

Key Technology Trends and their Impact on the Accountancy Profession



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Digital technology is transforming businesses and disrupting various industries, including accountancy. This disruption presents great opportunities for the accountancy profession to deliver more value to businesses through new and enhanced services. By making the most of new technologies, accountants can free up their time from lower value tasks to focus on more complex and advisory work, provide greater insights to improve business decision making and better manage organisational risks. But there are also challenges, especially from the degree and pace of change involved. And, ultimately, if the profession cannot adapt and transform, there are risks that it loses relevance. Read on to know more...



Key Technology Trends

There are many areas of technology that are impacting the accountancy profession. For example, the automation of accounting tasks can be enabled through a variety of technologies, including robotic process automation or through add-on apps to book-keeping systems. Cloud computing has a significant influence, enabling smaller practices and businesses to access a wide range of new capabilities.

When looking at the future, though, ICAEW focuses on four trends that have the greatest potential to

transform the accountancy profession: artificial intelligence, blockchain, cyber security and data.

Artificial Intelligence

Artificial Intelligence (AI) covers a range of technologies that aim to replicate human capabilities such as learning, knowing, sensing, reasoning, creating, achieving goals and generating and understanding language. Recent developments in AI have focused on machine learning techniques, which use algorithms to identify patterns in large data sets in order to learn to classify, cluster or predict things.

Accountants are in the early stages of using AI, but the potential is already clear. Auditors are starting to use machine learning tools to analyse large volumes of transactions and identify anomalies or risky transactions which need further analysis.

Machine learning algorithms are rapidly overtaking human decision-making capabilities in many areas, thanks to these key three features:

- **Large data volumes:** They can process huge amounts of data (structured and unstructured), much more than humans ever could – for example, every piece of financial regulation. This provides a stronger and more powerful basis for learning;
- **Complex and changing patterns:** They can pick up weaker or more complex patterns in data than we can. Therefore, machines may be better in environments that we find less predictable. Where feedback loops can be built into the models, they can also be highly adaptive and learn from errors or new cases; and
- **Consistency:** They can be far more consistent decision-makers. They do not suffer from tiredness or boredom. They also do not exhibit human biases and therefore provide opportunities to reduce both cognitive and socially based biases.

Accountants are in the early stages of using AI, but the potential is already clear. Auditors are starting to use machine learning tools to analyse large volumes of transactions and identify anomalies or risky transactions which need further analysis. Forecasting is another area where accountants are starting to see significant increase in accuracy as a result of AI. As accountants become more familiar with the technology capabilities, many more opportunities will emerge.

Blockchain

Blockchain is the most successful and common implementation of a distributed ledger system. The name blockchain is inherently descriptive of how the technology works – new transactions are gathered together into a block and added to a chain of all previous transactions by a cryptographic process that is complex to perform, but which makes it easy to confirm that the history of all transactions is genuine.

It represents a fundamental change in how financial records are created, kept and updated. For example, there are many copies of a blockchain ledger, and no master copy. All participants have access to a full copy of the ledger and all copies are identical and equivalent. No one party has control over the ledger. New transactions can be posted quickly and will propagate to all participants' copies. Furthermore, with each user having their own copy of

the ledger, truth is determined by consensus. Past transactions cannot be edited without the consent of the majority, meaning that blockchain records are permanent. The entire ledger is stored by each participant and can be inspected and verified.

Blockchain, therefore, has the potential to increase the efficiency of accounting for transactions and assets. It creates a kind of 'universal entry bookkeeping', where a single entry is shared identically and permanently with every participant. This would create certainty over rights and obligations and provenance, which in turn would empower the accountancy profession to expand its scope to record more types of activity than before, and to better understand the economic reality underpinning the transactions recorded.

