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XC60 T4 FWD Edition Automatic, Metallic Paint
Personal Contract Purchase Representative Example*

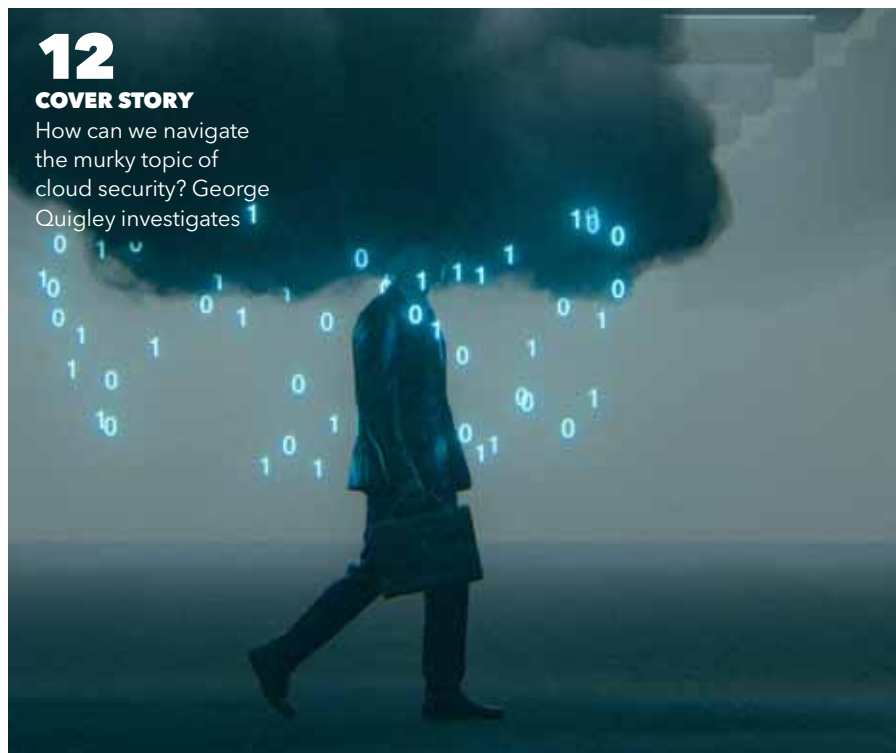|	
Representative APR	4.9% APR
48 Monthly Payments of	£359.00
On The Road Price	£38,460.00
Member Saving	£4,935.00
Revised On The Road Price	£33,525.00
Deposit Contribution	£1,750.00
Customer Deposit	£5,636.51
Amount of Credit	£26,138.49
Interest Charges	£3,841.64
Optional Final Payment	£12,748.13
Total Amount Payable	£37,366.64
Fixed Rate of Interest	2.52%
Duration of Agreement	49 months
Annual Mileage	10,000
Excess Mileage Charge per mile	14.9p

Fuel consumption and CO_2** figures for the Volvo XC60 T4 FWD Edition Automatic, in MPG (l/100km): WLTP Combined 30.1 (9.4) – 34.0 (8.3). NEDC CO_2 emissions 167g/km. Figures shown are for comparability purposes; only compare fuel consumption and CO_2 figures with other cars tested to the same technical procedures. These figures may not reflect real life driving results, which will depend upon a number of factors including the accessories fitted (post-registration), variations in weather, driving styles and vehicle load. **There is a new test used for fuel consumption and CO_2 figures. The CO_2 figures shown, however, are based on the outgoing test cycle and will be used to calculate vehicle tax on first registration. Preliminary data. Please contact your retailer for latest information.

*Finance subject to status. Subject to availability at participating retailers only on vehicles ordered between 01/11/2019 and 31/12/2019. At the end of the agreement there are 3 options: (i) Renew: Part exchange the vehicle, (ii) Retain: Pay the Optional Final Payment to own the vehicle or (iii) Return the vehicle. Further charges may be made subject to the condition or mileage of the vehicle. Terms and conditions apply. Applicants must be 18 or over. Guarantee/Indemnity may be required. Santander Consumer (UK) PLC trading as Volvo Car Financial Services, RH1 1SR. Retail offer only. Excludes fleet operators and business users.
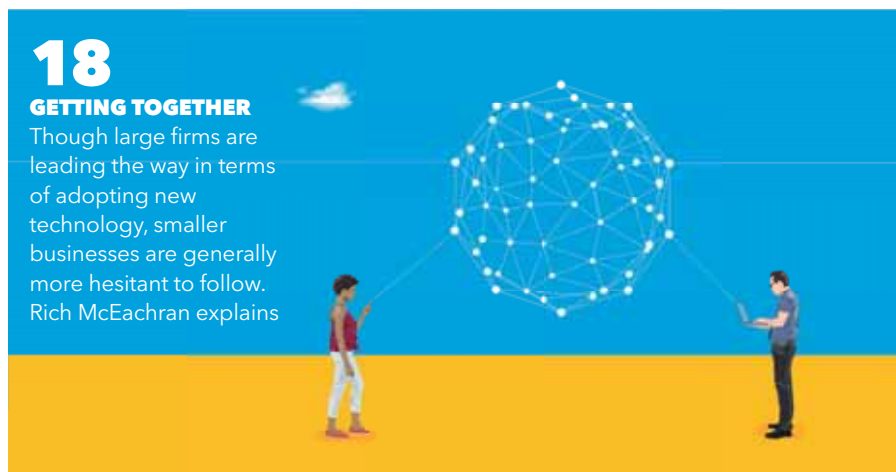
November/December 2019 Issue 224

Connecting continents

As we come to the end of another busy year, I want to thank you, on behalf of the faculty team, for your continued support. This enables us to continue to speak as the voice of technology for ICAEW and our members in what is becoming an increasingly crowded space. In this respect, it is interesting to note that our 'ABCDE' of technology has been adopted by a number of other organisations – indeed, IFAC (the International Federation of Accountants) has used it for the past year.

2019 has been another productive year for the faculty. We changed our name to the Tech Faculty to better reflect the environment in which we operate. We upgraded our various e-bulletins to the one newswire, Tech News. In this we make it clearer what is faculty-only content, recognising the premium content faculty members pay for.

There are two particular highlights I want to mention. One is our work on the impact of ethics on the development of new technology, which is currently very topical given the explosion of data and accompanying growth of AI. We launched our associated report *New technologies, ethics and accountability* with a lecture delivered by professor Luciano Floridi from Oxford University. The report emphasises the need for proper accountability, and points to the leadership position accountants can take; see Kirstin's article on page 16 for more details.

The second highlight to mention (again) is ICAEW's power to convene; we have arranged meetings of the Information Security Forum of the six largest firms, the increasingly popular Mid-Market Tech Forum, and the emerging data access platform, Engine B. All of this is made possible due to the faculty's deep experience and extensive contacts. As ever, we make sure we distil lessons for members of the faculty, as can be seen in the 'What the tech' article on page 14.

2020 promises to be another busy year, as tech continues to dominate the agenda. Early in the New Year we expect to publish findings from our research into the assurance of emerging technologies – this in response to the audit reform debate and the role technology might play. And, as usual, we will continue to provide you with practical advice and guidance to help keep you, your team and your business up to date.

As ever, we welcome any comments or feedback you may have.

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Head of faculty

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NEWS & EVENTS

DCMS LAUNCHES CYBER SECURITY REVIEW

In November the department for Digital, Culture, Media and Sport (DCMS) launched a call for evidence to examine cyber security incentives and regulation. Last undertaken in 2016 this project will seek to gather evidence to underpin future policy development, including potential new cyber security interventions and regulations.

The Tech Faculty will be seeking feedback from a range of stakeholders, including those in smaller practices and businesses. The Tech Faculty will be preparing a response to the call for evidence which closes in January 2020. If you have any thoughts on the topic or wish to know more then please contact mark.taylor@icaew.com

LYFORD-SMITH SPEAKS AT NIGERIAN CONFERENCE

Tech Faculty technical manager David Lyford-Smith travelled to Nigeria, to represent the Faculty at the 2019 annual meeting of the Institute of Chartered Accountants in Nigeria (ICAN) in the capital Abuja.

It was an honour to be approached for a key talk at this conference, the highlight of the events calendar for ICAN. David gave a wide-ranging presentation on the disruptive innovations that are affecting the accounting profession today – from automation to blockchain – and how these technologies are affecting the way that accountants train, practice, and help their clients.

The talk was the lynchpin of a session introduced by the governor of the neighbouring state of Kaduna, Malam Nasir Ahmad El-Rufai. A response to the speech was given by Mr Ezenwa Echefu, an ICAN member and manager of financial accounting for Repsol Oil & Gas Canada. The talk was attended by over 5,000 members of ICAN.

NCSC PUBLISHES 2019 REPORT

The launch of the latest National Cyber Security Centre (NCSC) annual report presented a chance to speak with NCSC staff about the latest cyber security topics.

It was also the chance for the Tech Faculty to explain the issues members face when securing their own business or practice. In particular the challenge of assessing the cyber security measures used by IT service providers.

