



Innovation in audit takes the analytics, AI route

Audit analytics, cognitive technologies to set accountants free from grunt work

By Tom Davenport

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The advent of audit analytics and cognitive technology does not mean the end of human auditors. It means an end to painstaking checking and crossfooting of debit and credit entries and the beginning of auditing careers that thrive on understanding, monitoring, and improving analytical and cognitive systems.

I have worked for a couple of decades with professional services firms that perform financial audits, but I have never done one—nor have I ever wanted to do one, to be honest. I'm not good with work that involves structured processes, details, and rigorous checking, and audits always seemed heavily infused with those kinds of tasks. Now, however, I am becoming quite interested in audits for two reasons. First, they are beginning to employ substantial amounts of analytics. Secondly, there is increasing talk about employing cognitive technologies to help with audits. Both of those approaches are right up my alley. So in this essay, I will address their potential impact on audits and auditing. I'll discuss the entire industry but will make specific references to Deloitte & Touche LLP's audit practice, since I recently wrote a paper on their analytics initiatives.¹

As evidence that big things may be coming to audit, the World Economic Forum undertook a "Technological Tipping Points" survey in 2015 to try to understand when several major technology-driven business and social changes might actually take place.² Over 800 executives were asked, in one of the questions, when they

thought that “30 percent of corporate audits would be performed by AI (artificial intelligence).” Seventy-five percent of the respondents thought that this particular tipping point would be reached by 2025. Of course, this prediction leaves a lot up in the air. Why 30 percent? And is the supposition that no humans will be involved at all? I strongly doubt the latter point, but I do believe that audits are moving to become much more continuous, analytical, and at least semi-automated. But I’m quite confident that human auditors will be involved in 100 percent of audits by 2025 and for a long time thereafter.

I am not the first researcher to make similar assertions about analytics and continuous auditing. At Rutgers University, for example, Miklos Vasarhelyi, the director of the Rutgers Accounting Research Center and Continuous Auditing & Reporting Lab, has been advocating for more analytics and more continuous, semi-automated audit processes for many years. He told me in an interview last year that because of regulatory constraints, internal audit processes within companies seem to be moving faster in this direction.

However, the regulatory environment for audit analytics and other innovations seems to be easing a bit. Martin Baumann, the chief auditor and director of professional standards at the Public Company Accounting Oversight Board, commented in a video interview for the *Journal of Accountancy*:³ “We wouldn’t want auditing standards to be an inhibitor that might otherwise allow technological audit achievements to move ahead.”

What kinds of benefits will analytics and automated decision-making bring to audits? There seem to be two major ones. The first is “evidentiary.” Audits have historically involved taking samples of populations. But with the power of big data and analytics, the auditor could choose to analyze all items in certain populations, not just a sample of them. And systems that automate some tasks can facilitate this as well. Deloitte, for example, is using a tool for automated extraction of contract

provisions to speed up that process and review more documents with less human labor.

The second major benefit is greater insights for management from audits. Particularly with the use of analytics, audit processes could surface valuable information that could be presented to management. A company’s performance could be compared to itself over time, or to industry and functional benchmarks. Deloitte has already made considerable progress toward both goals, and is rolling out analytics and automation capabilities in the context of a broader initiative on audit innovation. The leaders of the practice are committed to major changes in audit processes and technology, and analytics and automation technologies are key features of the new process.

However, the enhanced audits are not just about rolling out some new technologies. They will also require substantially different information architectures and skills to deploy them successfully. Initially at least, each audit will be a data integration exercise to pull diverse sources of data together and analyze them. Deloitte is working on tools and methods to make this easier. The skills issue is an interesting one for the entire industry. I spoke at the American Accounting Association (<http://aaahq.org/>, the AAA is the primary association for accounting-oriented academics in the United States) meetings last summer about the fact that accounting students are not generally trained in statistics and data management. That’s a bit of a problem for an industry that expects a much more analytical future.

The AAA held another meeting last September specifically on big data and it sold out quickly, but I think it will be a while before universities churn out large numbers of graduates with strong analytical orientations. In the short run, then, firms like Deloitte will have to provide their own training in these types of skills. Some analytical and informational skills will be concentrated in specialists who work on a variety of audit assignments. Others will be required of audit generalists at particular clients. The particular mix of specialist

and generalist skills will evolve over the next several years.

The good news is that there are likely to be jobs for human auditors no matter how much automated technology is adopted. I've spoken about this topic with audit executives at Deloitte, accounting professors at various universities, and vendors of analytics and automation technologies. None of these folk anticipates a future with no human auditors.

It's possible that there may be somewhat fewer of them in the future, but much more likely that those people who remain in the field will be substantially different from the auditors of the past. The green-eyeshaded accountant who painstakingly checks and crossfoots debit and credit entries will likely cease to exist. The auditor who understands, monitors, and improves analytical and cognitive systems and processes will only thrive.

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Endnotes

1. Thomas H. Davenport, *The power of advanced audit analytics: Everywhere analytics*, Deloitte, <https://www2.deloitte.com/us/en/pages/deloitte-analytics/articles/the-power-of-advanced-audit-analytics.html>, accessed February 22, 2016.
2. Global Economic Council on the Future of Software & Society, *Deep shift: Technology tipping points and societal impact*, World Economic Forum, September 2015, http://www3.weforum.org/docs/WEF_GAC15_Technological_Tipping_Points_report_2015.pdf.
3. *Journal of Accountancy*, "How data analytics can expand audit capabilities," <http://www.journalofaccountancy.com/videos.html?bctid=4069151827001>, accessed February 22, 2016.

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