A little help from their friends

Abby Road Studios hosts first hackathon to foster music tech innovation
Subpostmasters suing Post Office are stunned by CEO’s honour
A subpostmasters’ campaign group has attacked Post Office CEO Paula Vennells’ New Year’s honour amid an ongoing court case. The group, representing hundreds of subpostmasters embroiled in a High Court battle with the Post Office, expressed its shock at Vennells being awarded a CBE in the Queen’s New Year’s honours for services to the Post Office and charity.

Hancock promises GP IT overhaul
Health secretary Matt Hancock has promised that the new GP IT framework will completely overhaul the primary care IT market and drive interoperability and standards. The £450m GP IT futures framework is aimed at making it easier for primary care providers to buy IT systems and services, and opening up the market to more suppliers. It is replacing the current GP Systems of Choice (GPSoC) framework.

Government announces new plans to develop cyber talent
The government has announced plans for a Cyber Security Council to form a strategy for developing future cyber talent. Digital minister Margot James announced plans for the new council, which will run alongside a new Initial Cyber Security Skills Strategy, to ensure young people have a career pathway into cyber security, as well as develop a skilled workforce to fit the UK’s current and future needs.

Defra unveils green government technology vision for 2020
The Department for Environment, Food and Rural Affairs (Defra) has published a 2020 vision of how technology should be used to minimise the government’s carbon footprint. The Greening government: Sustainable technology strategy 2020 policy paper describes how modern digital tools can enable central government employees to work effectively together and with customers.

New Year’s honours 2019 lauds women in IT
The New Year’s Honours list 2019 featured accolades for leading women in IT and data. The UK information commissioner, Elizabeth Denham, was awarded a CBE for “protecting information”, and Amali de Alwis, winner of Computer Weekly’s 2018 most influential woman in UK technology award, was awarded an MBE for services to diversity and training in the technology industry. De Alwis is CEO of coding education initiative Code First: Girls, which teaches women of all backgrounds how to code.
Huawei aims to be more resilient
Huawei has laid out its priorities for 2019 amid the uncertainty of international politics that could hamper its growth in key western markets. Huawei chairman Guo Ping said the company will focus on strategic business opportunities and build a more resilient business structure.

Brighton council is migrating
Brighton and Hove City Council has moved its co-location servers onto Nutanix nodes and is now looking at moving its primary Hove data-centre. The council aims to complete the migration of its datacentre infrastructure over to a new shared service by April 2019.

Network Services 2 goes live
The government’s £5bn Network Services 2 RM3808 purchasing framework went live over Christmas, with a deadline of the end of January 2019 for suppliers to sign up to offer telecoms and network services to the public sector.

Machine learning-based app helps haulage firms cut costs
Madrid-based startup Ontruck has developed a machine learning-driven app that helps UK haulage firms to cut fuel costs. Its algorithms are said to offer instant prices on shipments and help users find the best delivery routes.

Cancer Research works to improve digital experience
Cancer Research has been working with Optimizely to develop a better user experience through its website, and improve the way the organisation works. The charity has been working with the software firm for about four years.

Kaspersky Lab champions gender equality and digital child safety
Cyber security firm Kaspersky Lab says in its corporate social responsibility report that it is working to promote gender equality in the tech industry and is promoting careers in cyber security to women.

Guide dogs not fazed by self-driving robots
Robotics startup Starship Technologies and charity Guide Dogs are collaborating on a series of tests exploring how service animals interact with robots. The tests are being held in Milton Keynes, where the service was launched in November.
Communication sector appears ripe for disruption as climate change takes hold

Humanity has just 12 years left to keep global warming to a maximum of 1.5°C and prevent climate meltdown. Paul Dickinson from the Carbon Disclosure Project tells Alex Scroxton how CIOs can help take steps to avert disaster.

Time is fast running out to prevent catastrophic, irreversible climate meltdown, and there is no backup planet for us to move to. According to a recent report by the Intergovernmental Panel on Climate Change (IPCC), we have just 12 years left to take drastic action to keep the global average temperature rise to a maximum of 1.5°C.

While action on climate is now a clear personal responsibility for everybody, the actions of individuals to reduce their carbon emissions amount to virtually nothing in comparison to the action - or inaction - of large enterprises.

There can be no sugar-coating the issue any more - enterprises are the true villains of the piece. Whether a large agribusiness farming cattle for consumption, an airline flying millions of people around the world or a big box retailer that leaves all its lights on every night, there is no getting away from the fact that businesses pollute on a scale unimaginable to the average person.

In the technology industry, the narrative around climate change prevention has centred largely on datacentres. This makes
complete sense because modern datacentres are one of the most visible manifestations of the tech industry, and their vast power and cooling requirements make them an attractive target for climate activism, so taking steps to make them carbon neutral and sustainable is an easy win for tech businesses.

More recently, activists have focused on bitcoin mining, which is thought to consume more energy than the entire country of Austria through intense use of computer processing power alone.

However, while datacentres represent big businesses and “innovative” technology such as bitcoin captures the public’s imagination, there are many other parts of the ICT stack that are ripe for disruption. One such area is telephony and communications, where the Carbon Disclosure Project (CDP), an environmental non-profit organisation, is working alongside the likes of Cisco to raise awareness of how taking new approaches to internal and external communications and collaboration can slash an organisation’s carbon emissions.

