

# Chartech

**A SHARING FUTURE**  
HOW ONLINE BANK  
DATA-SHARING HELPS  
THE ACCOUNTANT

**BEYOND HARD SKILLS**  
DEDICATED SESSIONS  
FOR IMPROVING YOUR  
ALL-ROUND WELLNESS

**ETHICALLY MINDED**  
WHY ETHICS IN TECH  
IS THE FOCUS OF  
OUR LATEST REPORT

## TECH IN THE MID-MARKET

How can smaller firms benefit from data  
analytics and artificial intelligence?

**MAKING  
TAX  
DIGITAL  
READY**



# By your side for MTD

Xero has been listed by HMRC as software that will support Making Tax Digital for VAT. But our support for you won't stop there.

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## July/August 2019 Issue 222

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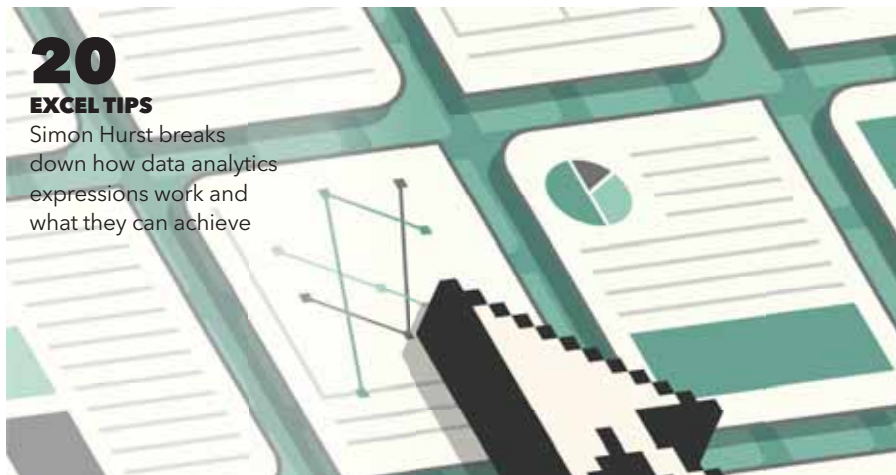
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# Trust and technology



This year's annual Council Conference was based on the two important themes of trust and technology, with the Tech Faculty involved in the delivery of three concurrent sessions on the second day. The organisers created a small smorgasbord of tech sessions in the morning to help highlight some of the current trends and point to where tech may be headed in the future; this was to encourage Council

members to consider how tech is affecting the profession and what actions may be needed in response.

Faculty board member and EY associate partner Anthony Sayce presented an interactive game he had written, demonstrating how to teach artificial intelligence via attendees' phones. Based on the popular game Connect 4, delegates visited a central website to play the game, in doing so teaching the algorithm to play. Suffice to say, delegates' satisfaction at beating the machine in the early stages gave way to frustration as it learned from all the games it was playing. The machine finally ended up winning about 90% of the games.

Faculty colleague David Lyford-Smith presented a session on the ABCDEs of technology. We have now extended our popular mnemonic to include E for ethics, as the profession is increasingly having to consider the impact of tech on ethics, the underlying ethics code and our collective and individual accountability for decisions taken. Kirstin Gillon outlines some of our responses in the faculty's new report on page 19.

Finally, I worked with representatives from KPMG to explain the concept of Engine B, a new industry initiative that is bringing together the largest firms and various tech providers to make it easier to access, extract and analyse company data. You can read more about this at [tinyurl.com/CH-EngineB](http://tinyurl.com/CH-EngineB)

Council, the ultimate stakeholder group in ICAEW, has had 30 new members this year, including our own faculty chair Nicola Granger. It is becoming increasingly tech-savvy and aware of the accompanying issues facing our industry. What was even more impressive was a panel session featuring seven younger members of the profession, for whom tech was a given, but who spent time discussing values, culture and the wider role accountants can play.

If this cohort is anything to go by, I would say the future of the profession is in safe hands.

**Richard Anning**  
Head of faculty

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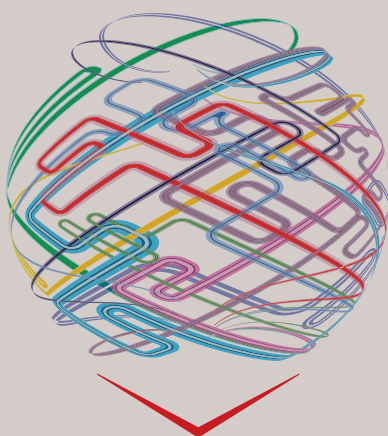
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# NEWS & EVENTS

## Insight and guidance on tech



### REBRANDING FOR THE FUTURE: TECH FACULTY

As initially mentioned in the March/April edition of *Chartech*, the faculty has now been rebranded as the Tech Faculty.

The name, chosen in recognition of the digital transformation taking place across the accountancy profession, is designed to help us reach ever more finance professionals and continue expanding our 38,000-strong community.

In the past we have engaged with you through our *IT Counts* blog; this has been renamed *Tech News* (see story below) to reflect the wider professional impact of technology on our day-to-day work.

From now on you can find our main internet output at [icaew.com/techfac](http://icaew.com/techfac) and the former *IT Counts* site is at [icaew.com/technews](http://icaew.com/technews)

See the full story on page 7.

### EASY AS ABCD - INSIGHT ON FILM

The Tech Faculty recently recorded a four-video series to highlight and explain the key technologies that will shape the future of the profession.

The series covers our ABCD tech topics: artificial intelligence, blockchain, cyber security and data. Experts from the Tech Faculty and from outside ICAEW

share their insight in each film.

Additionally, we have created a fifth video that introduces our latest report, *New technologies, ethics and accountability*. An overview of the report is on page 19.

The videos and more information can be found at [icaew.com/techtalk](http://icaew.com/techtalk)



### TECH NEWS NEEDS NEW WRITERS

Do you have some technology experience that you wish to share with fellow professionals? Perhaps you have undergone a particularly successful digital transformation at your practice or business? Maybe you have a view as to how the ABCD technologies will shape the profession?

We are looking for writers to contribute to *Tech News*. The *Tech*



*News* site is your opportunity to share your experiences of technology for the benefit of all.

It exists to help readers keep up to date on technology, as well as share knowledge, experiences and stimulate conversation.

If you are interested in writing for *Tech News*, please take a look at [icaew.com/technews](http://icaew.com/technews) and contact [mark.taylor@icaew.com](mailto:mark.taylor@icaew.com)

### BOARD MEMBER FOCUS: DAVID NORRIS

The Tech Faculty Board has recently welcomed several new members. The board represents a wide range of organisations, and the experience and knowledge they bring helps ensure that the faculty has a deep appreciation of the issues members are facing. Here, we introduce one of our latest members: David Norris from Mercia Group.

Norris qualified as a chartered accountant with South West firm Thomas Westcott. While there he focused on audit, corporate reporting and IT training and support for clients.

In 2000, he joined SWAT as a training consultant, and quickly developed to present continuing professional development courses on a range of non-tax subjects, as well as reviewing the work of firms across the country.

Norris was appointed to the board of SWAT as training director in 2014. He became responsible for the content, delivery and development of its courses across the UK and online.

When SWAT merged with Mercia in 2016, he joined the combined board as product director.

Seeing so many accountants in practice has given him a great perspective of life "at the coal face" for the average firm. He is passionate about helping firms evolve to embrace the best that new technology can offer, while remaining technically competent.