There is no standard method to assess the cyber risk profile of a service provider. Thankfully smaller organisations can make use of the Cyber Essentials accreditation scheme to assess their own cyber risk. The process of gaining Cyber Essentials accreditation is simple. By gaining this accreditation a business or practice can build trust with clients and suppliers.

You can read the NCSC Annual Report 2019 at tinyurl.com/CH-AnRev19

You can read about the benefits of becoming Cyber Essentials accredited at tinyurl.com/TECH-CyberAccredit

TECH FACULTY ASIA ROADSHOW

The Tech Faculty was on the road again in October, with Kirstin Gillon presenting on a wide range of tech-related topics to ICAEW members, students and other key stakeholders across Southeast Asia. The roadshows are a fantastic opportunity to raise ICAEW's profile in important markets, share the work of the faculty and learn what is happening in other parts of the world.

The big issue which emerged from this roadshow was the future of jobs, as all Southeast counties are seeing a drop in accounting student numbers due to fears about the impact of technology on the profession.

The roadshow also marked the launch of the faculty's latest research report, *Digital transformation in finance functions: ASEAN and UK perspectives*, produced in partnership with the Institute of Singapore Chartered Accountants.

This report draws on the real-world experience of ICAEW and ISCA members in delivering digital transformation in practice, and highlights common issues, as well as some practical suggestions for achieving change.

WEBINARS
NEW DATES AND TOPICS ANNOUNCED

**Excel Tips: what you need to know
2 December
12:30 – 13:00**
Another chance to brush up on the fundamentals of Excel, with guru John Tennent running through the handiest shortcuts for dealing with common problems to do with correcting cell formulas, eliminating duplicate data and formatting.

TECH ESSENTIALS
Our popular Tech Essentials series is brought to life online with two webinars this summer and autumn. Set aside 30 minutes for a free roundup of the key themes you should be aware of.

**Tech Essentials: Robotic Process Automation
WATCH NOW**
Gain a wider understanding into Robotic Process Automation and its potential to significantly improve the work experience of many people. Delivered by Rick Payne, of ICAEW's finance direction programme.
tinyurl.com/CH-RobPro

**Tech Essentials: cyber recovery
WATCH NOW**
Gain practical advice on how to be aware of vulnerabilities and threats, securing your data and recovering from a data breach. Delivered by Neil Christie, commercial director responsible for strategy and financial growth at iomart.
tinyurl.com/CH-CyberRec

MISSED OUT?
CATCH UP WITH OUR WEBINARS

If you wanted to watch any of our webinars but have been short on time, fear not: recordings have been made of the following events. Click on the links to watch in your own time or visit icaew.com/techwebinars for a regularly updated list.

Financial modelling code
Uncovering the key lessons from ICAEW's Financial Modelling Code shows how the Code can help you to initiate informed conversations about better financial modelling with your colleagues and clients.
tinyurl.com/ICAEW-IT-FMC

International digitalisation of tax
Find out about the digital tax compliance developments in 11 other countries for a comparison with the UK's efforts so far.
tinyurl.com/ICAEW-IT-IntlDigi

How to successfully select MTD accounting software solutions
MTD is making a fundamental change to the way the tax system works. From April 2019, VAT returns must be submitted to HMRC by means of a compatible software solution communicating digitally via HMRCs API platform. This runs through a list of 10 things to consider in the run-up to implementation.
tinyurl.com/ICAEW-IT-MTDsoft

Understanding the Excel Community and its online training
If you want an update on what is available to you from the Excel Community (which is part of your Tech Faculty membership), then watch the recording of *Understanding the Excel Community* and its online training to fully appreciate the vast array of Excel support available to you.
tinyurl.com/ICAEW-IT-ExcelComm

2017 and 2018 recordings
As part of your membership, an archive of older webinars and other recordings is also available. Click on the relevant year for a list of topics.
tinyurl.com/ICAEW-IT-Events2018
tinyurl.com/ICAEW-IT-Events2017

TECH FACULTY HUB PAGES

For the latest information on events, webinars and membership, visit these pages:
icaew.com/techwebinars
icaew.com/techfacevents
icaew.com/jointechfac

To discover the latest insight on our four key technology topics you should visit:
icaew.com/ai
icaew.com/cyber
icaew.com/blockchain
icaew.com/data

Still looking for an MTD solution?

As a deferred organisation, are you still in search of an MTD solution to meet your complex needs? A checklist can help you make the right choice. Things to consider…

1. What's its **provenance**? Does it come from a vendor with tax compliance experience?
2. Can it perform **simulated submissions** to test the process?
3. How **compatible** is it with your accountancy systems?
4. Can you view past, present and future **obligations** and HMRC Business Tax Account data?
5. Are users assigned role-based or restricted **access to data**?
6. Can it **scale** to support large volumes of data across multiple entities, even those outside your remit?
7. Will it **expand** to support digital links, CT and future MTD filing requirements?

Call us now on **01784 777 700**

BYTE SIZE

THE INVENTIVE SAMARITAN

One man was left shocked when a Good Samaritan returned his lost wallet after contacting him through a series of online bank transfers.

Tim Cameron, a product manager at Transfer Wise, lost his wallet while cycling home from work to his flat in Islington.

After unsuccessfully retracing his steps, the 30-year-old then logged onto his online banking account to find four separate transfers – each had the value of a penny and a message within the 18-character limit.

When put together, the messages in the transfers read: "HI, I FOUND YOUR / WALLET IN THE ROAD / 07XXXXXXXXX / TEXT OR CALL!"

Cameron called the number and was given back his wallet within minutes by software engineer Simon Byford, who found it near his home. He had initially tried to track Cameron down on Facebook, but found there were too many profiles bearing the same name.

To say thank you, Cameron bought Byford a bottle of wine. "I'm very grateful to him and he was very grateful for a bottle of wine," Cameron told the *Evening Standard*. "I haven't paid him back his 4p but perhaps I should."

Cameron's tweet about the creative plan has now gone viral, gathering more than 23,000 retweets and 131,000 likes at the time of writing.

WIRELESS COMMUNICATION IS STREETS AHEAD

Amazon is developing its own communications standard, designed for low-powered devices that need to communicate wirelessly. Today, Bluetooth or wifi typically handles such communications.

As the number of connected devices grows, there are many initiatives to develop different communications standards that require frequent but low bandwidth communications.

Amazon's Sidewalk project is designed for devices like smart sensors and smart lights that might need to operate over distances of up to 1km. It will provide connectivity over a greater distance than either wifi or Bluetooth.

The e-commerce giant says reliable, always on, low bandwidth connections not only help users connect their devices over a greater distance, but also ensure devices can stay up to date with the latest security patches and software features.

With Sidewalk, there is also the potential to create neighbourhood networks, which might extend out beyond people's homes – for example, using water sensors to let you know when it is time to water the garden.

More information about how this might work is available in Amazon's blog about Sidewalk at tinyurl.com/CH-Sidewalk

By **Sandra Vogel**
Freelance IT writer
sandra@svogel.com

WIFI 6 ROLLOUT CONTINUES

The deployment of WiFi 6 is proceeding at pace, says the Wireless Broadband Association (WBA). The association recently released its Annual Industry Report 2020, which surveyed more than 200 telecoms service providers, technology vendors and enterprises.

According to the report, 90% of those surveyed stated their intention to deploy WiFi 6 at some point, with 66% wanting to do so before the end of 2020.

Recent figures show there are more than nine billion wifi devices globally. This number is set to grow as the Internet of Things (IoT) really starts to take off and 5G bolsters data speeds for connected devices, catering for human-to-human, human-to-machine and machine-to-machine communications.

The International Data Corporation estimates that there will be 41.6 billion connected IoT devices by 2025.

WiFi 6 is the latest generation of wifi and can reach maximum data download speeds of up to 9.6Gbps – up from 3.5 Gbps for WiFi 5.

But the new WiFi 6 is doing more than boosting data speeds. Other innovations include streamlined communications, allowing more devices to communicate with routers at once, and the ability to schedule communications with routers to use less battery life.

It will only be possible to take full advantage of these new features with a WiFi 6 compatible router.

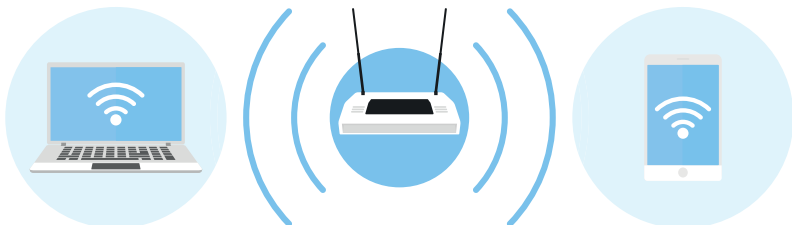You can download the Annual Industry Report 2020 at tinyurl.com/CH-AR2020

90%
OF TELECOMS COMPANIES INTEND TO DEPLOY WIFI 6 AT SOME POINT

9.6Gbps
THE MAXIMUM DATA DOWNLOAD SPEED OF WIFI 6

41.6b
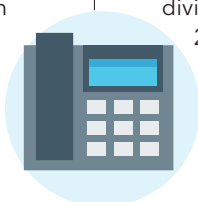THE NUMBER OF CONNECTED IOT DEVICES EXPECTED BY 2025

0204 NUMBERS FOR LONDON

Ofcom has announced a new landline telephone dialling code for London.

