A SUPPLEMENT TO
accountingTODAY

CHANGES AHEAD

Technology is radically reshaping the future of auditing

A Supplement to Accounting Today

Changing tools, changing roles

Technology is driving the audit of the future

By Antoinette Alexander

The audit profession is on the brink of a revolution. Are you ready? Emerging and evolving technologies like artificial intelligence, blockchain, robotic process automation and data analytics are not hype. They are reality and are, in fact, already impacting our professional and personal lives in various ways (think, for example, of Amazon's Alexa or self-driving vehicles). And it's just getting started.

"It's exciting times. I think all business is looking at the technology mega-trend globally and trying to figure out what it means for their business, as well as other trends that are out there," said Mike Baccala, U.S. assurance innovation leader at Big Four firm PwC.

For the accounting profession, such technologies are poised to significantly transform many core services — including audit. Does this mean greater automation and the elimination of some tasks in audit? You bet. Does it mean the audit profession is in jeopardy? No, but it is changing. Understanding what these technologies mean for audit and the opportunities they can bring to the profession is important. To help gain a greater understanding of the future, it might be easiest to first take a look back.

ARTIFICIAL INTELLIGENCE

AI is complex and can be intimidating. In a broad definition, it is a collective term for technologies that make machines "smart." It enables machines to exhibit human-like cognition. They can think, learn and take action in response to what they're sensing and their objectives. There are many terms related to AI, including machine learning, cognitive computing, natural-language processing and augmented intelligence.

AI is more advanced in some markets and sectors than others but, overall, it is still in the early stages of adoption. That is quickly changing.

To put it in perspective, a recent analysis by PwC estimates that AI could contribute up to $15.7 trillion to the global economy by 2030, more than the current output of China and India combined. The economic impact of AI will be driven by productivity gains from businesses automating processes and augmenting their existing labor force with AI technologies, as well as increased consumer demand due to the availability of personalized and/or higher-quality AI-enhanced products and services.

It's easy to see why AI is a major source of both enthusiasm and uneasiness.

One of the greatest benefits of AI for the audit profession is its ability to process and analyze vast amounts of data in a way that a human auditor cannot.

While AI may be in the early stages of development, it isn't exactly new. It has already emerged in various forms and uses within the profession. PwC, for instance, has made a significant investment in pioneering AI for the audit.

One initiative underway is through a partnership

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AI IS A MAJOR SOURCE OF BOTH ENTHUSIASM AND UNEASINESS.

Erik Asgeirsson, president and CEO of CPA.com, the technology subsidiary of the American Institute of CPAs, believes that looking back at what has occurred within the client accounting services/virtual CFO space over the past decade is a good indicator of things to come. "When you moved from bookkeeping to virtual CFO services, one was just bookkeeping, entering the data and keeping the books, to being a virtual CFO, where you had the time to advise the client on where they stand with key performance indicators, build them a dashboard, and provide them strategic guidance. So, that's on the virtual CFO transformation," said Asgeirsson. "Technology did change the role of what the accountant was doing in providing client accounting services, but as long as they leveraged the capability and moved into providing dashboards and more strategic information to the client, they were well-positioned and they are doing very well."

The same will likely hold true for audit, said Asgeirsson. As with the CAS/virtual CFO space, greater automation and greater access to key data is poised to be a game-changer for the audit of the future. "We think in the upcoming years the auditor could be viewed as a much more strategic service for the client than it is viewed today due to the auditor spending more time on these higher-value insights for their clients," he said.

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What are the main changes you see ahead for the audit?
Artificial intelligence, machine learning and blockchain technology will fundamentally change the way audits are conducted. We know we're moving into the era of the audit of the future, with the ability to verify all transactions. That represents a great leap forward for accuracy and integrity in the audit.

Erik Asgeirsson
President and CEO
CPA.com

What do accountants need to do to adapt to these changes?
Automation is driving a lot of changes in the audit, but there will still be a critical need for the human intelligence that CPAs and management accountants provide. The first thing accountants need to do is to keep up to speed about technological change, particularly artificial intelligence and blockchain. The other key thing is to develop complementary skills to ensure they're delivering the highest quality service to clients and employers, because expectations are always changing. We see advisory services as the future for the profession, and they require different skills than those in transactional or compliance services.

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with H2O.ai. PwC has teamed up with the Silicon Valley company to build PwC's "GL.ai," a bot that uses AI and machine learning to "x-ray" a business and detect anomalies in the general ledger. "We have some clients who have millions and millions of these journal entries and essentially you are taking a sampling approach to looking at that, for the standards. But when we look at it from an AI perspective, you can increase the quality of the audit if you are looking at all of the transactions, No. 1, and, No. 2, as you are looking at different variations and a whole different set of data, the machine tends to have a better ability to look at that totality and identify things that maybe the human wouldn't necessarily notice," Baccala said.