## 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. Visit the links to watch them in your own time or visit [icaew.com/techwebinars](http://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](http://tinyurl.com/ICAEW-IT-FMC)

### International digitalisation of tax

Find out about the digital tax compliance developments in 12 other countries for a comparison with the UK's efforts so far.

[tinyurl.com/ICAEW-IT-IntlDigi](http://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. This runs through a list of 10 things to consider when preparing for implementation.

[tinyurl.com/ICAEW-IT-MTDsoft](http://tinyurl.com/ICAEW-IT-MTDsoft)

### Understanding the Excel Community and its online training

An update on the Excel Community (which is part of your Tech Faculty membership), this outlines the vast array of Excel support available to you.

[tinyurl.com/ICAEW-IT-ExcelComm](http://tinyurl.com/ICAEW-IT-ExcelComm)



**EVENTS**  
[ICAEW.COM/EVENTS](http://ICAEW.COM/EVENTS)

## TECH FACULTY LECTURE

17 September

18:00 - 21:00

**Chartered Accountants' Hall,  
Moorgate Place, London EC2R 6EA**

The theme of this year's annual faculty lecture is all-encompassing for those working in accounting and technology: what is the impact of new technology on ethics?

Following on from the report *New technologies, ethics and accountability*, recently published by the Tech Faculty, our guest speakers will explore this theme in relation to its impact on both business and society.

A guest lecture will be delivered

by Luciano Floridi, professor of philosophy and the ethics of information at the University of Oxford and director of the Digital Ethics Lab at the Oxford Internet Institute. His address will explore the interrelationship of ethics and new technologies.

Rachel Coldicutt, CEO of responsible technology think tank Doteveryone, will give a formal response to the lecture, providing her perspective on the topic.

After the event, you can stay for drinks and networking.

To book your place, visit [tinyurl.com/CH-TechLec](http://tinyurl.com/CH-TechLec)

**WEBINARS**  
[ICAEW.COM/TECHWEBINARS](http://ICAEW.COM/TECHWEBINARS)

## WEBINARS: TECH ESSENTIALS

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

**Tech Essentials: cyber recovery**

27 August

12:30 - 13:00

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](http://tinyurl.com/CH-CyberRec)

**Tech Essentials: robotic process automation**

13 September

12:30 - 13:00

Gain a wider understanding of robotic process automation and its potential to significantly improve the work experience of impacted staff. Delivered by Rick Payne of ICAEW's finance direction programme.

[tinyurl.com/CH-RobPro](http://tinyurl.com/CH-RobPro)



# WHAT DOES THE FACULTY REBRAND MEAN FOR YOU?

**Martin Barrett** explains everything there is to know about the IT Faculty becoming the Tech Faculty and how it will affect you

The IT Faculty has changed its name to the Tech Faculty. This rebrand reflects changes in the market and the leadership role the faculty plays in this complex arena, as well as giving it a chance to take its position as ICAEW's expert voice and centre of excellence for technology.

In addition to the name change, and to align it under the tech banner, its monthly e-bulletins *IT Counts* and *eChartech* have been replaced by the new fortnightly e-bulletin, *Tech News*. This combines free news articles on the latest developments in tech alongside premium content available only to faculty members.

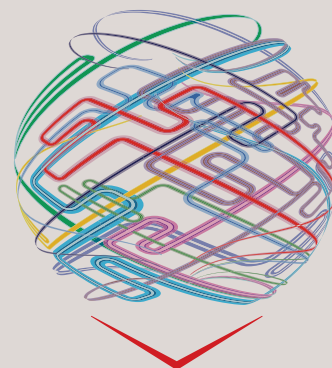
The aim of a single newswire is to provide free, timely commentary on current issues affecting all tech financial professionals while simultaneously advertising the value of current premium content that is only available to Tech Faculty

members. It is very much hoped that this approach will increase the standing of the faculty in the wider tech community and also encourage more of that community to become full and active members of the faculty.

In keeping with the rebrand, the faculty's blogs and discussion website has also been renamed *Tech News*, our Twitter handle changed to ICAEW Tech and our LinkedIn group renamed ICAEW Tech Faculty.

All content from the faculty can now be found under the 'Technology' pages on [icaew.com](http://icaew.com) (rather than IT), with appropriate changes made to shortform URLs. You can find more details of the faculty at [icaew.com/techfac](http://icaew.com/techfac) and you can mail [techfac@icaew.com](mailto:techfac@icaew.com) for help. All the old shortform URLs will automatically redirect to the new pages.

The Excel Community, a sub group of the Tech Faculty, continues in that capacity going forward, with resources available to members, as does the faculty's bi-monthly magazine, *Chartech*.



Through these various channels, the Tech Faculty now communicates directly with over 38,000 finance professionals interested in the practical challenges and opportunities in tech - a fantastic platform for expanding reach in the future.

As a Tech Faculty member, you will continue to receive exclusive, premium content, up-to-the-minute support and advice on cutting edge technology affecting the accountancy profession, as well as continued membership of the Excel Community. You will also benefit from being part of a larger and more engaged community of like-minded professionals to share experiences with, learn from and to help increase the value that we as professionals can offer our clients and our businesses. ●

**Martin Barrett,**  
senior project executive, ICAEW



## I SPY, WITH MY LITTLE APP

Spain's top football league, La Liga, was fined €250,000 for failing to adequately disclose that its official app could use the microphone and GPS location on a user's smartphone - a violation of General Data Protection Regulation (GDPR).

In June 2018, *El Diario*, an online Spanish newspaper, revealed that La Liga's app did more than just keep track of games and statistics. It used the phone's microphone and GPS location to find bars that were illegally streaming games.

The 'spy-mode' requires the consent of the user and, if agreed to, La Liga could remotely activate the smartphone's microphone to detect if the user is at a bar where a football match is being shown without paying broadcasting rights. The league can then use the GPS location to find out where the bar is located.

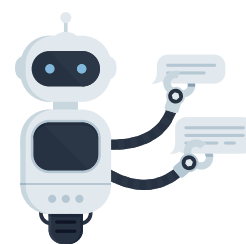
Spain's national data protection

agency found La Liga to be in violation of Article 5.1 of the GDPR, which requires personal data to be processed in a lawful, fair and transparent manner. It also considered that the league had violated Article 7.3 of GDPR, which orders the user to be able to withdraw their consent for personal data at any time.

La Liga said it disagreed with the decision and claimed it would challenge the ruling in court. The football league also contested the ruling that it violated transparency, claiming that users had to consent twice before activating the microphone function on the app.

The league stressed that the technology did not enable it to

listen to users voices or conversations. It also said that the technology in the app helped in its battle against piracy, which has cost the league an estimated €400m.



## FINTECH REVENUES SET TO ROCKET

Fintech revenues are set to hit \$638bn in 2024, according to new research from Juniper. The growth - up from \$263bn in 2019 - will be driven by new technologies such as machine learning, big data analytics and blockchain.

These technologies will drive new services such as smart contracts, loan underwriting using artificial intelligence to analyse non-traditional data sources, and personalised insurance policies based on IoT-generated data.

The report goes so far as to say innovative services like these will become the new normal.

Traditional players are responding by trying to replicate fintech offerings, in order to appeal to new audiences. Where this isn't possible they are partnering with fintechs. Either way, the report says there are challenges integrating new and traditional services in terms of maintaining control of the overall customer journey.