**REDUCE CARBON EMISSIONS**

Since the year 2000, the CDP has been encouraging businesses to disclose information related to their carbon footprint to stakeholders, and take steps to reduce their carbon emissions.

“We recognised 18 years ago that climate change was going to fundamentally change the way the world does business and we could see investors didn’t necessarily have the information they needed to work out who were going to be the winners and losers, who was taking the right action and who wasn’t,” says Paul Dickinson, executive chair of the CDP. “We approached investors and asked if we could represent them in a collective information request to corporations on climate change to get data, which is what they did.”

Even in the face of scepticism, the initiative was an immediate success. Just 12 months in, says Dickinson, the organisation was representing 35 institutional investors controlling $4tn (£3.1tn) worth of assets, and, at the time of writing, it represents investors with more than $80tn of assets across 7,000 corporations, producing highly relevant, actionable data that is shared widely around the world.

**“WE RECOGNISED 18 YEARS AGO THAT CLIMATE CHANGE WAS GOING TO FUNDAMENTALLY CHANGE THE WAY THE WORLD DOES BUSINESS”**

**Paul Dickinson, Carbon Disclosure Project**

Although there are no jurisdictions (yet) in which it has been made a legal requirement to disclose information to the CDP specifically, the fact that it is trusted by so many of the world’s largest investors and enterprises, alongside endorsement from the United Nations and figures such as German chancellor Angela Merkel and former US president Bill Clinton, means the information it supplies to the markets carries a great deal of weight.
At the heart of the argument Dickinson makes in favour of collaboration technology is that it can help “dematerialise” some of the more polluting parts of society. What does he mean by this?

“I’m a very big fan of dematerialised economic growth,” he says. “My newspaper, for example, was once made of paper, a van delivered it, I would read it and throw it away. Now I tap my phone and the FT appears. That’s dematerialisation.

“The biggest economic opportunity for dematerialisation is transport substitution. By eliminating commuting for non-manual workers to offices or for meetings, vast emissions reductions can be achieved. And because we have seen step-changes in the improvement of quality and interoperability of collaboration tools, there’s now a way to do it.”

The CDP’s own use of collaboration technology, and latterly Cisco’s WebEx suite, started almost from day one, thanks as much to the nature of the organisation as to environmental concerns. It just made sense, says Dickinson.

“We started out with scant resources ... and it rapidly became apparent that we needed to communicate with investors and companies around the world without having the means to travel, so early on we reached out to Cisco and asked if they could help,” he says.

“We use WebEx five to 10 times a day, often more, with a particular focus on inter-office communication to avoid pulling in a bunch of people. That really drove it – the world is too big and we are too small to do what we do without collaboration technology.”
Traditionalists will no doubt argue that a face-to-face business meeting will always accomplish far more than a telephone call, and it is these devotees of old-fashioned networking that Dickinson is particularly keen to reach, by appealing not to their inner environmentalist, but to their inner slacker.

“People say telepresence is not as good as face-to-face, and that’s sort of true, but surely it’s better to avoid taxis in the middle of the night, airport security, hotels, jetlag and cost,” he says. “On one side is the convenience of being in the room surrounded by the massive inconvenience of getting there; on the other side is better technology that gives you a choice.”

**“One of the most powerful cases for using collaboration technology is cost”**

**Paul Dickinson, Carbon Disclosure Project**

After all, working from home to fit around family commitments, and to improve your overall quality of life, has long been widely acceptable in many industries, so it is not too much of a stretch to apply similar principles to business travel as well.

But there is more to it than quality of life. Cost, too, has become a massive issue for many businesses in the past 10 years. Many of the world’s largest corporations, including the likes of Amazon, no longer allow employees to fly in first or business class on their company expenses. But economy tickets don’t come for free, so with an appropriate collaboration solution in place, another cost centre can quickly be removed.

“I actually think one of the most powerful cases for using collaboration technology is cost,” says Dickinson. “If you have to fly to the other side of the world to speak at a conference, you can be spending hundreds of dollars a minute to appear on stage, but if you can talk via telepresence, it’s basically free.”

**Snowball effect**

The cost benefits of collaboration will become even greater – and the social cost of not flying around the world to shake hands at a conference will, hopefully, lessen – as adoption of collaboration technology increases. Dickinson says he is already seeing this kind of snowball effect in many businesses as more and more people wake up to the possibilities.

“We want people to just pause before booking a physical meeting and all the attendant travel that entails, and for it to be more acceptable to say why don’t we just do it over WebEx?” he says. Collaboration technology alone will not save the human race from the worst effects of climate change, but as part of a structural effort to reform the global economy to prepare for a low carbon future, it is clear it does have an important role to play.

“We have to make the most massive reduction in greenhouse gas emissions,” says Dickinson. “Lives will not be the same either way, but at this point we can still influence the future we end up with. There’s just a vast amount of work to be done. We can, we must, and we will.”
Abbey Road Studios holds first hackathon to promote innovation in music technology

Music studio hosts hackathon event to foster innovation at a more grassroots level. Sebastian Klovig Skelton reports

The world-famous Abbey Road Studios, where many of The Beatles' most popular songs were recorded, is looking to support music innovation through technology, and recently held its first hackathon event.