The 0204 dialling code will provide London with 10 million new landline phone numbers, bolstering the 30 million that are already in existence via 0203, 0207 and 0208.

Ofcom distributes 30,000 new phone numbers each week to telecoms providers who then distribute them to their customers. There are fewer than a million numbers left within the existing codes, so they will run out within a year.

London was allocated its dialling code – 01 – in 1958. This was in use until 1990 when it was replaced by two codes – 071 for inner London numbers and 081 for outer London.

Five years after that, all UK area codes were allocated a '1' after the '0' to make it clear that the number was a landline and not a mobile phone number.

In 2000, all UK phone numbers went through the 'Big Number Change' and London was given a single area code once again – 020 – and the inner and outer London divide was removed. Then in 2005, Ofcom introduced 0203 to release more numbers for London.

The new 0204 numbers will start to be used before the end of 2019.

COSTLY OUTAGES OFTEN PREVENTABLE

Organisations across North America, the UK, Australia and New Zealand are plagued by frequent brownouts (where infrastructure or software performs at a degraded level) or even full outages, according to a new study by LogicMonitor.

The study, which looked at more than 300 enterprises, found that organisations typically experienced 10 events over the past three years. However, 51% of outages and 53% of brownouts were avoidable.

Those that have frequent outages and brownouts can shoulder costs up to 16 times higher than companies with fewer instances. The big costs identified by respondents were: lost revenue, lost productivity, compliance costs, mitigation costs, damage to the brand and lowered stock price.

The *LogicMonitor 2019 IT Outage Impact Study* can be downloaded at tinyurl.com/CH-OutageImp while the report is at tinyurl.com/CH-OrdSur

HAPPY 40TH BIRTHDAY, BARCODE

The barcode is such a ubiquitous and simple looking thing that we have very much taken for granted. This year it turns 40, making it a surprisingly long-lived piece of technology.

While many technologies have come and gone in those years, the barcode has remained a constant, and is used by countless companies and organisations around the world. You can even generate your own barcodes for free thanks to software on the web.

The simplicity is arguably the secret of the barcode's success. Invented in 1951 as a way to represent numbers using different line thickness, it was not until the mid-1970s when supermarket executive Alan Haberman encouraged his bosses to use the barcode for checkout sales and inventory management that it started being used widely.

The first product to have a barcode scanned was a 10-pack of Wrigley's Juicy Fruit gum. It was scanned in Marsh Supermarket in Troy, Ohio, on 26 June 1979.

The barcode has evolved over time and been augmented with the introduction of QR (or quick response) codes. However, it remains a constant – and there is little sign of it retiring just yet.

PRACTICE TIPS

JESSICA PILLOW

GROWING PAINS
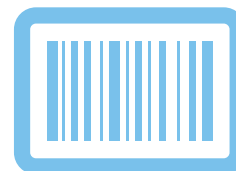
Thoughts on the adoption of MTD for VAT – from my perspective as a practice leader and an overall practice view

As the leader of the practice, I was keen for us to proactively embrace the change to Making Tax Digital (MTD). It was my belief that MTD shouldn't massively affect us as we had already moved most of our clients onto cloud accounting systems for the benefits of real-time, clear management reporting and paperless receipt processing. I got more involved in the mechanics of ensuring the move to MTD went smoothly by attending the ICAEW MTD Software Advisory Group.

Consequently, Pillow May was an early adopter of MTD and we set up our new agent gateway quite early. However, this did not end up being an advantage; the system wasn't working properly once MTD went live and we struggled to get support from HMRC. We also couldn't follow the standard instructions issued as it was already set up.

In fact, support from HMRC has been a really big issue, with two calls on the same day giving completely different answers due to lack of experience and training of staff at the department. As a result, we didn't know what advice to trust.

The new agent gateway was a little tricky to use as it was accessed from a different link than the other gateway logins and it was also hard to identify our own clients. We have now manually updated all the clients so that we can see their client code as well as VAT number. But we had to work this out ourselves.

In early 2019, it became obvious that HMRC was not going to be ready for MTD for VAT ahead of time. It was only just going to be ready for the first filing deadline. As a result, we advised clients to hold off on signing up for MTD until the end of June 2019. Unfortunately, the software companies communicated a rush to sign up directly after 31 March, which confused our clients and caused some to sign up too early. This made filing the VAT return for 31 March 2019 trickier.

Even by the end of June 2019 it was still difficult to sign clients over to the new systems, which were very clunky and crashed regularly due to overloading. In the end, my VAT team signed up clients outside of normal office hours to ease the process – something we really should not need to ask our hard-working teams to do.

We realised we could only sign up clients who were properly authorised on our systems – something we had struggled with in the past. So we had to concentrate on getting as many clients authorised as quickly as possible.

This was frustrated by an upgrade to HMRC systems that resulted in clients being unable to access their VAT certificates from their government gateway accounts. Fortunately this has been resolved.

We were using our old agent gateway to authorise clients but recently discovered we should be using the new one, which necessitates a link being sent to clients to authorise us as agents rather than waiting for a code to be sent through the post. Fortunately, any clients authorised on our old gateway seem to have been moved across to our new one.

HMRC's announcement of taking a light touch approach to late MTD transfers in July was helpful. Any clients that had missed signing up for it when filing their June 2019 VAT returns were not penalised and could be helped individually. Support from the software houses was invaluable, as they published clear step-by-step support guides for both businesses and agents. However, these were not available when they first pushed to businesses to sign up.

We are now pretty much up and running with MTD for VAT, but I can't say we are looking forward to self-assessment MTD, which will affect many more clients who aren't used to filing information with HMRC regularly. We will not be early adopters this time as there is no point in fighting HMRC's systems before they are properly ready. We will rely heavily on our software providers to make the reporting process as easy as possible and have already moved the majority of our sole traders onto cloud accounting software.

The lessons we learned from the MTD for VAT process were:
- Become authorised as an agent with HMRC for all clients before you start.
- Choose software tools with excellent support as you are likely to need it.
- Prepare your clients as early as you can.
- Have an MTD champion who keeps up to date on the latest HMRC upgrades and ICAEW publications.
- Keep your MTD timetable as flexible as possible, to work with HMRC's systems rather than against them. ●

Jessica Pillow, managing director, Pillow May chartered accountants

THROUGH THE FOG

Cloud technology holds a lot of promise, but a lack of transparency and oversight could lead to problems. **Neil Christie** explains how to avoid these issues

The adoption of cloud technology brings so much promise. For organisations looking to move to the cloud, newly-created positions such as head of digital transformation have echoed these benefits: only pay for what you use, scale up and scale down on demand, align infrastructure with agile methodologies… next stop: utopia.

So, why are headlines now covering the percentage of digital transformations that fail? And why is there so much transition among chief information officers (CIO) and heads of change management programmes?

Let's review a scenario that's all too common. The initial increased costs associated with a change programme are accepted, but the cost savings never materialise. Spending on invoices is erratic, not just variable, and the reasons given aren't fully understood. Finance has lost meaningful oversight of IT procurement and spend. There are increasingly heated discussions between those responsible for IT and the rest of the board, which inevitably culminates in the head of IT moving on.

Sound familiar? Why does this happen and how can it be avoided? A lack of transparency and oversight is the theme here, and it results in increased costs. Let's unpick the key drivers of these so your organisation can mitigate them before it comes to a head.

THE CHALLENGE

Cloud costs are often charged to a credit card and any user with access to the supplier's control panel can spin up new resources. Some platforms will increase their resources automatically, and the charges can vary depending on the time of day and availability of resources.

The supplier (typically Amazon, Microsoft or Google) provides bills that reflect retrospective consumption with line items that bear little or no relevance to the drivers of business needs.

ANALYSIS AND MITIGATION

The first issue is that multiple users have the ability to create resources (often via application programming interface calls, so it can be done programmatically) and thus initiate costs. This is often how projects begin – a self-starter within IT demonstrates some capabilities on an expense account and the management team decide they want "more of that" without fully appreciating the difficulties in managing "more of that" at scale and implementing a framework to effectively govern the delivery of projects.

To address this knowledge gap, businesses should enter into change programmes with a clear plan that must be in a language everyone can speak. Do not accept technical jargon from a CIO. If the CIO or IT director cannot explain the plan and clearly map costs back to business drivers and results in a clear timeframe, then they can't possibly understand it themselves.

Making the claim "timeframes do not apply to agile projects" or that costs are difficult to assess under agile methodology is not valid. All spend can be categorised and mapped back to outcomes, so claims to the contrary should trigger alarm bells.