A free white paper, *The Future of Fintech - The New Standard*, goes into more detail. It is available at [tinyurl.com/CH-FutureFin](http://tinyurl.com/CH-FutureFin)

## THE CHALLENGE OF KEEPING IoT DEVICES SECURE

Eight in 10 organisations have experienced a cyber attack on their Internet of Things (IoT) devices in the past 12 months, says a new international survey.

The Irdeto Global Connected Industries Cybersecurity Survey (see [tinyurl.com/CH-Irdeto](http://tinyurl.com/CH-Irdeto)) looked at 700 enterprises across China, Germany, Japan, the UK and the US, finding the average financial impact of an IoT-focused cyber attack to be more than \$330,000.

Just 7% of respondents said their organisation has everything it needs to tackle cyber security challenges, citing a need for additional expertise and skills, and for more effective cyber security tools.

Meanwhile, the UK government is progressing work on its Secure by Design Code of Practice for Consumer IoT Security

(see [tinyurl.com/CH-SecDes](http://tinyurl.com/CH-SecDes)), seen by some as a precursor to legislation on IoT device security.

Other countries are further ahead in the quest for IoT security. For example, the state of California passed legislation last year (Senate Bill SB 327) requiring manufacturers of connected devices to "equip the device with a reasonable security feature or features that are appropriate to the nature and function of the device, appropriate to the information it may collect, contain or transmit, and designed to

protect the device and any information contained therein from unauthorised access, destruction, use, modification, or disclosure, as specified".

The law applies from 1 January 2020 and can be found at [tinyurl.com/CH-SenateB327](http://tinyurl.com/CH-SenateB327)



By **Sandra Vogel**  
Freelance IT writer  
[sandra@vogel.com](mailto:sandra@vogel.com)



## HOW TO CAPTURE THE ATTENTION OF GEN Z

Marketers are going to need a new strategy to fully capture the attention of generation Z (estimated to be those born between 1995 and 2009).

Analyst Gartner says gen Z consumers are truly children of the digital age, having grown up with computing and smartphones. They are 'digital natives', but are not wedded to the internet and social media use. With two thirds of marketing spend allocated to digital channels to target this audience, marketing specialists need to think carefully about how they reach out to this group.

Gartner identifies two critical areas on which marketers need to focus. First, gen Z consumers are interested in building a personal brand and are energised by

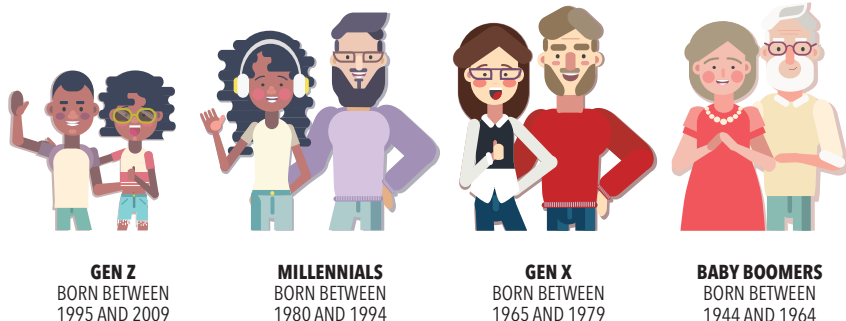
engagement on social media, such as likes on Facebook. To build a personal brand they need to share interesting stuff that fits with their personality. Effective marketing needs to help gen Z with personal brand building, rather than being openly about self-brand building.

Second, marketers need to understand the personal values of gen Z individuals and play to them. Gartner says these values include identity, creativity, passion, tenacity and expertise, and says gen Z people seem to be more serious than fun-loving, and expect brands to engage with social issues.

All of this might seem like food for thought purely for big high street brands. But even the humble accountancy practice should find something to chew over here.

### WHO IS GENERATION Z?

LIKE PREVIOUS CATEGORISATIONS BEFORE IT, GEN Z REFERS TO PEOPLE BORN WITHIN A SPECIFIC TIME PERIOD

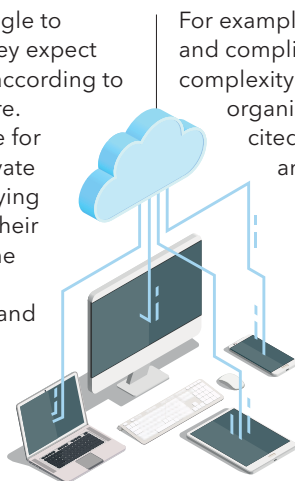


## EXPECTING TOO MUCH FROM THE CLOUD?

Large enterprises struggle to achieve the benefits they expect from cloud migration, according to research from Accenture.

The situation is worse for enterprises using a private cloud, with just 28% saying that they fully achieve their expected outcomes. The figure is 42% and 38% respectively for public and hybrid clouds.

There appear to be some common causes for failure to achieve expected benefits.



For example, 65% cited security and compliance risk, 55% said complexity of business and organisational change, 43% cited legacy infrastructure and/or application sprawl, and 42% indicated a lack of cloud skills within the organisation.

The report, *Perspectives on Cloud Outcomes: Expectation vs. Reality*, can be downloaded at [tinyurl.com/CH-ExVsReality](http://tinyurl.com/CH-ExVsReality)

## TWO THIRDS OF COMPANIES STRUGGLE TO FILL DIGITAL ROLES



Companies in the UK are losing out on £63bn a year due to difficulties in filling digital roles and the problem is set to get worse, according to research from the Confederation of British Industry and Tata Consultancy Services.

The report, which surveyed 250 businesses, found that 67% of companies across the UK had unfilled digital vacancies. However, 31% were confident that they would be able to access the digital skills they need in the next three to five years.

Approximately 60% of larger firms said their digital skills needs were set to skyrocket, while 69% of smaller businesses said their needs were likely to peak over the next year or two.

The report proposes five core actions businesses can take to strengthen their digital skills ecosystem:

- start with crafting a long-term digital vision;
- make digital skills a company-wide initiative;
- look to collaborate externally, for example with the supply chain or local SMEs;
- inspire and support the next generation by extending relationships with education providers and using apprenticeships as a route into digital roles; and
- harness existing talent by looking for hidden skills within the workforce and retraining at work.

The report also calls on government to:

- ramp up co-ordination of regional digital skills initiatives and better link local digital skills demand and supply;
- build digital understanding into all government retraining schemes - and include targeted support for software engineering and data analytics skills; and
- set an ambitious goal for 100% of the workforce to have basic digital skills by 2025.

The report, *Delivering Skills for the New Economy*, can be downloaded at [tinyurl.com/CH-DeliverSkills](http://tinyurl.com/CH-DeliverSkills)



# The time is now

\*50% are not yet ready for MTD for VAT

How will you support digital record keeping, returns and links?  
What will replace your existing VAT Business Tax Account? Are you considering a basic spreadsheet solution that doesn't provide drill down data? Is there a better way to comply?

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- A simulation environment to file submissions before signing up
- An MTD portal that tracks obligations, payments and liabilities for VAT and provides alerts on future MTD obligations
- A simple path to compliance to meet the digital links requirement
- Dedicated Access Rights to protect data integrity and ensure accuracy
- Future compliance with other taxes eg MTD for corporation tax

Call us now on **01784 777 700**

\* A Tax Professionals Survey 2019: Attitudes and approaches to Making Tax Digital



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JESSICA PILLOW

I recently took my Pillow May team on a team development tour to Cambodia for the finale of our firm's 10th birthday celebrations.