The studio runs a musictech incubation programme called Abbey Road Red. The hackathon in November 2018 gathered 100 participants to explore new ways of using technology to create and consume music. The participants – comprised of programmers, technologists, developers and music producers – were given a number of questions to guide their creations, including “How will artists create music in 2030?” and “Can you play or create music using emotions to trigger different sounds, samples, parameters or effects?”.

The teams were supported by Abbey Road engineers and judged by an industry panel made up of judges from Universal Music Group and Abbey Road Studios itself, as well as Microsoft and Miquido, the event’s official partners. Participants had 24 hours to develop their ideas, after which the best two were awarded prizes from the partners.
The Miquido prize went to **HRMNI**, a collaborative music instrument that allows users to join a jam session with their phones. The Microsoft prize was won by Rapple, a virtual battle rap opponent.

“One of the main questions at the hackathon was, ‘Could you train AI [artificial intelligence] to play music and jam with you?’,” said Kilian Schulze-Forster, one of the team members who developed Rapple. “Google developed a jam bot that can play melodies and we found an app that transforms a short voice recording into a rap-style song.”

Inspired by these findings, the team of six – all PhD students – developed an AI-powered rap battle opponent that listens to the user’s lyrics and replies with its own punchlines.

“We focused on rap since it is easier to handle for speech recognition systems than singing voice. The product idea of a tool for inspiration and training in lyrics writing stemmed from the fact that we are all musicians and know how it feels to be stuck when writing songs,” said Schulze-Forster.

**BUILDING ON IDEAS**

According to Karim Fanous, innovation manager at Abbey Road Red, the aim of the hackathon was to build bridges between ideas and future technologies in the music industry.

“We wanted to try to foster and explore innovation at a more nascent, playful level – to inspire some new developers and artists to inspire us and the wider music community,” he said.

An atmosphere of innovation and collaboration was also highlighted by Schulze-Forster: “We learned a lot from scientists, developers, designers and mentors around us, especially about project management and communication for such an intensive project. Everyone was approachable and happy to help. One team
developed a drum computer, which is controlled by the user’s face. One can play a beat through moving mouth, eyes, eyebrows, and so on. It is not only fun, but also an innovative idea as a user interface for disabled people who want to play music.”

Schulze-Forster added that although all of the team is busy with PhDs, they are determined to keep working on Rapple together. “We want to develop it from the current prototype state into a working product,” he said. “This includes making its punchlines more meaningful, as well as letting it rap with a nice, rhythmic flow. We could imagine making an app out of it in the long term and would like to stay in touch with Abbey Road in this respect.”

According to Fanous, the hackathon was also set up so that Abbey Road Red could explore ways it could help at the “pre-incubation” level. “For incubation, [usually] we like the startups to have an element of maturity. Ideally, our founders will be about to develop some sort of accessible technology or bring a product into the marketplace – that’s the point at which we can help the most. However, we have worked with founders who have just had an idea when we’ve believed in their potential to make it a reality.”

Abbey Road Red runs a six-month incubation programme, and takes 2% of equity from the startups that participate. “We want to support the music industry with the value we provide at the incubator. We take a very small amount of equity. We’re trying to help brilliant founders usher in the next set of universally adopted technologies to the industry,” said Fanous. “It’s not about spread-betting, it’s about researching, learning, thinking about what is going to have an impact, and searching for the people who are going to make that impact.”
NHS trust takes a healthy approach to data security as technology use evolves

Last year’s Facebook-Cambridge Analytica scandal raised awareness about data privacy. Cliff Saran talks to Stephen Docherty, chief information officer of the South London and Maudsley NHS Trust, to find out why

It is certainly major kudos when the CEO of one of the world’s largest IT firms gives your organisation a namecheck – and that is exactly what happened during Microsoft’s London Future Decoded event in November 2018.

As Stephen Docherty, CIO of the South London and Maudsley (SLaM) mental healthcare NHS trust, explains: “During Cognitive Build in the US, we were talking about new capabilities in Microsoft Teams. We had a video which was shown there. Satya [Nadella, CEO of Microsoft] heard our story.”

That is how Nadella came across the story of how SLaM was using Microsoft’s collaboration platform, leading to the CEO mentioning the trust in his keynote presentation at the start of the 2018 Future Decoded conference.

In 2012, when Docherty was deputy IT director Europe at Sony Computer Entertainment, he won City University London’s IBM Enterprise Computing scholarship to join the university’s Master of Information Leadership course. In November 2014, Docherty joined the NHS and the following year set out an IT strategy to
future-proof, de-risk and go to the cloud. “We should not be running services like Office internally when Microsoft has been running it for years,” he says. “I was having conversations with NHS Digital, my internal department and Microsoft. Moving to the cloud and Office 365 was absolutely the way to go.”

Docherty wanted to change the culture at SLaM to help clinicians adopt the new technology. “We didn’t roll out Office 365 immediately,” he says. “We wanted to make sure IT fully understood Office 365, then brought in small groups of people. Everyone had email, but we wanted to show them how to use Yammer and understand that there’s a different way to communicate.”

For Docherty, Yammer provided a less formal environment. “We wanted people to understand that they could still use email if they wanted, but they started to embrace Yammer,” he says. Today, the trust has more than 1,700 people on Yammer.