The second issue is direct control on costs. You should encourage the use of purchase orders and spending limits – without them, it's effectively writing a blank cheque for a project. Finance cannot be expected to understand software architecture but should be able to have an understanding of the business drivers that result in costs (ie, more users create more costs, more data creates more storage). Ask for customer or visitor numbers and keep a breakdown of what kind of data is being stored (which is often required for compliance reasons) and how much space is attributable to each type.

The final issue relates to employees 'playing' with new technologies, effectively skilling themselves up on company time and cost, which can ironically lead to increased staff turnover once these new skills are honed and there is demand in the wider market. While it can be great that employees want to develop skills and effectively train on the job, this needs to be authorised in a controlled environment. Staff should be working on areas where there is a business case for it, beyond their own CV. Clearly mapping the costs back to business needs will promote transparency of who is working on what and flush out any sideline projects that may not have been sanctioned. ●

Neil Christie,
commercial director, iomart, and deputy chair of the faculty

GETTY

CLEARING THE FOG

George Quigley takes a look at the murky topic of cloud security

There are many benefits that moving to the cloud brings to a business. These include operational rather than capital spend, paying for what you consume, flexibility and scalability. It also gives you the ability to work from anywhere and collaborate with colleagues wherever they are located.

Operating in a cloud environment doesn't mean that you can forget about security, though. Security is often highlighted as a benefit when using cloud products. The argument is that Microsoft and Amazon have plenty of experts and spend a lot of money on security, therefore, by using their cloud services, we are secure.

Moving to or operating within the cloud, however, doesn't mean you are protected. All cloud service providers (CSP) operate on the basis of a shared security model. You need to understand their model and your responsibilities in order to make sure that you have put the right level of security in place for your business and your specific risks.

SHARED SECURITY MODEL

The shared security models operated by CSPs are similar in manner. In essence, CSPs are responsible for providing you with a secure infrastructure and you are responsible for securing your data. The

> **Operating in a cloud environment doesn't mean that you can forget about security**

diagrams on the opposite page highlight the shared security models operated by Microsoft and AWS.

In summary, CSPs provide you with an infrastructure that has been secured in compliance with various industry standards, such as ISO 27001 and NIST. In addition, they provide you with a defined service level generally starting at 99.9%, with availability being provided via geographically dispersed data centres. Physical security of those assets, network monitoring and operations are all the responsibility of the CSP.

CSPs take responsibility for the datacentres and the networks that connect them and provide you with access to those data centres. They don't take responsibility for data, devices, accounts and identities and they only take part responsibility for identity infrastructure.

CSPs provide a range of additional solutions to assist you securing your data, however the responsibility for architecting and implementing the appropriate level of policies and controls remains the responsibility of the end user.

There are a number of CSP solutions that should be considered, including:

IDENTITY AND ACCESS MANAGEMENT
User or identity management is one of the core services used to provide access to services in a seamless fashion. Identity and access management solutions provide end users with the ability to access and use resources in their environment. CSPs provide a number of identity and access management capabilities such as multi-factor authentication, identity protection and robust role-based access control.

END-POINT PROTECTION
As the range of devices used to connect continues to grow, clear boundaries need to be defined and responsibilities identified for those devices. CSPs provide a range of capabilities for managing those devices. Microsoft, for instance, offers Microsoft Intune, which provides secure device management, mobile application management and PC management options.

DATA LOSS PREVENTION
Protecting sensitive data relies on identifying that data and putting policies and controls in place designed to make sure that only authorised users can access it. CSPs offer a range of tools that allow you to assign security permissions to files and folders to control access. They also
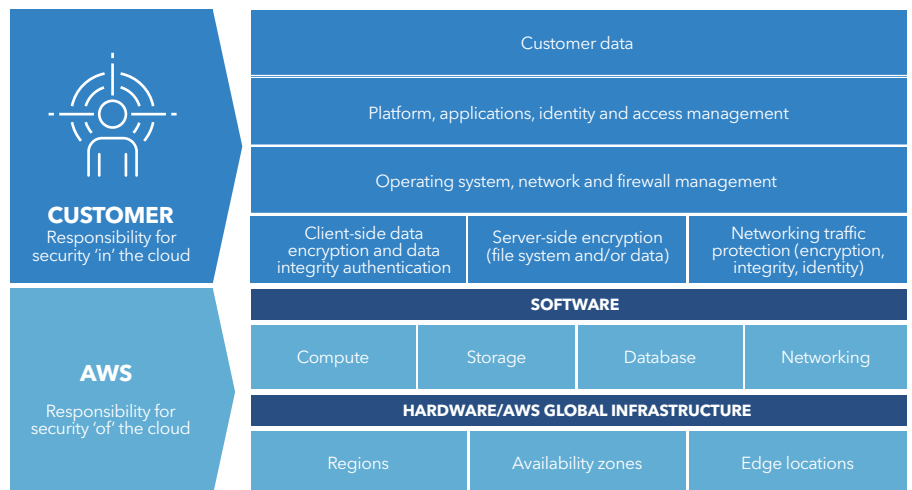
provide a range of data loss prevention solutions designed to allow you to identify, monitor and protect your sensitive data.

OTHER SECURITY CONTROLS
CSPs provide a wide range of other security solutions that you can use including threat intelligence and threat protection, automated incident response and cloud access security brokers. Whether you need to implement any or all of the more sophisticated controls will depend on your specific security risk assessment.

PLAN OF ACTION
Based on our experience we would recommend you follow a structured action plan that:
- identifies your specific security risks;
- understands the controls you require to mitigate those risks;

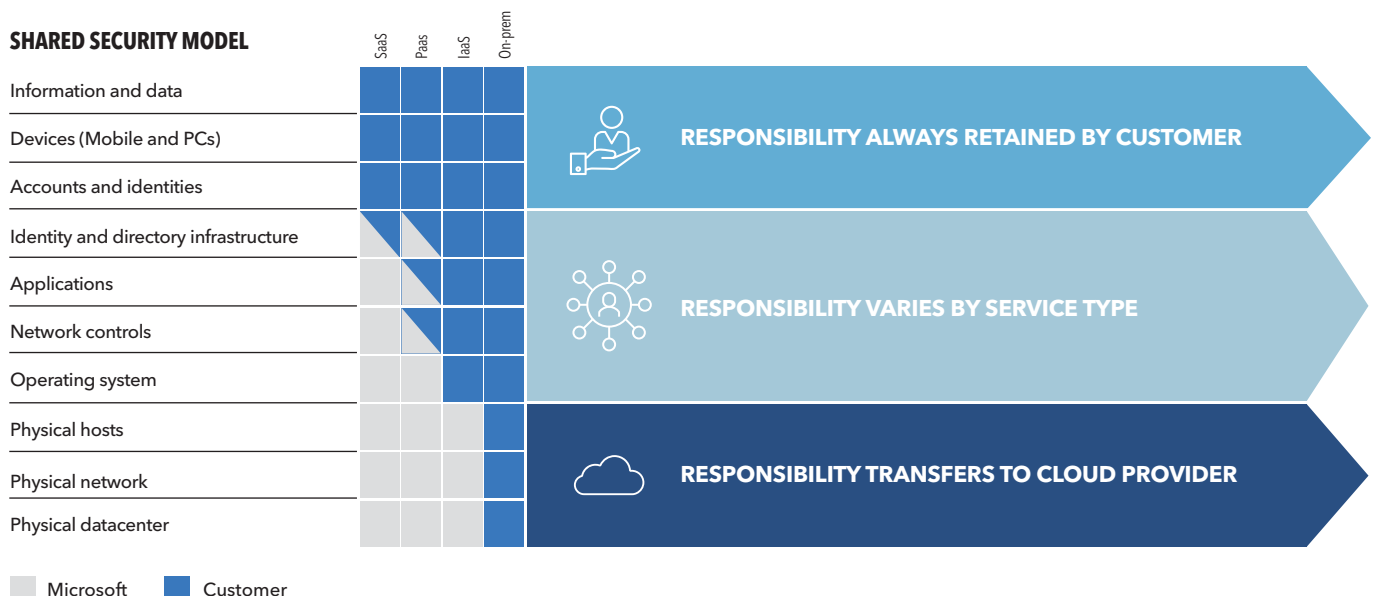- completes a controls gap analysis; and
- remediates any control gaps.

CONCLUSION
Operating in a cloud environment can significantly improve your overall security. Being cloud based, however, does not remove the need for good security practices. You need to understand the shared security model and your responsibilities. You then need to design an appropriate security model based on your risks, utilising the appropriate tools that are available through your CSP and other suppliers. ●

George Quigley, cyber risk consultant with foulkon.com, KPMG ex-partner, and former chair of the faculty, provides insights into cyber resilience

CUSTOMER Responsibility for security 'in' the cloud			
Customer data			
Platform, applications, identity and access management			
Operating system, network and firewall management			
Client-side data encryption and data integrity authentication	Server-side encryption (file system and/or data)	Networking traffic protection (encryption, integrity, identity)	

AWS Responsibility for security 'of' the cloud			
SOFTWARE			
Compute	Storage	Database	Networking
HARDWARE/AWS GLOBAL INFRASTRUCTURE			
Regions	Availability zones	Edge locations	

SHARED SECURITY MODEL	SaaS	PaaS	IaaS	On-prem	
Information and data	Customer	Customer	Customer	Customer	RESPONSIBILITY ALWAYS RETAINED BY CUSTOMER
Devices (Mobile and PCs)	Customer	Customer	Customer	Customer	
Accounts and identities	Customer	Customer	Customer	Customer	
Identity and directory infrastructure			Customer	Customer	RESPONSIBILITY VARIES BY SERVICE TYPE
Applications		Customer	Customer	Customer	
Network controls			Customer	Customer	
Operating system			Customer	Customer	
Physical hosts				Customer	RESPONSIBILITY TRANSFERS TO CLOUD PROVIDER
Physical network				Customer	
Physical datacenter				Customer	

Microsoft   Customer

WHAT THE TECH?