Throughout the year we ran a fundraising target for the charity Free To Shine, accessed through Buy1Give1. The main event was a charity barn dance, which raised enough funds to put a girl through school for the entirety of her educational career in rural Cambodia. This will prevent her from being trafficked into the sex trade, as she is safe while supervised at school.

During the late 1970s, the Khmer Rouge regime inflicted serious damage to the Cambodian economy as 25% of the Cambodian population, particularly the skilled middle classes, were wiped out due to execution, starvation, disease and exhaustion. This has hindered the subsequent development of Cambodia, something Free To Shine is working hard to promote through educating and supporting girls from disadvantaged families to build a better future.

### CAMBODIA TRANSFORMED

While on our tour, we noticed how technology is starting to improve conditions in Cambodia and allow it to develop at a faster rate.

We saw solar panels mounted on huts and boat roofs, providing electricity in rural places, such as the floating villages of Cambodia's central lakes. This, combined with mobile phones, may in time allow the younger generation to access secondary school classes remotely to get a better standard of education. They should then be able to earn more money to improve the living conditions of their families. There are currently only primary schools in the floating villages and, as a result, education stops at Year 5.

The use of apps for booking transport such as buses and tuk-tuks was also

## GOING BEYOND THE PRACTICE

Giving something back doesn't have to stop with charitable donations, as our firm found out on a trip to Cambodia

notable. The apps make the Cambodian transport system more accessible and safe for tourists, which will help build the economy; tourism provided around 12% of Cambodia's GDP in 2018. For the tuk-tuk drivers, the apps not only create additional business but teach them map reading skills, help them manage their business records (by recording income and mileage), and stop them needing to tout for business on street corners.

Singaporean corporations are donating second-hand laptops to schools in Cambodia, enabling children to learn IT skills that will give them the necessary skills to make the most of new technological advancements.

Websites are promoting the projects of rural communities, such as those from the Husk community ([tinyurl.com/CH-HuskBags](http://tinyurl.com/CH-HuskBags)), which produces handmade bags, ordered in bulk by corporations for their promotional activities. This allows the rural projects to reach a global market and get a better price for their product.

### HELPING OUT

We spent a day experiencing village life in Cambodia, helping make palm leaf panels that are used for building many of the local houses. This is a typical role for women as the work is paid piecemeal and can therefore be done flexibly alongside looking after children. However, it is very poorly paid at only \$3 for 100 panels. We spent around an hour working on the panels and only managed to make 21 between six of us!

It got us thinking that bookkeeping is also a role that can be paid piecemeal, and done flexibly, with sufficient training, and is much better paid. Pillow May, therefore, has a new purpose for its next 20 years: to help build accountancy careers for women in Cambodia.

We will do this by working with ICAEW and KICPAA, the Cambodian chartered accountancy association, to introduce cloud accounting into the new accountancy qualification they are currently developing. We will then work with Khmer female accountants to help them share their knowledge of cloud accounting and its benefits with others in their communities.

Additionally, we will help Free to Shine promote accountancy as a career for the girls they support through education. We also aim to build outsourcing opportunities for Khmer accountants with western businesses, similar to schemes in India and the Philippines.

We hope that our efforts will help Cambodian women gradually improve their living conditions and reduce corruption through better financial records so Cambodia can develop its economy even further. ●

**Jessica Pillow, managing director,  
Pillow May chartered accountants**





# WORKING TOGETHER

Increased sharing of data from online banking with other business software and services can benefit accountants and their clients

Getting bank transaction data into bookkeeping and accounting systems used to mean manual data entry, transaction coding and reconciliation. Now cloud bookkeeping and accounting systems, such as Xero and Intuit QuickBooks, automate secure bank transaction imports and use machine learning in their coding and reconciliation.

Although some banks still don't make data sharing as easy as they could, it has never been easier to access the bank account transaction data of customers (with their permission) and use it in third-party software and services – particularly when the banks and data are within the European Economic Area.

## **BETTER PRODUCTS AND SERVICES**

Since January 2018, EU legislation and the UK's open banking initiative have required banks to make customers' online account, transaction, product and reference data available to authorised third parties such as credit reference agencies, cloud bookkeeping platforms and other fintechs.

This should open up the banking market, attract new players and enable improved products and services that better meet customer needs. A wave

of app-based offerings to help people better manage their finances is already being seen (see *App happy*, opposite).

"Consumers are gradually being offered products and services that will securely help them move, manage and make more of their money," says Imran Gulamhuseinwala, partner at EY and trustee at the Open Banking Implementation Entity. He also advocates more support for small business efforts to "boost profit, performance and productivity".

So far, many of the new services are aimed at personal consumers. But open banking has also enabled developments such as Coconut and Countingup, which offer small businesses mobile access to unified online current account and credit card facilities with bookkeeping and accounting functionality.

## **ACCOUNTING MEETS BANKING**

Tim Fouracre, founder of Countingup and former CEO of online accounting software Clear Books, says: "Bringing together the what and why of business means that accounting records are created automatically in real time and they are accurate, because the banking records are the accounting records and vice versa. This

saves accountants loads of time," he says.

Some practitioners still have to deal with the numerous clunky and inefficient ways that small businesses manage bookkeeping and banking. Some clients email all of their record keeping for this to their accountant just once a year.

The more accurate, real-time accounting and bank data that businesses and their accountants share access to, the better. As well as saving time, this makes it easier to automate compliance and develop value-adding services; whether accountants are using that data (and its analysis) to provide services, or enabling third parties to.

### POOLING DATA

Open banking seems likely to lead to more data sharing arrangements, such as those that have been in place for years between cloud bookkeeping platforms and providers of business finance services to support cash flow and more informed decisions around credit, invoice finance, investments and overdrafts.

Xero has had integrations with iwoca - an online fintech company - and MarketInvoice since 2017. "Allowing businesses to integrate directly with Xero ensures a fast set up, credit decisions and a smooth process to manage ongoing funding drawdowns," explains Anil Stocker, co-founder and CEO of MarketInvoice.

Ed Molyneux, founder and CEO of FreeAgent, which has been sharing data with iwoca since 2013, notes how this can be the basis of proactive alerts in scenarios where businesses may need funding, such as a looming VAT bill shortfall. "Sometimes we can direct people to a solution or service before they know they have problem," he says.

"Open banking makes it more convenient to get the data and we can do much more in the way of automaton and build more machine learning tools to analyse those transactions," says Molyneux. Combined with increasing automation of bookkeeping and compliance this may seem like a recipe for replacing accountants with software.

"There is a difference between your job being automated and aspects of your job being automated," says Molyneux, who says the latter is an opportunity for accountants to move up the value chain. "There are lots of things you could be helping clients with if you have permission to use their data," he says, adding: "This is good news for accountants." ●

**"Consumers are gradually being offered products and services that will securely help them move, manage and make more of their money"**



### APP HAPPY

Now people can give permission for banks and other financial service providers to share account and transaction data with other service providers, they can use this to help people better manage their money. Software doing this includes:



**Bean** enables users to compare deals on their household bills, cancel unwanted subscriptions, and track payments across multiple accounts from a single dashboard.



**Chip** uses an algorithm to analyse a person's spending, works out how much they can afford to save, then regularly moves it into their savings.



**Countingup** enables automation of bookkeeping and invoicing, and unifies this with

client banking, all in one place. Automated receipt scanning and tax calculation and filing are in the pipeline.