But Microsoft Teams was the real game-changer, he says. “People then understood you could set up a team with multidisciplinary people across the trust and across boroughs, start to collaborate, add documents, and you don’t have to include everyone.”

Docherty now has a new digital strategy, which was approved by the SLaM board in January 2018. It focuses on diminishing the trust’s email culture and creating a more collaborative culture. “We are using PowerBI to measure the usage of Microsoft Teams,” he says. “We will eventually minimise email traffic. Over the next few years, internal email traffic will diminish because if you can open up platforms to multidisciplinary teams, both internally and externally, and include social care, you then have a rich collaborative space and a secure environment.”

**ROLE OF COLLABORATION**

Docherty, who also chairs the London CIO Council, believes the NHS is now in a good position to become more digitised. He says that although the National Programme for IT did not work out, it led to sustainability transformation partnerships (STPs), of which there are 44 in England, with five in London.

“The right level of people have come together,” he says. “I sit on the South East footprint digital board and the London digital board and I chair the London CIO Council. I get to speak to them all. People want to collaborate and lots of people want to join in. The STPs are exactly at the right level for people to collaborate.”

Docherty says the race is on to digitise the NHS, driven by the nature of NHS funding, with core services squeezed. But there is now a catalyst for change driven by Matt Hancock, secretary of state for health and social care, he says. “We have an energised secretary of state who has put his tech vision out there.”

Tech innovation in the health service is happening both from the top down and from the bottom up, says Docherty. “We see little
pockets of [innovative] things happening, which is really good. If you see innovation, you have to get over the ‘not invented here’ syndrome. That is the case now and people are starting to look around to see who has something that’s good. Where they see pockets of innovation, they are actually applauding it.

“As a CIO, you have so much going on, locally and regionally, in your patch and a lot of us have to get involved in the national activity because we need to understand what’s happening with the funding and the tech vision.”

PERSONAL HEALTH RECORD

One of those innovations is a new idea for a patient record, says Docherty. “We are developing a personal health record, built on open source on the [Microsoft] Azure platform. We are going out to the other trusts. They can join the cloud. If they want to connect to it, they have to commit to evolving the platform.”

For Docherty, the Cambridge Analytica data leak, which came out almost as the General Data Protection Regulation (GDPR) came into force, raised public awareness about privacy. “People started to understand what privacy actually is,” he says. “So rather than saying, ‘I don’t want to share my data’, they are starting to understand why they should be sharing their data. There are pockets of data sharing. You have shared care records and a lot of CIOs are embracing social media to try to promote these.”

Thanks to funding through the STPs, shared care records are evolving, says Docherty. For instance, the Local Health and Care Record programme, funded by NHS England, now has five exemplars. “London’s One London was the first successful bid to create an infrastructure and platforms for delivering shared care records across London – a population of over nine million,” he adds.

Docherty says the initiative has been endorsed by Theo Blackwell, CDO for the mayor of London. “This is the right time to have conversations with the public about what we are doing and why this is important,” he says.

Looking at GDPR compliance, Docherty adds: “In London there is a Data Controller Console, which has allowed us to put in place data sharing agreements so we don’t duplicate agreements.”

“People are starting to understand why they should be sharing their data”

STEPHEN DOCHERTY, SLaM

Beyond data sharing, Docherty says NHS Digital and NHS England are collaborating with a number of partners to introduce a national citizen identity platform. Under the leadership of Juliet Bauer, NHS England’s chief digital officer, the aim is to secure access to patient records that can be used easily by patients themselves with a simple login, he says.

Docherty says a national citizen identity platform will enable people to prove their identity once, in a way convenient to them. “This will build public confidence in, and encouraging greater use of, all local and national digital health and care services.”
Five key influences for technology in 2019

Nothing changes, on New Year’s Day,” sang U2 many years ago. This piece of self-evident wisdom doesn’t stop the world of tech punditry from excitedly making hyperbolic forecasts at the start of every year on the assumption that opening up their new wall calendar will magically change the fortunes of the sector.

The technology development cycle will roll on through 2019 much as it did in 2018 and every year before. The stuff people got excited about last year will be pretty much the same stuff they get excited about this year. But let’s think ahead. What might we be talking about in December, when we look back on the year? We think these will be the key influences:

**Brexit:** Obviously. One reason why it’s difficult to predict anything for 2019 is that the UK doesn’t even know where it will be come April. It’s certain though, that the subsequent nine months of the year will be determined by what happens in Westminster in the first three months.

**Tech backlash:** It was inevitable there would be a backlash against Big Tech at some point. Governments have to come to terms with the new landscape of privacy and data protection, and stop trying to pigeonhole tech firms into existing regulatory regimes. Tech needs regulation, but it requires new approaches for the digital age.

**Security:** Every major data breach makes front-page headlines these days. Of all the old issues that are still new issues, cyber security is the biggest. But have any of these high-profile breaches actually changed anything? Before long there’s going to be a security incident that causes widespread economic damage to people’s lives. The worry is that security weaknesses won’t be fully addressed until the real dangers are demonstrated on a large scale.