Cyber Security

Cyber security issues affect businesses of all sizes and across all sectors. The impact of security failures is growing, with consequences including business disruption and reputational damage, as well as greater regulatory scrutiny and fines. Potential threats now come from around the world and can involve organised criminals and corporate spies, as well as disaffected or careless employees. Security weaknesses can be found throughout a supply chain, not just within a single business.

However, cyber security is not something organisations find easy to do well, for a number of reasons. For example, cyber

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risks are constantly evolving at a high pace and in an unpredictable manner. Complex legacy IT environments make it harder to implement good security practices in a timely manner. It is widely recognised that people are the weakest link in cyber security. Yet it is proving difficult to embed behavioural changes, despite years of investment in training and other activities.

The complex nature of cyber risk is a challenge to traditional accountancy approaches towards risk and control. Data breaches should be seen as inevitable, and businesses need to focus more on the detection of breaches, response to incidents and the resilience to keep operating in the face of attacks. Many organisations still conduct only an annual risk review, and this approach should evolve into more continuous activities, such as building intelligence about attackers, looking for realtime evidence of breaches and regularly reviewing how new innovations are impacting on cyber risk. In this sense, good cyber security is as much a way of thinking, and an organisational culture, as it is a series of effective controls.

Data

Accounting tasks are grounded in data. Therefore, improvements in the ability to capture, process, store, analyse, visualise and share data will have particular relevance to how accountants undertake their work. Recent advances in this area are driven by two key trends: big data and data analytics.

There is no single meaning for 'big data', but broadly speaking, it is used to refer to very large amount of data, often coming from new sources, particularly unstructured data such as text and images, and with greater emphasis on speed and real-time data. The term 'data analytics' covers the wide range of tools available to analyse data. As well as identifying correlations, outliers, trends and exceptions, these tools typically enable more focus on granular data analysis and provide easier ways to combine data from multiple sources. They also facilitate more sophisticated modelling, prediction and visualisation.

The shift to full dataset analysis means less reliance on data sampling when undertaking testing procedures. This allows for greater emphasis on spotting patterns, outliers and exceptions, and focusing audit activities on the areas of greatest risk.

These new capabilities in data enable the accountancy profession to gain more insights

from data, develop more predictive and forward-looking information and manage risks more efficiently. Ultimately, this can radically improve decision-making across organisations, providing hard evidence for decisions, and relying less on guess-work and assumptions. These is also an opportunity for accountants to transform their role into a much wider guardianship of data across the whole organisation. However, in practice, many accountants are in the early stages of their use of big data and more advanced analytics, and there are significant opportunities still to be realised.

Impact on Accountants in Practice

New technologies are already resulting in significant changes for many accountants working in practice in the UK. A lot of audit firms are investing substantially in big data and analytics to support new approaches to audit, as well as their other services. The shift to full dataset analysis means less reliance on data sampling when undertaking testing procedures. This allows for greater emphasis on spotting patterns, outliers and exceptions, and focusing audit activities on the areas of greatest risk. The audit process is also being increasingly standardised and automated, leading to greater consistency in quality.

The shift to online, cloud and mobile platforms significantly impacts on the way the accountants interact with others. The ability for both accountant and client to access accounting information on demand typically empowers

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clients and changes the nature of the relationship. Moving online also renders location increasingly irrelevant and accountants can attract clients from anywhere.

These changes are opening up accountancy markets to fresh sources of competition and leading to far greater self-service by clients. Traditional bookkeeping and compliance services are reducing; and the accountant's role is shifting to a more proactive and advisory one, identifying errors and helping clients to understand their financial data or to plan for the future.

Accountants, therefore, need to develop other services if they are to thrive in this world. This is evident in the UK today, with firms of all sizes experiencing competitive pressures – from small innovative cloud-based firms to the massive investment by global firms and the challenges for the mid-tier in keeping up. We also see different business and operating models emerging – more flat-rate fee structures, rather than charging by the hour, for example, and more advisory services. Furthermore, there are longer term questions about the structure of firms, and the way that the traditional pyramid model will change as much of the work done by junior staff is automated.