Richard Anning looks at what skills need to be future-proofed for careers and firms

How many data scientists do you expect to have in your team in 2020? In a poll at the most recent Mid-Market Tech Forum, 34% of attendees expected to have more than five and 33% expected between one and five. How does this compare to your firm? What even is a data scientist?!

At its October meeting, the Mid-Market Tech Forum (a discussion forum open to any accounting firm that operates in the mid-market) debated the issue of what skills accountants need to prosper as technology and consumer needs evolve. The previous meeting (covered in July's *Chartech*) discussed the increasing importance of data analytics and how this translated into what members were teaching their staff and what was going into the ACA syllabus.

As noted previously, this is a consensus forum where no one has the 'right' answer, but members can learn from each other to discover where they sit on the skills continuum and how they compare against their peers. Another poll at the meeting suggested 44% were behind where they would like to be on their digital transformation journey, 50% were keeping pace with the rest of the mid-market, and just 6% felt they were ahead of the curve.

TECHNOLOGY IN THE ACA – ICAEW LPD

Adam Birt, ICAEW's head of qualifications, strategy and development, was the first of four presenters to try and help members understand what is happening to the skills agenda. Pushing back against a viewpoint that chartered accountants were obsolete and the future was all about data scientists, he noted that ICAEW has instead looked to weave technology into the qualification.

Technology in the syllabus and the examinations has been expanded – including our own 'ABCD' as well as cloud and digitalisation of tax. One of Adam's slides showed how technology appears in all areas of the syllabus (rather than as just one stand-alone paper on technology), with the clear topic leader of data analytics now being covered in most of the subject areas.

All 15 exams are now computer-based assessments, with a second wave of digitalisation underway to introduce programs beyond just word processing and spreadsheets. ICAEW is now introducing Inflo-based data analytics on real data into the exams, with an initial focus on the Audit & Assurance and Corporate Reporting modules.

Finally, Birt noted that the skills ladders have been reworked in recent years, benchmarking against key stakeholders and other professions. Of these, 80% are common across all professions, with the other 20% being key technical skills. Particular digital skills of interest include adaptability, and professional scepticism and curiosity.

CHANGING TRAINING AND SKILLS LANDSCAPE - KAPLAN

Stuart Pedley-Smith, head of learning at Kaplan, then talked about Kaplan's view of the changing training and skills landscape. He suggested that the classroom has changed with technology, as has what is taught. Consumption is more personalised, with less of a focus on pure classroom-based delivery, and in-person classes built around a learning management system (LMS), live online training, on-demand delivery and distance learning via textbooks – "people still like choice," Pedley-Smith said.

Choice does lead to procrastination, so some fixed-date and set elements are important to focus students' attention. Kaplan is looking to gamification for some elements to incentivise good learning behaviours rather than driving straight outcomes.

Data analytics is an area of potential investment for auditors; useful lessons can be learned from even a basic introduction

DEVELOPING THE DIGITAL PROFESSIONAL – BPP

Sarah McIlroy, the dean of the BPP University School of Business and Technology, then talked about the workforce of the future and developing the digital professional. She noted that BPP had recently added 'Technology' to the title of its university in recognition of its growing impact (with every company now a technology company), and suggested that audit is likely to change more in the next five years that it has in the last 30. Data analytics is an obvious area of potential investment for auditors; there are useful lessons that can be learned from even a basic introduction.

McIlroy talked about a changing workforce, with 'digital immigrant' Generation X (born between 1965 and 1979) in the majority of management roles and would continue to be for the next 10 years, but with 'digital native' millennials (born between 1980 and 1994) making up a majority of the total workforce.

Finally, despite the increasing importance of data analytics, Sarah referred to an analysis of over 6,000 recently advertised jobs. Findings suggest traditional professional services roles such as audit, tax and advisory are the most frequently advertised type of role. However, professional services firms are not hiring software or data specialists in high numbers; the research suggests that digitalisation in Professional Services is about changing the skillset required for auditors, tax specialists and advisory professionals, rather than creating new types of roles.

It is interesting to contrast this view to the answer to the poll question at the start, with 34% of attendees expecting 5 or more data scientists in their teams by 2020.

DATA SCIENCE FOR ACCOUNTING – COEFFICIENT

John Sandall, a specialist in data science, finally gave a practitioner's view. In answer to the opening question (what is data science?) he gave a slightly tongue-in-cheek view from Slack's Josh Wills. A data scientist is a 'person who is better at statistics than any software engineer and better at software engineering than any statistician', going on to explain it is the intersect between math and stats knowledge, substantive expertise and hacking skills. Data science is a set of tools and techniques used to extract useful information from data, with the application of scientific techniques to practical problems.

Sandall then ran through a number of case studies, introducing the use of the coding language Python and stimulating the debate as to whether and how much coding we should be teaching accountants.
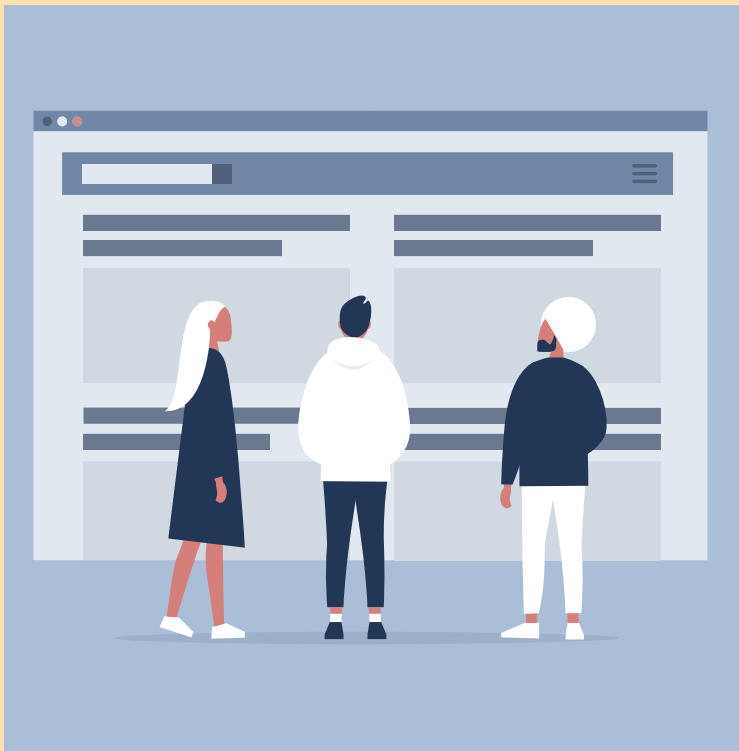
CODING IN R AND PYTHON

We posed a number of other questions to the group, two of which provide useful insight to that last question. In response to the question, 'should audit juniors be able to code in R and Python?', 23% said yes and 46% said no, but they should be able to understand it. And in response to the question, 'are you actively trying to recruit graduate/school leavers with data science qualifications?', only 18% said yes.

Becky Shields, a partner with Moore Kingston Smith and chair of the forum, summed up the meeting by explaining that in her firm new data science training is not right for every student or employee, and is available only where trainees show interest.

What is certain is that the debate will continue and we will bring highlights to Tech Faculty members to help keep them informed. If you work for a firm operating in the mid-market and are interested in joining the forum, please mail us for details at techfac@icaew.com. ●

Richard Anning,
Head of faculty

Tasks that require intelligence when done by a human can be done by machines that are not intelligent

ETHICS AND NEW TECHNOLOGY

The 2019 Tech Faculty lecture marked the launch of the faculty's thought leadership report on new technologies, ethics and accountability. **Kirstin Gillon** reports on a thought-provoking evening

Concerns about new technologies are rarely out of the news today – from driverless cars to facial recognition to bias and unfair discrimination being built into models. Ethics is often seen as an important way to manage concerns, and as a result, it has become a very hot topic in the tech world. But can a push towards ethics really make a difference to the behaviour of the tech giants in the real world?

THE ROLE OF ETHICS
This was the context for the lecture given by Professor Luciano Floridi, a leading expert on ethics and new technologies from the Oxford Internet Institute.

He gave a wide ranging and thought-provoking talk on how technology radically changes our understanding of the world, and

Kirstin Gillon,
technical
manager,
Tech Faculty

the role of ethics in guiding our use of new technologies.