**Skills:** Skills shortages are real, as are the fears they will become even worse after Brexit. It’s going to be a tough year for anyone needing more IT staff to support growth. This is the biggest issue facing the UK’s digital economy – if we don’t have the talent, we won’t have global leadership. Again, it’s hard to see how this will be solved without a radically different approach from government.

**Commoditisation:** There’s an easy way to work out which technologies will be the ones to watch over the next 12 months. The key is to watch what technologies are about to become commoditised – not which ones are emerging on the scene, most of which never reach commodity status. What’s next? Basic forms of artificial intelligence are the most likely. But don’t expect any surprises in 2019.

Bryan Glick, editor in chief
The assumption that users will be limited to a PC is no longer accurate as they use devices that are best suited to particular circumstances. Knowledge workers may use a laptop while in the office, switch to a smartphone during a commute, and use a tablet in a plane. Frontline workers may switch between a shared kiosk, smartphones and a wearable.

In all cases, users should not have to know where applications and data are hosted. This changing work style marks a shift to a perimeterless digital workplace. Digital business creates new requirements that drive the need for a perimeterless workplace. These requirements include:

- Support for increased workforce mobility.
- Flexibility in the choice of devices and the ability to switch between them.
- A desire for experiences similar to those of consumer apps.
- Enhanced frontline and knowledge worker productivity.

One of the central principles in establishing a perimeterless digital workplace is that the network alone does not determine which services users can access. Unlike the perimeter-based security model, the decision to grant or deny access is not tightly bound to a physical location, IP address or the use of a virtual private network (VPN).

Instead, user, device and other contextual data, such as threat signals, dynamically determine the appropriate access policy, which may trigger the need for multifactor authentication, access denial or other trust elevation techniques.

User and contextual trust should be appropriate to the level of risk associated with the resource being accessed. This is best
Users can be allowed the same access externally as they enjoy internally, but only if trust matches or exceeds the risk. This calls for adaptive access using a combination of an authenticated user identity and device-level trust. Access management tools that typically provided authentication, authorisation and single sign-on (SSO) as core capabilities have now expanded to include more intelligent adaptive access controls.

These capabilities apply analytics to contextual data and trigger adaptive access policy decisions that allow or deny access; or can require trust elevation, such as the use of additional user authentication methods. Device-level trust is foundational, because without it, you cannot ascertain whether the device is compromised.

To enable continuous risk assessment on the endpoint, unified endpoint management (UEM) tools integrate with adjacent security tools such as endpoint detection and response (EDR), mobile threat defence (MTD), and security information and event management (SIEM)/user and entity behaviour analytics (UEBA). As such, access management tools increasingly leverage UEM tools as a single orchestration point to enable reliable and remote device attestation.

In addition to mobile device management (MDM)-based device compliance, UEM tools manage device certificates and make them available in various authentication scenarios. Provisioning X.509 certificates to mobile devices is a strong and simple way to enable strong device identity at access time. Duo Beyond is one supplier that does this.

Most leading UEM tools enable managing the device certificate lifecycle – either using built-in public key infrastructure (PKI) or integrating with third-party PKI (GlobalSign, Microsoft, Entrust Datacard, OpenTrust and RSA are such tools).

Google’s internal implementation of a perimeterless work environment, known as BeyondCorp, uses X.509 certificates as persistent and unique machine identifiers for desktops and laptops. On iOS devices, identifier ForVendor is used, while Android devices use the device ID reported by the MDM capability. Adobe uses a combination of UEM and identity and access management (IAM) to enforce policy, security settings and certificate-based authentication (VMware Workspace ONE for UEM and Okta for IAM).
To balance usability and security, an adaptive approach ensures that the right level of access is determined in real time. For example, when a user requests to download data locally, UEM performs a context-based assessment of risk and trust and determines whether it should be allowed, conditionally allowed, or denied. Downloads to unmanaged devices can be restricted to managed devices in good health.

Alternatively, downloads to an unmanaged device may be allowed, but only if the file is encrypted. Sample suppliers that offer transparent file-level encryption include SecureAge (SecureData) and DriveLock. Device context plays a role in anomaly detection and includes device location, IP address, usage behaviour and security posture. The level of device risk (trusted device versus unknown device, for example) determines the need to prompt for a step-up authentication method.

Adoption of Windows 10 and MacOS in the enterprise, as well as the increasing viability of UEM tools to manage both PCs and mobile devices, are driving the convergence of client management tools (CMTs) and enterprise mobile management (EMM) tools to produce a single UEM solution. UEM tools can remotely deploy apps and operating system updates, and wipe PCs (if necessary) without joining a corporate domain, much like mobile devices.

The consolidation of PCs and mobile devices helps to establish common policies, processes, metrics and tools. UEM tools deploy apps across multiple platforms as part of a common workflow (with the exception of complex Win32 applications on Windows 10 PCs). Chromebooks now support the ability to execute Android apps deployed through the managed Google Play Store, thus further blurring the lines between notebooks and mobile devices. Although this expands the universe for Android apps, they are subject to device limitations such as GPS and accelerometers.

In a perimeterless digital workplace, it is important to analyse application response time as perceived by the user, as opposed to measuring uptime from an infrastructure perspective. This is because the user experience is subject to multiple factors in addition to the application itself. These include network performance and device characteristics, such as CPU, memory and operating system overload due to other processes.