Impact on Accountants in Business

The business environment is changing quickly, with many businesses moving more and more of its operations

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online. This creates new risks to manage, such as cyber risk. The explosion of social media amplifies reputational risks, putting greater pressure on organisational resilience and response. The spread of digital disruption across industry sectors requires greater business flexibility and agility, challenging traditional approaches to strategy and risk management.

Many finance functions have focused on increasing operational efficiency through automation, including robotic process automation. There is a renewed focus on shared service centres, global process hubs and outsourcing, where economies of scale justify substantial investments in extensive process automation. Small businesses are making use of the integrated functionality of some cloud-based packages and their add-on applications to move to greater self-service and automation of finance processes.

This is freeing up time and resources to spend on more advanced data analytics work, especially in areas such as internal audit. Accountants are increasingly working alongside data scientists to identify poor processes or controls failures and to focus analysis on areas of greatest risk. They are also developing their business partnering capabilities to incorporate more insights from data, for example by analysing a combination of financial and operational data or providing more forward-looking information.

Finance functions do not have the same competitive pressures as accountancy practices but they still need to work hard to maintain their relevance. Businesses want more insight from data and accountants can help with that, but are competing with other departments, like marketing, who are often further advanced in using analytics. This creates a more urgent need for finance functions to embrace digital transformation and develop stronger business partnering capabilities.

Implications for Accountants' Skills

While accounting tasks are likely to remain central to organisational success, it is not necessarily the case that accountants will still be needed to do them. Automation and AI threaten to take over many basic tasks, and accountants need to position themselves with the skills to deliver higher-value services.

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Accountants have always been subject to pressures of automation. The profession has grown by being flexible, embracing the chance to eliminate manual work and focusing on higher-value tasks, such as advisory work. This approach will be essential in the future. As a result they will need to concentrate on areas which remain difficult to automate, such as where human judgement or a deep understanding of the business environment is required or where tasks depend on the knowledge and application of highly complex rules. Specialist or niche services are also difficult to automate on the basis of economic return and, therefore, present good ways to develop differentiated skills.

Accountants working in businesses have the chance to extend their influence across organisations. As data becomes increasingly important to business success, their deep skills around financial data and qualities such as professional scepticism, integrity and ethics could have broader application across other types of data.

However, are traditional accounting skills enough to enable a leading role in a

data-centric economy? The exploitation of data requires three broad sets of skills:

- Technical data skills, such as knowledge of data formats, flows and issues of quality;
- Statistical skills and the ability to use algorithms to build models; and
- Domain knowledge to interpret data in the context of the specific organisation.

Accountants have strong domain knowledge around financial data. But to provide greater leadership on the exploitation of data, accountants will need stronger technical skills around data, and greater understanding of statistics to challenge the method, assumptions and output of predictive models. Different skills may also be needed to support existing or innovative services. Greater emphasis on audit analytics, for example, will require stronger IT and data methods knowledge from auditors. New assurance services in areas such as cyber security will require further domain knowledge.

Furthermore, accountants will need a mindset and attitude which enables them to embrace opportunities. This is especially important given the difficulty in predicting how technology may evolve and be applied across businesses. The environment will increasingly demand personal characteristics such as flexibility, collaboration and openness to change. It will also require a willingness

to learn and acquire fresh skills throughout a career.

Conclusion

The profession needs to rise to these challenges. Innovation by individual accountants and organisations is at the heart of a successful future. But the profession also needs to work together to support these ambitions. This could be in raising awareness of change and supporting individual accountants to build the

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skills and confidence in new technologies. It could also be in developing deeper understanding of how change is happening in practice and the implications for the future. The research project between ICAI and ICAEW on automation in finance functions is a great example of such collaboration to support learning across the profession around the world.

The future of the profession is an exciting one, but only if we embrace new technologies and focus on the value that we can offer to businesses and our clients as a result. ■