For example, Floridi highlighted the way that technology breaks long-standing assumptions and 'glue' between things like presence and location – you can be 'present' to do a task such as banking or shopping without needing to be physically located there. He also talked how AI increasingly separates 'agency' from 'intelligence'. Tasks that require intelligence when done by a human can increasingly be done by machines that are not intelligent.

These changes have profound implications and he went on to explain how ethics can guide our design and use of technology in such a way that we maximise the benefits, minimise the harms and avoid the underuse of it. In the process, he clearly separated ethics, law and governance. While 'playing by the rules' and following the laws was necessary, it wasn't sufficient – businesses needed to embed ethics in their thinking.

RESPONSES TO THE LECTURE
Catherine Miller of doteveryone, the think tank for responsible tech, responded to the lecture. She talked about the aftermath of the Facebook/Cambridge Analytica case and how nothing really changed. There may be have been fines, bad publicity and share price drops, but people continued using Facebook, so nobody in charge felt there was any need to change.

However, she was optimistic about the future. Their research showed that tech workers want to do good things with tech and increasingly only want to work for companies that are ethical. The war for talent meant that this grassroots approach could move tech companies to being more ethical.

I finished the presentations with a short summary of the faculty's report on new technologies, ethics and accountability, and some of the work that ICAEW is doing in the space. This includes looking at whether ICAEW's own code of ethics is fit for purpose in a more tech-dominated world, and also how chartered accountants can contribute to the wider debate and help businesses build good practices and governance in this area. ●

THIS YEAR'S MODELLERS

There are some changes to the financial modelling world championships, **David Lyford-Smith** explains

What does it really mean to be an Excel expert? This is a question I have pondered many times over the years. By most measures, I am one myself – I've run training courses and have written over 300 Excel blogs. But it's such a deep program that there are still whole areas I have barely touched in my career.

One such area is financial modelling. Modellers are major users of spreadsheets, but not of complicated formulas. Most modellers build up their complexity by making large, carefully structured workbooks, with layer upon layer of steady, step-by-step construction in order to reach the final desired target – an answer that can be relied on. But modellers are no strangers to making complex things – and aren't always slow.

Enter ModelOff, the financial modelling world championships. The contest began as a project of two Australian entrepreneurs in 2012, as a sort of premier event for the Excellerati – the keyboard shortcut and formula champs who could get an answer together in record time, or wrap their heads around some novel modelling challenges (a particular favourite of mine was modelling the outcome of a game of Snakes and Ladders).

Apart from the novelty of a competition in such a niche field, ModelOff developed into an interesting tentpole event for Microsoft MVPs, top modellers, and more to meet and talk shop – even if the competition itself was only feasible for a tiny minority.

However, last year ModelOff changed ownership, to modelling house Gridlines, which is now looking to create a separate entity to run the competition in future. I spoke with Matt Garrity, who is operations manager of ModelOff now and making plans for change.

Matt is a modeller himself and became aware of ModelOff early in its history as he was starting out in the field. The non-corporate, almost tongue-in-cheek attitude of the contest, and the unusual spreadsheeting problems it sometimes created, appealed to him from early on. The idea of travelling to attend live finals was exciting – and that's something that the contest will be keeping, with 15 finalists (10 established professionals and five juniors) being flown to London in January.

But elsewhere, there were questions on whether the fast-paced, time-limited format was right going forward, and if making questions alone was the best way to help improve the standard of modelling being done. So this year, ModelOff is expanding to cover not only the contest, but also a broader range of training and some longer-form challenges covering topics such as dashboard construction or visualisation. They are also trying to do more outreach, including offering a free form of entry to modellers aged 25 and under. There's also the Modeller's Miscellany, a weekly mailing list covering top articles on the subject.

I've previously done a webinar for the Excel Community working through the aforementioned Snakes and Ladders problem (icaew.com/excelwebinars) – and I'll be doing another past problem of theirs for a webinar in the near future. I'll also be going along to the live finals as a spectator. While you have just missed the deadline to enter this year's contest, there's plenty of time to get involved and start training for next year's, or just to follow along with the finals, at modeloff.com ●

ICAEW is a proud partner of ModelOff and is pleased to announce that ModelOff is an official supporting organisation of ICAEW's Financial Modelling Code (icaew.com/financial modelling)

David Lyford-Smith, technical manager, Tech and the profession, Tech Faculty

BEN MINER/IKON

If asked to picture the average accountant's desk, most people would still probably imagine piles of paperwork, receipts stuffed in drawers and Post-it Notes stuck to any available surface. Accounting has never really been seen as a hi-tech profession.

Although large firms are leading the way when it comes to investing in digitisation and digitalisation, smaller practices have generally been hesitant to follow suit.

A 2018 global survey of more than 6,000 professionals working in small and medium-sized firms conducted by the International Federation of Accountants found that over a third (38%) viewed technological developments as a significant challenge. The issue is that these firms often hold misconceptions about embracing technology.

The structure of mid-tier practices, in particular, is such that any partners will be fee earners and so may not consider pursuing technological advances as a money earner or part of their role, says Colin Abercrombie, a former partner at French Duncan in Glasgow and now chief commercial officer at INCo, which advises professional services firms on growth strategy and marketing technology.

"Decision-makers can distance themselves from technology and there ends up being a lack of expertise in planning a forward strategy as a result," adds Abercrombie. "Also, traditionally, firms are shy about incurring capital expenditure. So the senior members and partners may not see the immediate return that they desire."

Despite a reluctance to invest from some quarters, there are signs that smaller firms are beginning to shake off the image of relying on paperwork and manual data entry to get the job done. For example, the recent introduction of Maxing Tax Digital (MTD) for VAT has helped to some extent. Firms have had to take steps to ensure they have the right systems in place.

However, compliance and meeting the latest regulations shouldn't be the sole reason for digitalising; there should be a focus on the value that digitalisation can bring to advisory services, argues Steve Crowther, owner of Crowther Chartered Accountants.

The small practice, based in Huddersfield and founded in 1995, has over the past couple of years taken steps towards digitalising its business. This has

BETTER CONNECTED, BETTER RESULTS

Despite reluctance among some firms to adopt new technology, investing in software and applications is making accounting operations more efficient and improving client relationships, writes Rich McEachran
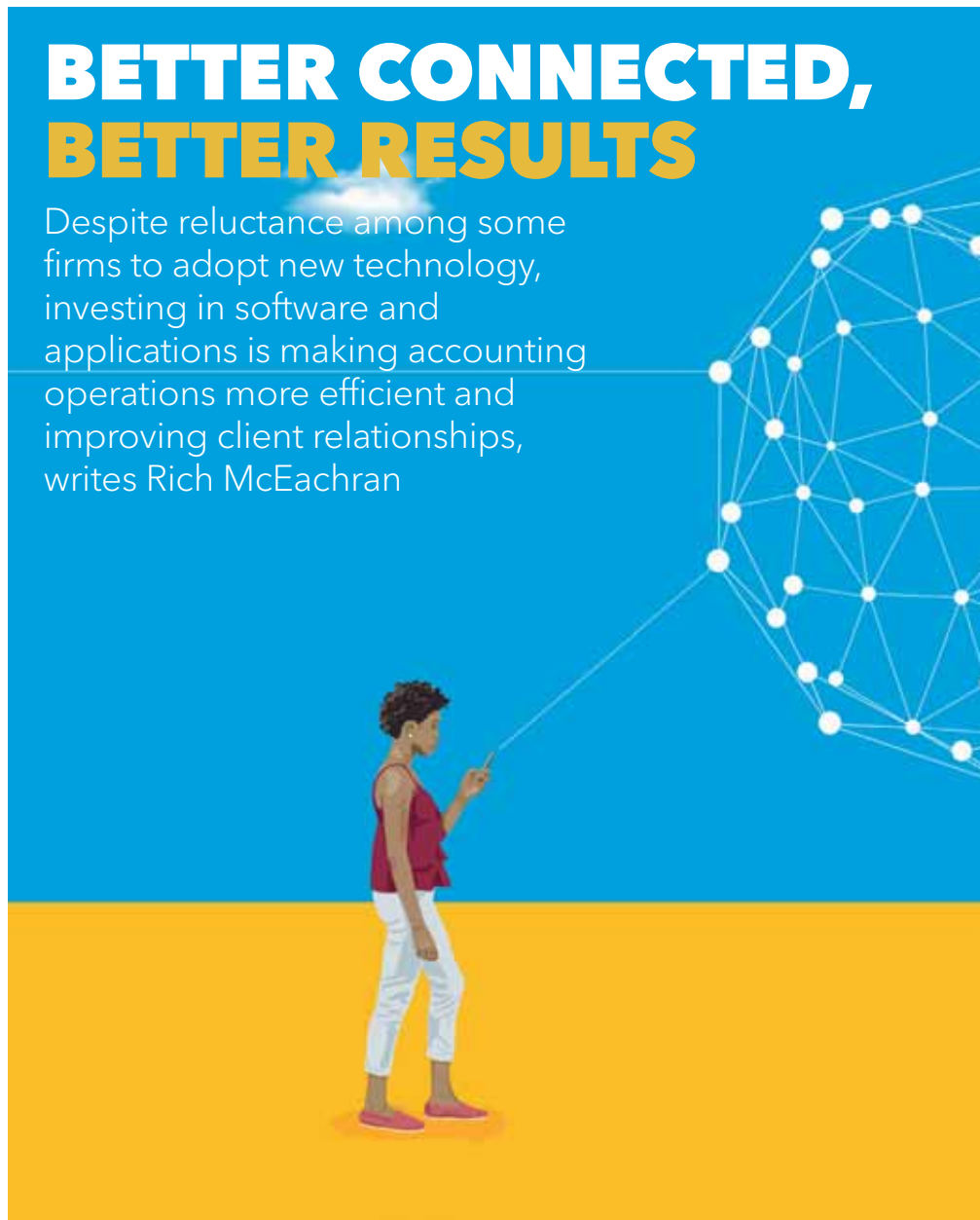
included transitioning to cloud software and, since 2018, ensuring members of staff get the training they need to be Xero-certified.