He added, "The human is still very involved in that process because 'unusual' doesn't mean wrong. Unusual could just be unusual. Unusual could be an error and that's something that would need to be followed up on."

Built to meet the needs of small to midsized audit firms and improve workflow and collaboration between auditors and their clients is Auvenir, a venture founded by Big Four firm Deloitte in late 2016.

The audit automation software, which is currently in beta among several firms in Canada, leverages cloud-based storage, machine learning and artificial intelligence to transform the audit process. It also employs data analytics, which enables auditors to extract greater and deeper data insights, and an intuitive user interface. "In the Auvenir platform we are using the powerful automation to seamlessly standardize that data right from the client's ledgers all the way through to the working papers," said Auvenir CEO Pete Myers.

Myers believes that technology, like AI, can enhance and transform the audit process by automating mundane tasks and liberating auditors to invest more time on high-level, high-value tasks. Myers warns, however, that AI is not "a magic bullet" and must be part of a holistic solution. "By automating those routine tasks and focusing on the extracting, assembly and documenting of evidence, it does allow that auditor to focus on the complex areas such as management estimates and judgments. We hear constantly that auditors most enjoy the relationship aspect with the client. This platform allows the auditor to spend more time on that relationship, providing high quality and value, and building trust that is so critical to the audit process," Myers said.

Another example is AuditFile. Among the many features of the cloud-based audit software is an AI technique that automates the loading of a client's trial balance into the audit system.

"We've built an algorithm that can automatically classify the trial balance. For our customers it saves lots of time, even weeks, on an audit. … So, we feel that in the next five years you will be able to make the auditing faster and allow auditors to do their jobs with less risk," said AuditFile CEO Steven Bong.

Brian Fox, president and founder of Confirmation.com, a provider of online audit confirmations, said that technology like AI will help eliminate many of the manual, time-consuming processes like, for example, the reading of contracts. "To me, that's a very useful opportunity, especially as you look at larger companies who have hundreds or thousands of contracts. Historically, we've done sampling. Today, machine learning and AI can go in and do a 100 percent review of those documents, pull out the relevant information for the auditors, and then the auditors can zero in and focus on the areas of high interest to them," said Fox. "Data analytics is another area. The data analytics tools allow us to do that as well. Instead of just sampling the population, we can look at the entire population and identify the anomalies, or potential anomalies, that then as auditors we can go in and use our best judgment to see whether or not that makes sense or there is some error or fraud that's occurred."

'THE MOST COMPELLING FEATURE IS BLOCKCHAIN'S POTENTIAL FOR TRANSFORMATIVE AND ANALYTICAL CAPABILITIES.'

For Confirmation.com's network of participants, AI is helping to improve the validation process. "We are using that AI to validate the responders and the responding parties for the accounting firms. That's what has been missing in the manual confirmation process for the last 100 years," Fox said.

Despite the power of AI, one shouldn't underestimate the importance of human intelligence. In fact, PwC research found that 67 percent of business executives believe that AI will help humans and machines work together to be stronger using both AI and human intelligence.

BLOCKCHAIN

Blockchain is still in its infancy, compared with AI, but its potential impact could be just as disruptive.

A blockchain has several valuable characteristics and can fill key roles, including establishing identity, recording transactions, and establishing contracts, and could have significant implications for audit. And what is it? To boil it

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What are the main changes you see ahead for the audit?

New technologies will create new opportunities but also threats, and forensic accountancy will help anticipate and combat these issues. A key question to ask is, how will fraudsters use the new technologies to try to get ahead or manipulate the audit process? This is an important question to keep in mind. With the ongoing evolution of technology, the role of the auditor will never be eliminated. It will change, but that is part of the cycle of business. Instead of being afraid of the technology and hesitant to adopt new technologies, look at how to best implement and utilize these new technologies to benefit our profession and the public at large.

Brian Fox, CPA
President and founder
Confirmation.com

What do accountants need to do to adapt to these changes?

As technology evolves and new capabilities emerge, it is important for auditors to realize that there is no expectation for them to understand the inner workings of these new technologies, but for them to understand how the new technologies help improve the overall audit process. Technology advancement will continue to develop in ways that allow auditors to perform their jobs better. Specifically, these new technologies are allowing auditors to focus more on the anomalies of the audit, so they can spend more time asking, "Is it an error? Is it fraud? Or, is it something that's unique to my client or their industry?"

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down, it is a decentralized, digital ledger that keeps a record of all transactions that take place across a peer-to-peer network. Users, who must possess highly secure keys to access it, can post transactions, or "blocks," to the database. Each block is timestamped and, once validated, entries cannot be deleted or altered. Blockchains can be either private or public.

Like many in the profession, Auvenir's Myers is closely watching the rise of blockchain and its potential impact on audit. "The most compelling feature is blockchain's potential for transformative and analytical capabilities. One of the benefits and outcomes of blockchain is it's easy to access structured data, which can be used to generate advanced analytics and accelerate machine learning. … This will drive us further and faster towards more continuous auditing and assurance in the future," Myers said.