### Credit Kudos

analyses an individual's financial data to assess their behaviour, demonstrate their credit worthiness and work out whether they are eligible for various financial services.



### Moneybox

helps users invest spare cash. It rounds up small digital payments (such as £2.75 for coffee), and uses the cumulative extra pence (25p in this case) to invest in, for example, a lifetime ISA or stocks and shares.



### Trussle

helps property buyers and owners to find or switch to the best mortgage. It monitors factors such as property value and early departure fees, then sends carefully timed alerts.

### THE ROAD TO OPEN BANKING

For more than a decade the EU has been working to create a Digital Single Market ([tinyurl.com/CH-DigitalSingleMarket](https://tinyurl.com/CH-DigitalSingleMarket)). The Payment Services Directive 2 (PSD2) helps to enable this by creating a common legal framework and unified payment area to simplify and standardise payments and payment rates for electronic transactions.

In parallel, the Competition and Markets Authority (CMA) investigated and imposed measures on the UK's nine largest banks and building societies, designed to improve choice, transparency and products. They must provide authorised third parties with:

- standardised product and reference data; and

- secure access to read the transaction data and initiate payments for accounts that can be accessed online and by mobile.

Banks are sharing the required data through Application Programming Interfaces, which specify how software components interact and exchange data. To assist, the CMA set up the Open Banking Implementation Entity (OBIE).

PSD2 also supports this open data sharing and gives customers the right to use Payment Initiation Service Providers and Account Information Service Providers, authorised in the UK by the Financial Conduct Authority.

Information on PSD2 and the UK Open Banking project are at [tinyurl.com/CH-UKF-PSD2](https://tinyurl.com/CH-UKF-PSD2) OBIE is at [openbanking.org.uk](https://openbanking.org.uk)



Caba, the ICAEW charity, exists to provide lifelong support to ACAs and their families. This covers everything from emotional and financial support, to legal advice and assistance for overseas relocation. Caba's services also extend to continuing professional development (CPD). A range of sessions focusing on resilience and other wellbeing strategies has recently been developed and delivered by highly trained practitioners.

"Stress and resilience in particular are recurring subjects in the enquiries we get from members," says Jayne Hill, marketing assistant at Caba. "Sessions can be held at individual firms for the benefit of their employees or put on for members of local district societies."

Seminars last 30 minutes to an hour and are mostly delivered as a component of a conference, event or team meeting. Workshops are more flexible and can last between 90 minutes and a full day. Workshops are aimed at groups of 12 to 30 people.

Opposite is a list of sessions that organisations can currently book, lasting for between 90 minutes and a full day.

## A LITTLE 'YOU' TIME

With a busy firm, it can be easy to neglect soft skills development. That's why ICAEW's support service Caba should be your first port of call for CPD training

### BOOST YOUR RESILIENCE

Explore how individuals can maximise their resilience in order to work to their full potential. Create an individual plan to help people cope more effectively with setbacks and challenges both in and outside the workplace.

### MINDFULNESS FOR BUSY PEOPLE

An introduction to tools and techniques designed especially with busy professionals in mind. Learning outcomes include defining what mindfulness is and deploying new ways to deal with 'busyness'.

### IMPROVE YOUR LIFE BALANCE

Attendees explore how to make the most of the time and energy available each day, using specific techniques. Learning outcomes include being more assertive and beating procrastination.

### MANAGE CHANGE EFFECTIVELY

Looking at how we react to change and how this in turn shapes wellbeing. Attendees discuss how to accept or adjust to change and be open to new opportunities.

### FOR INDIVIDUALS

Individuals can also tap into Caba's CPD and wellness resources, including the 'Boost your resilience' and 'Mindfulness for busy people' sessions outlined above. These can be booked as e-learning sessions.

In addition, there is access to career coaching, with planning tools to develop your own brand and extend your skills. Advice on exercise, sleep and eating healthily, along with access to counselling, can be found at [tinyurl.com/CH-feelgood](http://tinyurl.com/CH-feelgood) and [tinyurl.com/CH-MeTime](http://tinyurl.com/CH-MeTime). Keep track of future opportunities via [tinyurl.com/CH-Caba](http://tinyurl.com/CH-Caba), and download a workshop catalogue at [tinyurl.com/CH-CabaCatalogue](http://tinyurl.com/CH-CabaCatalogue) ●

*Partners of ICAEW members and their dependent children under 25 are eligible to use Caba's services.*



### SPECIALIST SESSIONS

#### The road ahead: deal with transition and manage resilience

- 90 minutes, two hours, three hours
- Suitable for ACA students
- A workshop exploring strategies to help people cope with moving forward. Learning outcomes include developing drive and direction, and building resilience.

#### Leading resilient teams

- 90 minutes, two hours, three hours, full day
- Suitable for managers and leaders
- A workshop outlining the benefits of tackling stress. Senior professionals are taught to develop the skills and confidence necessary to enable proactive and effective stress management within their teams. Learning outcomes include being able to identify the early signs of stress and developing an effective leadership style to manage a team and increase resilience.

#### ★ NEW ★

#### Better people management

- Three hours
- Suitable for those who directly or indirectly manage people.

A workshop providing the opportunity to consider how different management styles affect the people being managed. Individuals will develop the skills needed to delegate confidently, give valuable instructions and provide constructive feedback.





# MAKING TAX DIGITAL: THE BIG DATA BENEFITS

As businesses migrate their tax reporting online, we take a look at the additional advantages of going digital



With Making Tax Digital (MTD) now live, many businesses will have made the move on to a digital platform. Compliance should, however, be just the start of the digital journey.

The solutions available will facilitate the simplification or automation of processes, saving time, reducing mistakes, and making accounting and tax reporting more efficient.

Efficiency and accuracy are only part of the equation. The real benefits of digitalisation come from the insights that can be achieved from the data.

The benefits of key performance indicator (KPI) monitoring to either drive growth or increase profits through cost reduction are well understood. But manual or legacy systems meant that KPIs were difficult to assess, were not reported quickly and the lack of transparency in the system meant that the information was typically constrained to the finance team. Cloud accounting facilitates multiple users who can be given access to discreet aspects of the system.

In my experience, once businesses convert onto a digital platform, they immediately appreciate the transparency

of the data. This in turn creates a drive to improve the financial metrics and a willingness to further develop the system to achieve greater insight beyond the more straightforward financial KPIs.

While software such as Xero or Quickbooks may sit at the centre, it is now possible for businesses to build an effective enterprise resource planning system using connected apps, something that was previously only available to larger businesses deploying sophisticated, expensive systems.

## VARIETY IS THE SPICE OF LIFE

New apps are being developed daily to enable a range of services including efficient processing, customer relationship management, credit control, cash flow forecasting, invoice finance, receiving payments, e-commerce, HR, point of sale, stock control and reporting tools. In the latter category alone there are currently over 80 apps available in the Xero Marketplace.

This means there are more ways than ever to analyse and visualise data enabling users to quickly understand the key dynamics within their area of the business. Sales people not only have greater access to customer sales data

which allows them to consider where they can take advantage of pipeline opportunities, but they also have access to real-time production costs so that they can give customers informed sales prices to ensure margins and profitability can be achieved. The finance team too can analyse performance and profitability by product, geography and customers.