Finally, the need to support legacy Windows (or “thick client”) applications is a hindrance to mobilising business workflows. Therefore, a tactical strategy is needed to support these applications until they are refactored or completely redesigned. In some cases, mobile apps can make legacy apps redundant. Hence, rearchitecting apps should not turn into an exercise in recreating mobile equivalents of existing apps.

This article is an excerpt of Gartner’s report, “Four steps to implement a perimeterless digital workplace”. Manjunath Bhat is a research director at Gartner.
As CIOs look at planning their career strategy for the year ahead, organisations will be increasingly looking for executives that are able to influence and persuade rather than manage and control, according to experts.

A key theme in 2018, which will continue throughout this year, is that success for CIOs will not be about technology on its own, their job title, or the budgets they manage. According to CIO practice director at Harvey Nash UK, Natalie Whittlesey, the key skill an IT leader will need to display is influence.

"If they can work with a varied set of stakeholders and an even more varied base of digital assets, and bring them together into a single view that drives the business, then their skillset is going to be highly valued," Whittlesey tells Computer Weekly.

**Ideas from outside the sector**

Over the past 12 months, the recruitment expert has observed that employers are looking for people who can bring ideas in from outside the sector and build partnerships with organisations including large tech giants, small entrepreneurial tech startups and universities – these ecosystems are designed to feed technology ideas into the business.

“Tech leaders can’t constantly keep ahead of every technology advancement, so they need to build open relationships with their teams and partners,” says Whittlesey, adding that CIOs remain under pressure to create an innovation environment, while ensuring this isn’t at the expense of the existing technology landscape.

The recruitment expert observes that those who build relationships with recruitment partners and former co-workers...
will be able to demonstrate their softer, non-technical skills more effectively.

“Many of our placed candidates are people we’ve got to know well through coffees grabbed in cafes, meetings over Skype or catch-ups at events,” she says.

“Likewise, people who are well connected with prior colleagues, who can bring them into new organisations, will also do well.”

Key skills employers are asking for, cited by the Harvey Nash director, include evidence of bringing in innovation that’s had a direct impact on a business, evidence of handling a complex stakeholder base often spanning geographical boundaries and multiple brands, as well as being commercially minded – which increases ability to talk business to the board.

There’s increasing investment in tech pilots, usually followed by failing or scaling. People with great contacts, an externally facing approach, and the ability to see concepts through to delivery quickly are sought after.

THE YEAR OF THE CUSTOMER

It has long been the case that the CIO role has become more business and customer focused, but Whittlesey has been witnessing a transformation of the role, in some cases taking it beyond traditional job titles such as CIO or IT director.

From the interactions she’s had with technology decision makers, and having conducted many recruitment processes, the Harvey Nash director concludes 2018 was all about the customer and that will remain the case in the coming year. She adds that
this is perhaps in recognition that an “all or nothing” enterprise-wide digital strategy is proving hard to achieve.

That has meant organisations have focused their digital resources on improving the technology at the customer’s service and turning to the technology leader – whatever their title – to understand the demands from the customer and provide the answer in terms of IT-based products or services.

“It’s about taking the lead from the outside and responding, rather than taking internal technology, processes and so on then expecting the customer to adapt,” says Whittlesey.

In some cases, says Whittlesey, the customer (or future-focused) side of the technology leadership role is splitting away from the operational side of tech completely.

In that scenario, CIOs will have to be one step ahead of their non-tech peer group, who are often tech-savvy, and be the first to identify new technologies and assess their application to the business. “Our advice is to be aware and be ahead,” she says.

**Digital transformation**

Usually, customer-focused initiatives are part of a wide digital transformation plan.

According to the recruitment executive, CIOs won’t be compelling for clients with transformation programmes unless they have evidence of delivering these already, or playing a major role in the delivery of such projects.

“The delivery of multi-channel solutions that are intuitive, automate and streamline processes, and make effective use of data, are key. Implementation and adoption of digital collaboration tools is sought after,” says Whittlesey.

When it comes to innovations supporting digital plans, she says that experience with projects related to the internet of things (IoT) that provide meaningful information and deliver real benefits to the business and customers is something organisations are asking for.

In addition, there is growing demand for skills related to artificial intelligence (AI) and blockchain.

**Realising Potential**

Despite the fact adoption of both technologies is very low – blockchain, for instance, is currently limited to particular segments such as financial services and supply chain – Whittlesey says there is a sense that both have the potential for expansive growth, with many interested in how an IT leader can help their organisation realise the potential from these technologies.

“We may see technology leaders increasingly having to make the binary choice between back-office IT, as in systems and infrastructure running in a secure fashion, or future-looking technology. These are two very different careers,” she says.

**“Implementation and Adoption of Digital Collaboration Tools is Sought After”**

**Natalie Whittlesey, Harvey Nash**
On 23 June 2016, the UK voted, by a narrow margin, to leave the European Union (EU). Nine months later, Prime Minister Theresa May invoked Article 50 of the Treaty of the European Union, thus commencing formal negotiations for the UK’s departure from the EU. Assuming there are no extensions, the possibility of which has been discussed, the UK is expected to leave the EU on 29 March 2019.