That's not to say that it doesn't present some challenges. For starters, to use it as a credible data source, there must be an audit of the process itself to ensure system confidence and the integrity of the data. "With blockchain's technology, the auditor's focus might not be the systems itself — it might be all the data entry points for the system and data exiting points from the systems, and also the security access becomes a key area. It's a different focus compared with the traditional audit," said George Qin, audit partner at accounting firm MaloneBailey in Houston.

Added Sue Coffey, executive vice president of public practice for the Association of International Certified Professional Accountants, the larger organization that the AICPA is part of, "For transactions executed over public or private blockchains, auditors still need to obtain audit evidence. In some respects, they will be able to obtain audit evidence directly from the blockchains, but that may or may not provide sufficient or appropriate audit evidence related to the nature of the transaction."

For example, said Coffey, a transaction recorded in a blockchain may still be:

- Unauthorized or fraudulent;
- Executed between related parties;
- Linked to a side agreement that is "off chain;" or,
- Incorrectly classified in the financial statements.

Said Asgeirsson of CPA.com, "What we think is going to happen is it's actually going to be the private blockchains, which are the next-use cases that we are going to start getting our arms around. For example, something like the title insurance market or some type of industry information records. When those private blockchains are created, there will be five or six entities that are supporting them and someone is going to have to provide assurance that those private blockchains are performing as described."

RPA & DATA ANALYTICS

Is your head spinning yet? If not, now throw robotic process automation and data analytics into the mix. Let's focus on RPA for a moment. Through the deployment of software robots, RPA can improve business efficiency and effectiveness by mimicking human actions and automating repetitive tasks like reconciling and cross-referencing data or copying and pasting data between applications.

It has the potential to significantly reduce the requirement for humans to perform rule-based, high-volume activities; however, as suggested by CEB data, internal audit departments have been slow on implementation. Lack of expertise and proof of concept were cited as roadblocks.

According to CEB, which is now part of Gartner, only 10 percent of internal audit teams were planning to use RPA in 2017, with 2 percent conducting pilots.

"I think it is neat technology. It is still premature. Obviously, it is based on AI, our technology is based on AI. But I think that in terms of the audit firms, I see that down the road. It can be many years before that will happen in a fully automated way," said Eli Fathi, CEO of MindBridge Analytics Inc. "I think that to have a bot, to have the RPA completely controlling and providing the audit opinion, is way down the road, but between now and then I think we are going to see a lot of the functions being automated and some of them are going to offer more efficiency and effectiveness to the auditor." Through the application of machine learning and AI technologies, the MindBridge platform is designed to detect anomalous patterns of activities, unintentional errors and intentional misstatements.

Among those firms tapping into RPA's potential is PwC. "We have developed applications that enable us, through the automated confirmation process, to automate the analysis of the confirmations and really set up the workpapers that will be presented to the human in a way that is already ready for them to provide the analysis. Typically, all of those little steps that we've talked about are done by the human themselves. So, tremendous gain of efficiency, tremendous gain in terms of quality," said Pierre-Alain Sur, U.S. technology industry leader at PwC. "There's a lot of work that we're doing at that basic layer, that foundational layer."

As noted by CEB, recommendations based on early RPA pilots in audit include:

- Begin with time-consuming, repetitive, lower-value processes;
- Consider how new processes fit into larger audit workflows; and,
- Determine the type of data that will be necessary to train the robot.

Now enter data analytics. As explained in the AICPA's "Guide to Audit Data Analytics," audit data analytics are essentially techniques that can be used to perform various audit procedures, including elements of risk assessment, tests of controls, substantive procedures or concluding audit procedures.

The guide also outlined several benefits of making more use of ADAs, including:

- ADAs may be used to examine aspects of 100 percent of items in a population of relevant data at various levels of aggregation. This may enable auditors to reduce the use of sampling and thereby more effectively manage sampling risks.
- When using ADAs, auditors may be able to more efficiently and effectively describe matters identified by the audit, for example, by using graphics developed in performing the ADAs.

"The audit today is really … attempting to find the needle in the haystack. Through data analytics and process automation, that will help facilitate finding all of the potential needles in the haystack because those two go hand-in-glove with a data-driven audit because I've got all of that transactional data. Once I have data analytics, then I can process automate it and can have that system monitoring my activity on a daily basis or a real-time basis," said Alan Anderson, president of AccountAbility Plus in Bloomington, Minn.

Clearly, significant changes are on the horizon for the audit of the future. Gaining a greater understanding of these technologies and their capabilities and possessing an openness to change is essential for tomorrow's auditor.

"As we look to the future and see more, first, just automation of process and basic tasks … [and] standardized data sets across a broader base of firms' clients," said Jeff Gramlich, vice president of business development for Validis, a cloud-based financial data sharing company, "we will all see significantly more creative ways in which the CPA firm can serve their client and their industry with that data." AT