The most successful businesses will embrace the digital revolution and the insights that it can bring but advisers also need to transition their service offering to be one of assisting clients with their digital journey and using their expertise to provide the interpretation and recommended actions to deliver business improvement. Big data really can provide big opportunities for businesses. ●



**Ewan Bolt,**  
head of digital  
solutions, Johnston  
Carmichael





# TECH IN THE MID-MARKET

Industry experts discuss how mid-market businesses can embrace technology to enhance their offering

## Outlining the findings from the Mid-Market Tech Forum, head of the Tech Faculty **Richard Anning** looks at how firms are using tech and what they could do to improve



How are firms actually using tech? This is one of the most-asked questions in the faculty, driven to a large extent by fear of missing out (or, #FOMO). Blogs and newswires are full of how technology is taking over the world and driving out swathes of accounting tasks.

The issue is compounded in the mid-market. It is generally acknowledged that the Big Four are pulling away at the top, with their deep pockets and substantial investments in new tech, and that smaller, more nimble firms will increasingly be served by a range of cheaper, third-party solutions.

But the mid-market is in the difficult position of being challenged at both ends of the market and having to respond to pressures from clients to adopt new technology, but at a price point that is acceptable to them. The current concerns around audit reform only serve to turn up the pressure.

### MID-MARKET TECH FORUM

In order to get a fuller picture of what is happening in the mid-market, we issued an open invitation to firms operating in that segment to share their views and learn from each other, at what has since come to be known as the Mid-Market Tech Forum.

Consisting of some 20 firms (a number that is growing), and joined by the National Audit Office and Financial Reporting Council, the forum is for discussing and showcasing innovation.

The idea was sparked at an event with MindBridge Ai, a supplier of audit solutions using artificial intelligence (AI). MindBridge outlines how it sees AI affecting the sector overleaf. An early supporter of the initiative was MHA Macintyre Hudson. Firm partner and forum member, Andrew Moyser, gives his views and some great examples on how data analytics is affecting his firm.

### WHAT HAVE WE LEARNED SO FAR?

Discussions at the forum have been free flowing with a generous sharing of thoughts and ideas. Some of the findings are:

- Expectation gap - there was a feeling that clients are perhaps expecting more due to the amount of material out there on how AI and data analytics is taking over the world, when perhaps it isn't!
- Access to data - is a major task, with a note that, in the mid-market, even structured data isn't that structured. The issues get more difficult with badly built or unknown data systems, and firms have to rely on their own IT resources for complex cases or obscure data.
- Terms and conditions covering data - it was suggested that companies involve clients as early as possible in the planning process and make sure they understand what the analytics will be used for. It was felt that written terms and conditions covering data extraction would be valuable, but they would not need to be re-signed every year.
- Skills - an increasingly important topic, what level of data literacy do accountants need? Do firms need more data-capable accountants, or more accounting-literate technologists? This discussion will likely run and run, with a view that accountants will not need to become data scientists, but will have to be able to communicate with them at a detail level, as well as interpreting results to the business.
- Culture - what is driving firms to adopt new technologies - improving audit quality or driving down costs? Will clients pay for the new capabilities that are becoming available and what scale do the firms need for the costs to work? Is any value being added yet to the bottom line?
- Regulation - an unofficial regulator's perspective that there is huge interest in this field from companies, auditors and investors was shared. This is part of a sector-wide change and regulation will need to be digital by design.

The forum will continue to meet periodically until the end of the year, when it will review progress and decide whether to carry on meeting in 2020.

Any member of the faculty who is interested in learning more, receiving notes from the meeting or joining the forum can mail [techfac@icaew.com](mailto:techfac@icaew.com)

## Andrew Moyser of MHA Macintyre Hudson explores the impact of data analytics on the firm and its clients



The advancement of data analytics is an opportunity to rethink your audit approach and the insight that it provides to your staff and clients.

As the regulatory landscape continues to come under scrutiny, how work is executed and the tools that support this are of increasing importance.

### HOW CAN DATA ANALYTICS CHANGE YOUR APPROACH?

Examples of how this has changed our approach include:

- visualisation of our understanding of seasonality, true gross margins and expenditure fluctuations on a monthly or even daily breakdown;
- presenting data in graphical/pictorial formats, such as dashboards, enables auditors and clients to grasp difficult concepts and identify new or unexpected patterns more easily; and
- identification of unusual transactions more quickly through multiple tests highlights outliers within the data.

Data analytics in tendering is a key element of differentiation. Allowing prospects to understand their own data from a visual perspective demonstrates our capabilities and identifies opportunities and risks. Our approach provides greater confidence in our level of working and helps differentiate between audit firm offerings.

### HOW DOES DATA ANALYTICS PROVIDE A RETURN ON INVESTMENT?

Data analytics provides clients and staff with time savings as well as documenting any delays that impact upon audit profitability. It also presents an opportunity to provide a wider range of services:

- extended audit reviews;
- granular analysis of transactions offers an opportunity to identify risks and advise clients across complex VAT matters;
- issues with system integration or application are highlighted through detailed transactional analysis;



- better use of dashboard technology in delivering services creates the demand for better internal management information reporting;
- data analysis identifies weakness in data input or review for improved policy and governance; and
- detailed transactional analysis highlights control weaknesses or process inefficiency.

Data analytics results in greater staff engagement, increased morale and reduced staff turnover. Less time needs to be spent performing data input tasks, managing engagements and chasing clients, allowing more time to be spent with clients discussing their business.

**WHAT IMPACT DOES DATA ANALYTICS HAVE ON THE FIRM?**

Feedback indicates an improved enthusiasm and that the visual approach to auditing is refreshing and enjoyable. Data analytics allows auditors to spend more time interpreting business information. The more flexible and efficient approach reduces travel time, working out of the office and overtime requirements.

Data analytics ensures effective exchange of information between clients and different service lines. For example, information can be exchanged between colleagues performing audit work, accounts preparation and corporation tax compliance. Clients are only asked for information once, versions are controlled and the time spent by colleagues transferring information is reduced.

The use of intuitive technology on smartphones and tablets is part of their everyday life. Our data analytics approach makes our offering more attractive to new graduates, helping us secure more talented new recruits who will differentiate our firm.

**Data analytics allows auditors to spend less time performing data entry and more time interpreting business information**

In its quest to make artificial intelligence accessible to everyone, **MindBridge Ai** is breaking down the barriers to entry for accountants

While the UK audit market is under intense scrutiny - exemplified by Sir John Kingman's review of the Financial Reporting Council and the Independent Review into the Quality and Effectiveness of the UK Audit Market led by Sir Donald Brydon - most publicised solutions limit their focus to the dominance of the Big Four.

The role of technology has been underplayed, but as an AI firm MindBridge Ai aims to change the game. "We've found that many firms in the UK and beyond are now using AI to revolutionise the audit process, and delivering more transparent, accurate and value-added engagements," said John Bednarek, business development, marketing and sales growth operations executive at MindBridge.

While the UK is at the top of the world for audit quality, and has significant influence over international auditing standards, MindBridge believes the Big Four firms are not as far ahead as many believe. It developed its Ai Auditor to bring sophisticated AI and machine learning techniques to firms of all sizes, without the need for specialised data science or programming skills. Unlike traditional statistical sampling methods, AI uncovers anomalies across all data by examining 100% of the client's records to categorise transactions from low to high risk.