During the negotiation period, the EU’s General Data Protection Regulation (GDPR) was enshrined in UK law with the Data Protection Act 2018. Broadly welcomed by the majority, GDPR was brought about because existing data protection laws had become woefully outdated. The previous version of the Data Protection Act was enacted in 1998; a time when there were no smartphones, social media or widespread internet.

GDPR brought massive changes to data protection legislation and expanded what was expected of data controllers and data processors. One of the biggest changes brought about by GDPR is that organisations must now have technical measures that enforce their data sharing policy.

“You used to have a contract that said you would not misuse data, but GDPR says you now must have technology in place that prevents the misuse of data,” says Gary Lefever, CEO of Anonos.

As the internet has become an integral part of our society, data protection has become a legislative necessity to ensure the sharing of personal information is conducted in a fair, secure and responsible manner. The requirements for data storage, sharing and processing have been articulated in the GDPR, which is necessary reading for any company with any form of online presence.
According to both the GDPR and the UK Data Protection Act 2018, when a country leaves the EU, it will cease to be covered by the GDPR, and as such will be considered as a third country, which is any country or territory other than an EU member state. A third country designation means EU countries will be unable to share data with that country, unless an adequacy assessment has been undertaken, legislative measures have been put in place, or each transfer of data is covered by a data sharing contract that has been approved by the European Commission.

We have already witnessed the possible repercussions of this. Shortly after GDPR became fully enacted, some US websites began blocking access to their pages to EU-based visitors, as those websites had not adequately prepared and did not wish to fall foul of GDPR.

With less than half a year to go before the deadline, the UK government is still negotiating the withdrawal bill with the EU. However, much of the focus is on “hot topics”, such as what will happen to the Irish border when the UK leaves the EU, rather than on the technical details.

A spokesperson for the Information Commissioners Office (ICO) says: “The ICO is planning for a number of scenarios, including ‘no deal’. We are preparing practical advice for organisations, should that be needed, to ensure the free flow of personal data.”

On 14 November 2018, prime minister Theresa May announced the draft withdrawal agreement. Despite the flurry of ministerial resignations that followed, we finally had a glimpse of what the UK’s future data protection policies are anticipated to be like. Article 71 of the draft withdrawal agreement states: “Union law on the protection of personal data shall apply in the United Kingdom in respect of the processing of personal data of data subjects outside the United Kingdom.”

**Transitional period**
The draft withdrawal agreement suggests there will be a transitional period from when the UK leaves the EU until 31 December 2020. At that point, it is envisioned the protection of personal data will become “essentially equivalent” to that of EU law.

“It looks like there will be business as usual during the transitional period, and by the end of which some other basis for data sharing could be in place, such as an adequacy decision,” says Anthony Lee, data protection expert and partner at DMH Stallard.

“The withdrawal agreement also talks about ‘essentially equivalence’ to give the European Commission the flexibility to grant adequacy status even if there are some differences between the laws
of the country in question and the GDPR,” adds Lee. “In this regard, the GDPR allows member states to introduce local rules in a number of areas (known as derogations) and the UK Data Protection Act 2018, which brings in the GDPR, has taken advantage of this. Under the essential equivalence principle, I would hope that the differences which are inherent in the derogations would not be fatal to an adequacy assessment.”

THE OPTIMAL SOLUTION WOULD BE FOR THE UK TO GAIN AN ADEQUACY ASSESSMENT, MEANING DATA SHARING BETWEEN EU AND UK ORGANISATIONS WOULD CONTINUE AS BEFORE AND REQUIRE NO FURTHER CONTRACTUAL OR LEGISLATIVE MEASURES

Currently, an adequacy assessment can take place only when a country is classed as a third country. Thus, for the UK to gain an adequacy assessment, it would first need to leave the EU, although this could be incorporated into the transition phase.

In the UK’s favour is that the GDPR has been enshrined into UK law, as part of the Data Protection Act 2018, thus the UK already meets many of the legislative requirements for the adequacy assessment.

“Our argument is that we have implemented the regulation lock, stock and barrel, by dint of the Data Protection Act 2018,” says Lee. “If our data protection laws are considered sufficiently robust as to give us the adequacy status, we would be on the same basis as other approved countries, such as Argentina.”

ADEQUACY ASSESSMENT

The optimal solution would be that, as part of the negotiations, the UK gains an adequacy assessment before the conclusion of the transition period. This would mean data sharing between EU and UK organisations would continue as before and require no further contractual or legislative measures to be undertaken. Countries that have gained an adequacy assessment include Argentina, Israel and New Zealand.

Article 45 of GDPR states: “A transfer of personal data to a third country or an international organisation may take place where the Commission has decided that the third country, a territory or one or more specified sectors within that third country, or the international organisation in question ensures an adequate level of protection. Such a transfer shall not require any specific authorisation.”

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ADEQUACY ASSESSMENT

An adequacy assessment takes into account the country’s rules of law, the existence and effectiveness of the independent advisory authorities, and other relevant legislation. It is this latter aspect that may prove a potential hurdle for the UK.

The Investigatory Powers Act 2016 (IPA) replaced the Regulation of Investigatory Powers Act 2000 (Ripa) after the latter was deemed unlawful under EU law.
However, a subsequent high court case brought by Liberty concluded some aspects of the IPA were also unlawful and that these needed to be addressed by 1 November 2018. Lord Justice Singh concluded the hearing, stating: “Part 4 of the Investigatory Powers Act 2016 is incompatible with fundamental rights in EU law.”