Crowther says that digitising its services using a range of software and applications is helping the firm to stay competitive. This is becoming increasingly important given that there are new, small practices popping up that are fully automated – working in the cloud – and able to offer clients real-time insights from the get-go, he adds.

One such application Crowther Chartered Accountants has adopted is Receipt Bank. Enabling clients to capture receipts using smartphone cameras has helped to eliminate an unnecessary paper trail and has made it easier for the

Although large firms are leading the way… smaller practices have generally been hesitant to follow suit

firm to extract the necessary data and transfer it automatically into their accounting software.

Ultimately, this has meant the firm is now spending less time on administrative tasks, such as manual data entry, and instead can focus on the advisory services that will deliver value to clients.

Another firm that has integrated Receipt Bank into its practice is Statton & Co. The small-town practice located in Wadebridge, Cornwall, has been on something of a digital transformation, led by partner Darren Jasper. Before joining Statton in May 2019, Jasper was helping one of the South West's biggest firms, PKF Francis Clark, to prepare for MTD.

"Our current, but not quite fully implemented set-up starts with Practice Ignition for letters of engagement and payment collection by direct debit," says Jasper. "Xero is our preferred general ledger software because of its connectivity to our practice tools. Accounts preparation work is completed in Xero and Xero Workpapers, before data is then transferred to TaxCalc via API for statutory accounts and tax returns. As for Receipt Bank, we use it for all in-house recurring work and actively look to engage clients in using it themselves."

Since Jasper joined the team, he's seen how digitalisation has had a significant impact on the firm's operations, even if it's currently unquantifiable.

"It hasn't been long enough to run numbers yet, but the connected practice has definitely allowed us to be more efficient. It has reduced our costs and enabled us to offer more valuable and timely services to the clients," adds Jasper.

"More often than not, we can now control the process from data entry to compliance and on to advisory for a fee that's only 25 to 50% greater than the client used to have to pay solely for compliance."

Over at French Duncan, implementing Workbooks CRM along with other applications has meant that the firm now has a 360-degree view of all interactions with clients, which is visible to all personnel. This has improved internal communications and "the quality and timeliness of advice" the firm delivers to its clients, says Abercrombie, who played a key role in French Duncan's digital transformation strategy while he was a partner there.

"Putting client information in an automated self-service environment dramatically reduces the amount of time staff can spend on undertaking basic administration duties. Meanwhile, the available chargeable hours of a practice increases," he adds.

Adding value is a recurring theme when firms talk about the impact better-connected practices can have. This is reflected in data from the 2019 Tax Professionals Survey, conducted by Tax Systems.

About 27% of tax and finance professionals believe automation will mean workers will be able to undertake more value-added work, while just over 35% reckon that the future tech-savvy accountants will want automation in place to avoid having to perform mundane, manual compliance tasks.

On the flip side, the survey found that 14% fear that automation is a threat to current accountancy roles and could lead to job losses.

The reality is not as gloomy as having a C-3PO-like robot colleague sitting at the next desk. While some roles will be lost, new ones will be created as software and applications become more sophisticated.

Powered by artificial intelligence, the digital tools of the future will continuously run in the background, supported by specialists in data science and analytics, while the senior members and partners at a practice will focus on client-facing activities.

The better connected a practice is, the better the results it will be able to deliver. ●

TIME AND RELATIVE DIMENSION IN SUMMARY:
PART 3 – TIME TRAVEL

In the third part of this series, Simon Hurst continues to break down how data analysis expressions work

Data Analysis Expressions (DAX) extend the range of calculations available in Power Pivot and also the separate Power BI application. This series on DAX has sought to provide a brief introduction to how DAX works and the sort of calculations it can be used to create.

The first part of this series showed how a simple DAX formula can be used within the Power Pivot window to add a calculation to each row of a data table and also demonstrated one of the key differences between DAX and cell-based Excel functions – the ability to encapsulate entire tables within a formula.

In part two, we took a look at the power of using DAX to create measures within a PivotTable report, concentrating on the importance of filters within PivotTables and how filters can be manipulated by key DAX functions.

Now, in part 3, we are going to see how this concept of filtering applies to a particular type of DAX function – the Time Intelligence functions.

TIME INTELLIGENCE

Comparisons across time periods are often a vital component of reports on financial data. In essence, calculations need to filter columns of values by date, for example to show the change between the current month and the previous month or January this year and January last year. The idea of comparing one time period with another in the same calculation demonstrates the importance of using DAX to manipulate filters.

Normally, a simple value added to a PivotTable that has a date field in the row or column area would be filtered by that row or column value to show the total for a given day, month or year. To show the change between two periods, the calculation needs to filter the same set of values by two different time periods simultaneously.

As we saw at the end of part 2, the CALCULATE() expression is able to add filters to and remove filters from calculations within a PivotTable cell in this way.

When working with time periods, a range of different DAX functions makes it easier to create the appropriate sets of filter conditions.

THE NEED FOR CONTIGUOUS DATES

Before we start looking at particular DAX examples, there is one absolute pre-requisite without which Time Intelligence functions will not work properly. The Power Pivot data model needs to include a special calendar table with a contiguous series of all the possible dates within the data model. If we think of the this year/last year example we can see why this is the case.

As we saw last time, a value in a PivotTable cell is, in effect, a column from a table filtered and aggregated. If we imagine a PivotTable based on a data table with a date column and a value column then, if we add the date as a row label, each of the cells in our PivotTable will show the total of the value column where the date in the date column is equal to each row label. For any date in our date column, there might or might not be a corresponding date in our data set for the previous year.

For example, we might not make sales on Saturdays or Sundays. By taking the pattern of dates for the current year and setting it back a year we will miss out some of our last year sales values because they occurred on dates that

correspond to weekend days this year.

Power Pivot can create the required date table for us. The Calendars group of the Design Ribbon tab of the Power Pivot window includes the Date Table dropdown. The New command works out the date range that will cover all of the dates within the data model and creates a table containing every possible date, from the first to last date of each year. As well as the column of dates, the table includes DAX calculations to create other useful columns such as the Year, Month name and Month number and weekday. You can add your own calculations to this table if required. One of the other options in the dropdown allows you to update the range of dates that the table includes (Figure 1).

Next to the Date Table dropdown in the Calendars group is the Mark as Date Table dropdown. For the Time Intelligence functions to work correctly, the date table used must be specifically marked as a Date Table. When you use New Date Table, this will be done automatically.

In the Diagram view of the Power Pivot window you need to connect the Date column of the Date table to the date column of your data table (Figure 2).

Then, instead of using the Date field from your data table in your PivotTable and any measures, you use the Calendar table Date field (Figure 3).

In this example, we have used the SAMEPERIODLASTYEAR() Time Intelligence function. The Time Intelligence functions apply the date filter in a particular way. If all this function did was to add a filter based on the current date filter applied to each cell, but set back a year, each value would need to be in the current year and simultaneously in the previous year to pass the filter. However, when used with a data table, most Time Intelligence functions also cancel any PivotTable filters in the same way as using the ALL() function that we looked at last time, so the measure is able to return the last period figures we require.