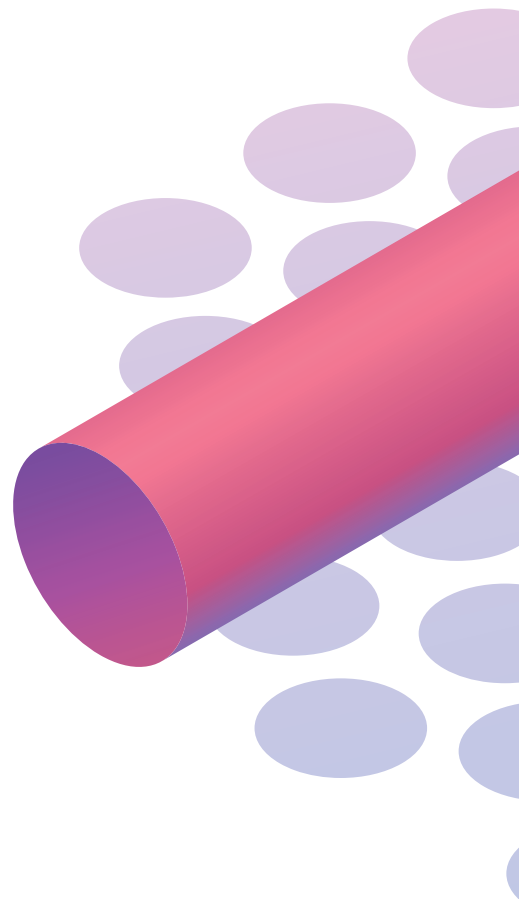
"We've developed a series of algorithms, called control points, that can be as simple as decision rules or as sophisticated as the latest AI and machine learning techniques can give us," explained Bednarek. "This included interviewing leading auditors and accounting experts to tell us what to look for, and we built these algorithms based on their input."

The technology allows firms to offer a level of enhanced analytics and insight that matches and sometimes exceeds what much larger firms can provide, without replacing the role of the auditor. Rather, AI works alongside people,

automating large and mundane tasks, and assisting with decision-making when the data set is too large or complex to understand. By allowing AI to perform the labour-intensive data analysis, professionals are freed up to focus on the consultative and advisory parts of engagements that clients would rather pay for.

MindBridge is committed to human-centric and explainable AI, to ensure that all results are understandable and minimise adoption barriers with both firms and people.

"We call this the democratisation of AI, meaning every accountant can use Ai Auditor without needing a specialist," says Bednarek. "There is a lot of talk out there about competitors trying to put machine learning and AI into their products, but we haven't seen that yet. We want to empower everyone to use AI - and many of our clients do - right out of the box." ●



# GETTING TO GRIPS WITH TECH ETHICS

**Kirstin Gillon** outlines the Tech Faculty's latest report on new technologies, ethics and accountability

Ethics has become a hot topic in tech in the last year or two, and it isn't hard to see why. The Cambridge Analytica scandal, reports of bias in recruitment, financial services and public sector algorithms, and concerns about the use of facial recognition are just a few examples of the issues resulting from growing use of data, algorithms, artificial intelligence (AI) and social media.

This is resulting in harm to people in the real world, as well as reducing trust and confidence in business use of tech or tech-centred business models. So getting to grips with these issues is vital if we are to protect people and maximise the potential benefits from technology.

Ethics and accountability are key building blocks to increasing trust and confidence. Ethics is all about doing the right thing and therefore helps us develop and use tech in ways that align with our moral values, as well as resolve conflicts between different groups, interests or rights. There are lots of frameworks that are emerging in the tech ethics field and, broadly speaking, they incorporate core values of doing good with technology (beneficence), doing no harm (non-maleficence), justice or fairness, autonomy and privacy.

However, ethics only gets us so far. 'Ethics washing' is a common criticism of tech ethics in practice - effectively describing it as a pure PR activity. When Google's Ethics Advisory Board was disbanded within a week of being announced, it was hard to see how the large tech companies were taking it seriously. Ethics needs to be backed up by robust accountability for people across businesses with consequences in place where ethics is being disregarded. This plays a critical role in making sure that companies are delivering on what they say, and turning good intentions into meaningful actions.

Furthermore, without a strong focus on accountability, there is a risk that regulation becomes seen as the only response. There is a clear role for regulators in setting red lines and providing the right incentives for particular



actions. However, good regulation is also difficult, given the pace of change, and regulators can't be relied on to have all the answers.

## CHALLENGES AND OPPORTUNITIES

So, what does all this mean for accountants? To start with, accountants have a strong code of ethics and related accountabilities, and the profession needs to ensure that these remain relevant and robust in a digital world, updating them where needed. Growing reliance on complex algorithms raises particular questions around competence and explaining professional judgements, for example.

But accountants are also well-placed to help businesses get to grips with some of these new challenges. Board members can ask challenging questions about the ethics of new business models, or who is accountable for decisions made by algorithms. There are also opportunities for auditors to develop new assurance services around algorithms and AI in particular.

ICAEW is doing a wide range of work in this area, looking at ethical use of big data in financial services, assurance of new technologies and challenges for the ethics code. The Tech Faculty's publication, *New technologies, ethics and accountability*, provides an overarching framework for this work, and the key themes will be explored in September at our Tech Faculty lecture. ●



**Kirstin Gillon**,  
technical  
manager,  
Tech Faculty



## TIME AND RELATIVE DIMENSION IN SUMMARY

**Simon Hurst** breaks down how data analysis expressions work and what they can achieve

As we have mentioned before, it's probably no longer correct to think of Excel as a spreadsheet. It is now a spreadsheet/database hybrid with data manipulation and presentation features being the focus of the majority of recent enhancements and developments. One consequence of this is that the range of functions that were designed to work with cell-based content and calculation are no longer adequate to cope with the type of operations that the data analysis features require Excel to support.

Accordingly, Excel now includes two additional sets of calculation capabilities. Power Query/Get & Transform has its own 'M' language for working with data, including performing row-by-row calculations on tables. However, in this short series of articles, we are going to look at the other data-based calculation feature, Data Analysis Expressions (DAX).

DAX is used within the Power Pivot add-in and as part of the modelling

section of Power BI. DAX can be used for row-by-row calculations but is perhaps most powerful when used to add Measures to the presentation and visualisation of data.

This first article seeks to explain how DAX works as the foundation for further exploration of what DAX can achieve in part two.

### AN EXCEL FUNCTION BY ANY OTHER NAME?

There is some good news to start with: many DAX functions are the same as their Excel equivalents. For example, DAY(), MONTH() and YEAR() can all be used to extract part of a complete date using the same syntax as a cell-based Excel formula. Here we can see the use of the three functions entered as row formulae in the Power Pivot window (Figure 1).

### FUNCTIONS WITH ADDED DIMENSIONS

While the three functions discussed above work like normal Excel functions and accept an argument that returns a single value, just like a reference to a single Excel cell, the real power of DAX comes from the ability of many DAX functions to encapsulate entire tables of data within the function.

In the following example, we are calculating the most recent orders that each of our salespeople is responsible for, using a row formula in the Employees table. To do this, we type a formula in the column adjacent to our existing columns to create a new, calculated column. We need to apply a 'max' calculation to a list of all the order dates in the Orders table for each employee. We do this by first creating a table of all the rows in the Orders table, where the Orders table EmployeeID matches the EmployeeID of the row in our Employees table. We then extract the OrderDates column from this table to create a list of all order dates for each employee. The max calculation then returns a single value from that list. The actual formula is:

```
=MAXX(RELATEDTABLE(Orders),Orders[OrderDate])
```

Unlike MAX() the MAXX() function allows us to use a table and an expression as the function arguments. We use the RELATEDTABLE() DAX function to return all the rows in the entire Orders table according to the database join on EmployeeID for each row of our Employees table. We then extract the single OrderDate column from this table for MAXX() to use to



return the highest value (Figure 2).

