenient truth", is a transport sector lumbered with an increasingly unsustainable asset portfolio of diesel fleets, giving rise to "both impact of particulates on your neighbour and impact of carbon on the polar bears".

An economist by background, Dr Brown advocates a fiscal fix. He says: "Price pollution, price emissions and you will be surprised just how innovative and creative the market can be."

Sectors already innovating are property and construction. Smart and intelligent buildings such as The Edge in Amsterdam or new Bloomberg headquarters in London are delivering significant savings, in both resource efficiency and operating costs, making climate-resilient real estate a win-win.

Smart buildings such as Bloomberg's new headquarters in London are delivering cost and resource-savings, making climate-resilient real estate a win-win for asset managers

Ensuring buildings are designed for deconstruction and that components can be reused or recycled at the end of their life is another area of interest. The EU-funded Buildings as Material Banks project, for example, is developing "materials passports" to retain and transfer the value of the constituent parts.

Attention to circularity is on the rise, albeit overdue, says Susan Harris, technical director at Anthesis. "The built environment is the sector with the largest materials flows and the importance of embracing the circular economy is increasingly recognised within asset management," she says.

Going circular, however, calls for a rethinking of carbon as more than simply something to cut, argues Martin Brown, sustainability consultant at Fairsnape, UK ambassador for the Living Building Challenge and author of *FutuREstorative*.

"To meet global, national and organisational targets, carbon has become a key element in today's asset management," he says. "We may, however, be beating ourselves up by focusing only on carbon reduction, reduction, reduction. We need to reimagine carbon and, in doing so, effectively lock it back into natural ecosystems and our assets."

Locking-in produces what American designer and sustainable thought-leader William McDonough labels "durable carbon", as found in building and infrastructure elements that last for generations, forming part of longer-term circular-economy strategies. Reimagining carbon in this way also helps address multiple United Nations sustainable development goals.

It is this more systemic approach to environmental issues that promises the best defence going forward against the twin enemies of sustainability: share-price short-termism and political expediency. For asset managers, it is time to join the dots. ◆

UK greenhouse gas emissions by sector

Emissions in 2016 (most recent data available)

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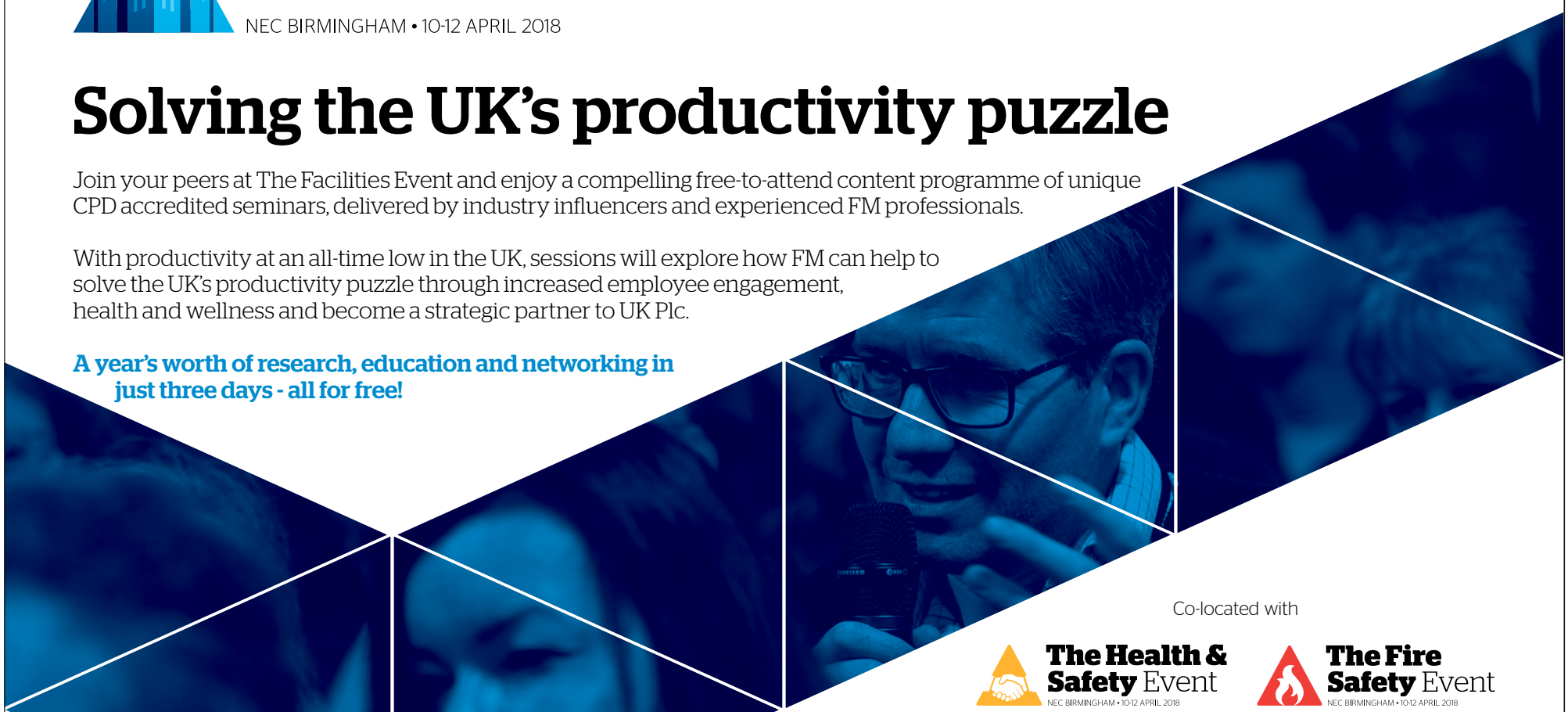

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