CONCLUSION
SAMEPERIODLASTYEAR() is one of dozens of Time Intelligent functions that enable comparisons across periods; the construction of 'to date' totals; opening and closing balances and, in some cases, the use of a 'fiscal year end' where an organisation is not reporting based on the calendar year. ●
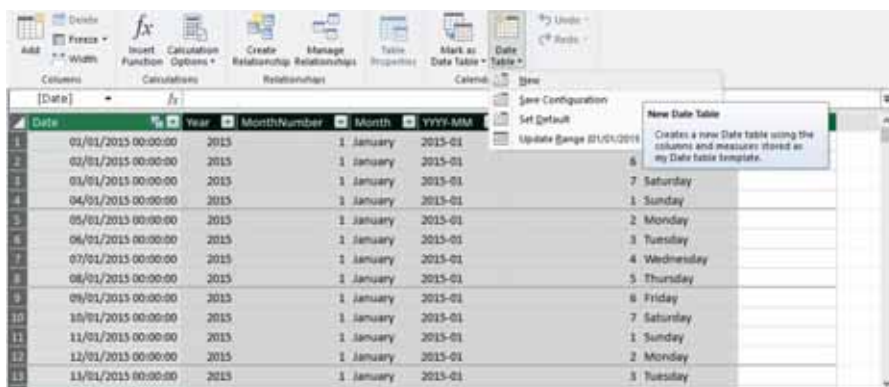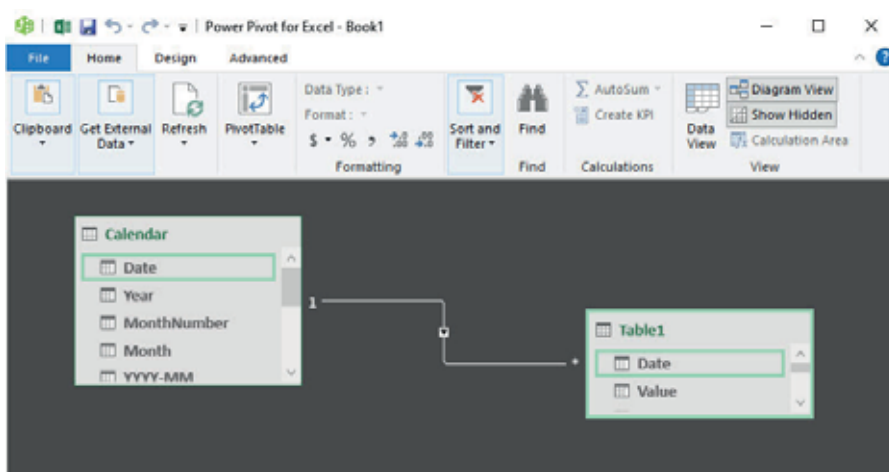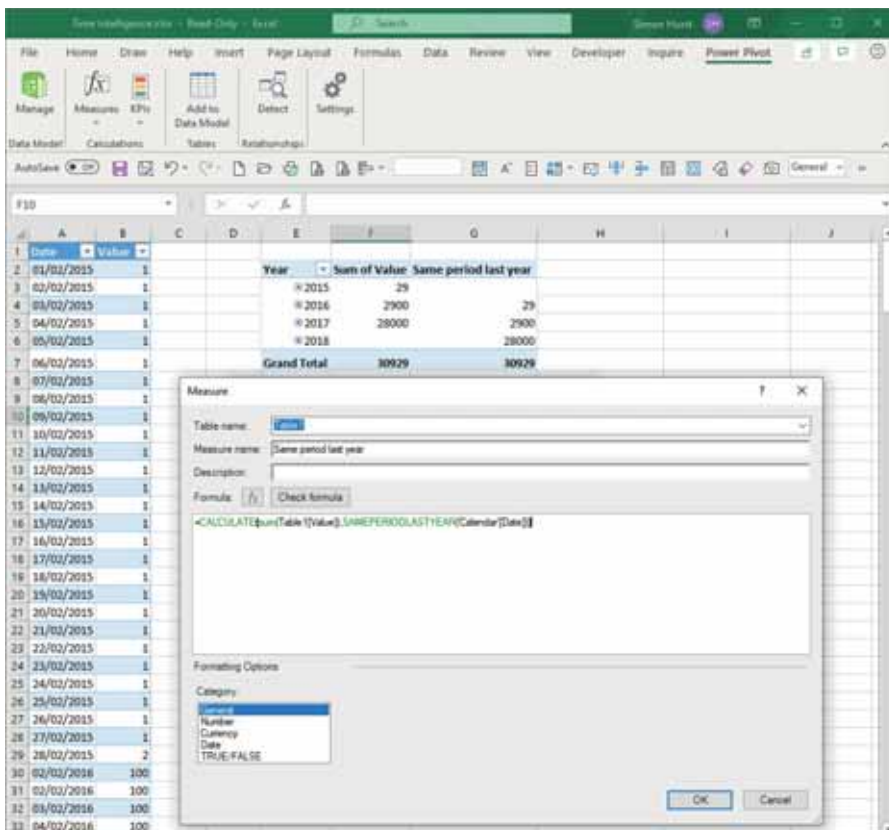

Figure 1

Figure 2

Figure 3

LEO WALDOCK

SEEKING PERMISSION

With the new Android 10 operating system, you can take back control of your apps

Google has announced that the Pixel 4 and Pixel 4 XL smartphones will start shipping before the end of October. The new phones sport improvements to the cameras that will use artificial intelligence to boost performance. They will also come with a radar to detect hand gestures and speed up the unlock process.

The Pixel 4 will arrive with Android 10 pre-installed. This is exciting as my Pixel 2 was recently updated to Android 10, so I've already had a chance to experience the improvements in user privacy.

When you install a new app on your phone you will undoubtedly have been amazed by the long list of permissions that pop up on the screen. Apps may demand access to any or all of the following items: body sensors, calendar, call logs, camera, contact, location, microphone, physical activity, SMS, storage, telephone.

Some of this is obvious stuff. For example Uber requires access to my location and telephone number before the app can work out my journey and put me in touch with a driver. That's fair enough, but I have to question why Uber might want access to my camera, microphone and contacts, beyond the obvious point that most companies want access to as much data as possible.

We have been able to adjust permissions since Android 6.0 in late 2015 but in practice most of us hit the 'accept' button and never think about it again. While we might reluctantly give permissions for an app to access, say, our photos, we don't have a clue about what the company will do once it has received this permission.

Android 10 does something that is both useful and simple: it will tell you about the permissions you have granted and also gives you the choice of setting something like location to 'always

When you change a permission level, Android 10 lists any other apps on your phone with the same permission (kind of like an audit)

permitted', 'blocked' or 'only while I am using the app'. I don't want to bang on about Uber, but it is a good example of an app I use when travelling for work but never at home, so it follows I don't want the app to have access to anything unless I plan on taking a ride.

When you change a permission level, Android 10 lists any other apps on your phone with the same permission (kind of like an audit). It follows that anyone who is concerned about one app having access to their microphone may feel the same way about other apps and want to carry out a quick audit. Apple has set the standard for user privacy over the past few years, but Android 10 has now leapfrogged Apple iOS to deliver a feature that is genuinely useful.

I can see two flies in this particular Android ointment. The first is that Google seems happy to let you lock down apps from every company but would prefer you don't do that for its own, as 'basic features of your device may no longer function as intended'.

The second point is that many owners of an Android phone won't get the Android 10 update any time soon unless they buy a new handset with the operating system installed. Google's own Pixel devices are supported for three years, so my Pixel 2 from 2017 received Android 10, while I imagine owners of the new Samsung Note 10 will be stuck with Android 9 for some months to come. In other words, mainstream Android owners won't get the benefit of this feature any time soon.

It makes me happy to see Google and Apple scrap it out in this manner, as the customer has gained more control of their phone, and that is exactly how competition is supposed to work. ●

Leo Waldock, *freelance IT writer*

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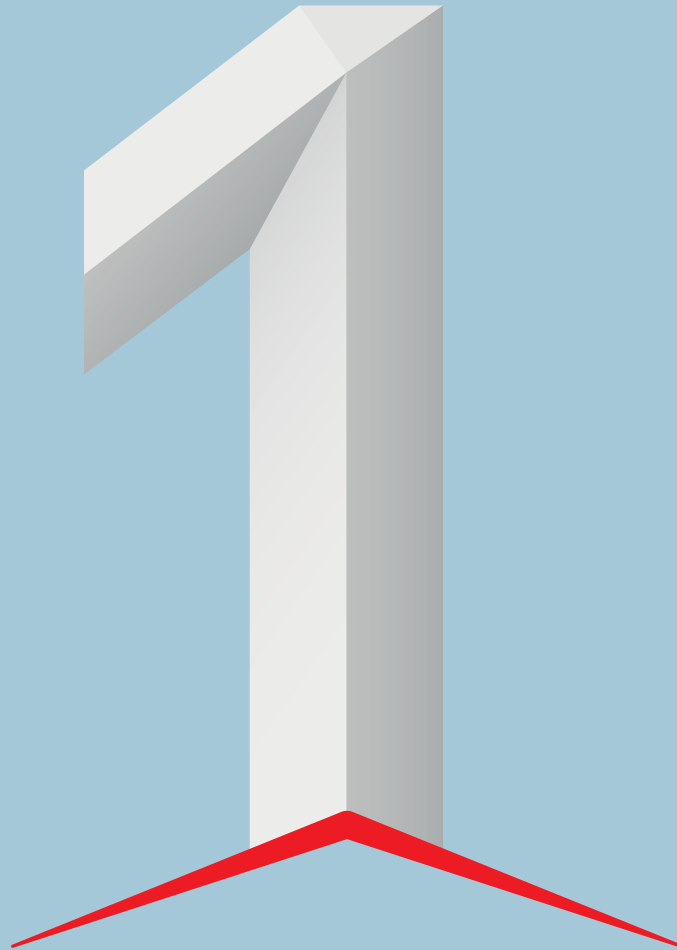
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