We can use a PivotTable to demonstrate the way in which this DAX formula works in detail. If we create a PivotTable based on the Power Pivot data model and add Employee LastName as the row label and OrderDate as the Value, we can then set the Summarize Values By option to Max, to get the same results as our DAX formula, but displayed as a PivotTable. If we double-click on the Buchanan value for example, we can create a visualisation of the inner workings of our formula. We see the table that RELATEDTABLE() returns for the Buchanan row, the OrderDate column that is extracted by the second argument of MAXX() and, by sorting Newest to Oldest, confirm the most recent order date that MAXX() returns (Figure 3).

Within the DAX formula, this all goes on in the background, resulting in the return of the single value that we require.

In order to demonstrate the difference between normal Excel formulae and DAX, we created a row formula within a table in the Power Pivot window. The real power of DAX is probably not its use in this way, but rather the ability to create additional measures within PivotTables directly. In the next part of this series of articles we will look at some of the advantages of using measures and what they can add to the capabilities of PivotTables for presenting data. ●

	[DateYear]	fx =YEAR(Orders[OrderDate])			
	OrderDate	DateDay	DateMonth	DateYear	Add Column
1	05/07/2010 0...	5	7	2010	
2	19/07/2010 0...	19	7	2010	
3	29/07/2010 0...	29	7	2010	
4	05/08/2010 0...	5	8	2010	
5	09/08/2010 0...	9	8	2010	
6	13/08/2010 0...	13	8	2010	
7	19/08/2010 0...	19	8	2010	
8	20/08/2010 0...	20	8	2010	
9	21/08/2010 0...	21	8	2010	
10	09/09/2010 0...	9	9	2010	
11	23/09/2010 0...	23	9	2010	
12	24/09/2010 0...	24	9	2010	
13	07/10/2010 0...	7	10	2010	

Figure 1

	Extension	Photo	Notes	ReportsTo	LastName	Most recent order	Add Column
1	857	5467	EmpID1....	Education inclu...	2 Davolio	06/05/2012 00:00:00	
2	482	3457	EmpID2....	Andrew receive...	Fuller	05/05/2012 00:00:00	
3	412	3355	EmpID3....	Janet has a BS d...	2 Leverling	30/04/2012 00:00:00	
4	122	5176	EmpID4....	Margaret holds ...	2 Peacock	06/05/2012 00:00:00	
5	48	3453	EmpID5....	Steven Buchana...	2 Buchanan	22/04/2012 00:00:00	
6	73	428	EmpID6....	Michael is a gra...	5 Suyama	23/04/2012 00:00:00	
7	98	465	EmpID7....	Robert King ser...	5 King	06/05/2012 00:00:00	
8	189	2344	EmpID8....	Laura received ...	2 Callahan	06/05/2012 00:00:00	
9	44	452	EmpID9....	Anne has a BA d...	5 Dodsworth	29/04/2012 00:00:00	

Figure 2

EmployeeID	LastName	Title	Address	City	State	Country	PostalCode	HomePhone	Extension	MobilePhone	Photo	Notes
1	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			
2	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			
3	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			
4	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			
5	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			
6	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			
7	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			
8	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			
9	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			
10	FRANK	SALES	7020 First Ave	Seattle	WA	USA	98105	206 555 3447	3447			

Figure 3

**OTHER OFFICE TIPS**

The Excel Community site includes many articles on Excel and other Office software. There is also a forum where you can ask, and answer, questions on a wide range of Excel issues at [tinyurl.com/CH-ExcelForum](http://tinyurl.com/CH-ExcelForum)

Our Tech News site includes articles of more general interest. It too has a forum at [tinyurl.com/CH-TechNewsBlog](http://tinyurl.com/CH-TechNewsBlog)

Both are available for free to Tech Faculty members.

Simon Hurst's book, *Essential Excel for Accountants (and others)*, is available as a PDF at [tinyurl.com/CH-TKBBBooks](http://tinyurl.com/CH-TKBBBooks)

He has also included many useful Excel tips in the Lunchtime Learning section of his website, [tinyurl.com/CH-ExcelTips](http://tinyurl.com/CH-ExcelTips)



LEO WALDOCK

Security company Ring has experienced a meteoric rise since its founder Jamie Siminoff appeared on *Shark Tank* in 2013 (The US's answer to *Dragons' Den*) looking for investment in his company Doorbot.

The original idea was simple enough: a webcam, microphone and speaker with internet connectivity placed within a doorbell. When a visitor pressed the button they would hear the usual tuneful bing bong, essentially starting a voice over internet protocol (VoIP) call with the householder, who could use the camera to check out their visitor.

The selling point here is that the visitor has no idea whether the householder is home, at work or on the other side of the planet, which helps to deter opportunistic burglars. There are also benefits for those who don't want to get out of bed for door-to-door sellers of paved driveways.

Over the next few years, Doorbot became Ring Inc, updated its security system extensively and added a host of other products to create a whole security ecosystem. In 2018, Ring was bought by Amazon for more than \$1bn.

As this column focuses on security, you might expect me to dwell on reports that Ring stored video footage from its customers' cameras in the Cloud but didn't bother to use encryption. Or perhaps reports that Ring allowed its developers to access videos so they could check the system was working, and some employees used this function as an Orwellian TV system. Hopefully, its new owners have dealt with these issues.

If Amazon achieves great success with Ring then a large number of properties in the US and elsewhere will have their security cameras connected to a network that will make CCTV in city centres look trivial. Add the Alexa voice control microphones you find in various devices and you can easily imagine a vast, global monitoring system controlled by Amazon.

## TV'S NEWEST STAR: YOUR DOORBELL

Home technology is not only changing where we live, but the privacy issues we deal with

**The ideal scenario for Amazon would seem to be a gang of meth cooks who are foolish enough to use Amazon hardware in their place of business**

Your thoughts may be turning to how Amazon will use this system to secure your home while also selling you products. However the company is looking much further down this particular road. It is recruiting a 'Managing Editor, News' who will work on breaking crime news at Ring. Not a 'Police Liaison Officer' or 'Tactical Response', but News.

America invented reality TV in 1989 with *Cops*, which follows police teams as they knock down doors and arrest bad guys. Amazon has the potential to create *Cops 2*, where they show criminals arriving at their target, then switch to the Ring door camera as they approach the house before moving to devices inside.

The ideal scenario for Amazon would seem to be a gang of meth cooks who are foolish enough to use Amazon hardware in their place of business. This would mean we see video of them at work before the police arrive to arrest them all. Add in video from Ring cameras across the street and perhaps from an Amazon drone or two and you have a fully-fledged crime drama without the need for a single camera operator.

There are obvious questions that arise about privacy, permission and informed consent, and it takes little imagination to see the conflict. On one hand, why would anyone want their own equipment used to make a TV show about their personal misery? On the other hand, we can be confident that Amazon has drafted 'Click to Proceed' end-user license agreements that give them all the authority they require to treat the US like its very own *Truman Show*.

Amazon owns a TV delivery service, which means it can easily deliver Ring News. However, you have to think the first privacy litigation could commence about 10 minutes after the show goes to air. ●

Leo Waldock, freelance IT writer

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