It has been posited that an adequacy assessment could require a softening of the IPA before the adequacy status is granted.

“My personal view is that we may well have a strong hand in being able to achieve adequacy status by having a well-regarded Information Commissioner’s Office and implementing the regulation, but I think the Investigatory Powers Act will be the sting in the tail,” says Lee.

**Privacy Shield**

An alternative solution could be a regulatory framework for exchanges of personal data between the EU and the UK, similar to the EU-US Privacy Shield. This has allowed EU countries to freely share data with the US, without an adequacy assessment taking place.

“If we do not achieve full adequacy status after we become a third country,” says Lee, “a middle ground might be that we negotiate an equivalent to the Privacy Shield that the United States has with Europe.”

This would not be an ideal solution, as there are concerns as to the legality of this framework. The previous version of Privacy...
Shields, the International Safe Harbour Privacy Principles, was declared invalid by the European Court of Justice in the Max Schrems versus Data Protection Commissioner case in 2015.

The subsequent Privacy Shield should provide a stricter set of ground rules, but points criticised by the court during the Schrems ruling persist in this new arrangement, which is currently under scrutiny by the European Data Protection Authorities. Furthermore, such a regulatory framework for data sharing would first need to be put in place. At the time of writing, there has been no indication of any such legislative measures being prepared.

**Model clauses**

In the worst-case scenario, the UK would crash out of the EU with no deal, not meet the requirements for an adequacy assessment for data sharing and not have a regulatory framework in place for the purposes of sharing data. Were this to happen, then organisations in EU countries would no longer be able to share data with organisations in the UK, without specific contracts.

Data sharing contracts incorporating *model clauses* would need to be enacted for each and every type of data sharing. Model clauses stipulate the expected requirements for sharing data outside of the EU.

“Model clauses, which are approved by the European Commission, are one of the ways to overcome adequacy requirements,” says Lee. “Model clauses are quite detailed, but Article 28 of the GDPR also stipulates that if you are going to appoint a third party to process data then you need to have, in the contract between the data controller and the data processor, a bunch of additional clauses that were not mandatory under the old regime.”

The current model contracts are based on the EU’s previous data protection regime. They are still used for exporting data outside of the EU economic area, as they have not yet been updated. They also do not currently incorporate GDPR. New model clauses are currently being written to incorporate GDPR requirements.

**Binding corporate rules**

Large multinational companies can also utilise *binding corporate rules* for internal data transfers. Such rules are similar to a code of conduct. They are especially useful for allowing the transfer of personal data internationally, within the same corporate group, to countries that do not otherwise provide an adequate level of protection.

Such binding corporate rules must ensure all data transfers within a corporate group are safe. These rules must address the following requirements:

- Privacy principles, such as transparency, data quality and security;
- Tools of effectiveness (such as audit, training, or complaint handling systems);
- Proof that the rules are binding.

However, binding corporate rules take considerably longer to put into place than a data sharing contract between a data...
controller and a data processor, and do not cover data sharing with external organisations.

**Hope for the best, prepare for the worst**

The draft withdrawal agreement gives some indication of what will happen when the UK leaves the EU, provided that the UK Parliament agrees. Once the UK leaves the EU, it will enter a transition period for 21 months, at which point an “essentially equivalent” system for data protection should be in place.

This is by no means a certainty, given the recent parliamentary resignations. Should the UK Parliament vote against the agreement, the UK could well leave the EU without a deal in place. “A no-deal Brexit will probably mean that we have not got an adequacy status,” says Lee. “The chances are we would be a third country, in the position of India, until such time as we can get adequacy status, or, failing that, some kind of Privacy Shield arrangement is put in place.”

This uncertainty presents a unique challenge for UK organisations, especially small to medium-sized enterprises that typically have tighter budget and resource constraints than larger companies. Until further direction is given by the government indicating the shape of the UK’s data sharing agreement with the EU, organisations should keep abreast of the situation and have plans in place for each eventuality.

“You need to have a plan, as well as a Plan B, and even a Plan C, for if we crash out of the EU, do not have adequacy status and do not have a Privacy Shield equivalent in place,” says Lee. “It will not stop the business, but it will be more difficult.”
Cliff’s law

A new year begins, and the search continues for whoever was behind the Gatwick drones fiasco that grounded hundreds of flights over the Christmas period.

Our first port of call would be Chris Grayling, the transport secretary who always has a mischievous glint in his eye: the look of someone who has never quite been able to take anything seriously in his life and would probably get a kick out of doing TV interviews about the investigation between stints operating his machinery. But considering how tied up he must have been lately with another prank – awarding a hypothetical freight contract to a company that doesn’t have any ships – we can only assume he wouldn’t have had the time.

Grayling himself has suggested environmental protesters could be behind the stunt, which would be a quite intensely boring grand reveal, so we won’t give that much thought.

Was it someone who had it in for that couple who got wrongly accused just before Christmas Eve? Or the Russians, who just can’t seem to leave us alone? Or a young genius hacker who nobody will know how to ethically punish? Still all quite underwhelming finales.

What if it was someone closer to home? Someone with a noted passion for drones and chaos... He wouldn’t, would he?