THE DIGITAL AUDIT REVOLUTION: SHAKING THE OIL & GAS INDUSTRY
Although technological innovation has had a disruptive effect on many industries, the audit function has remained largely unchanged for several decades. Audits continue to represent a drain on corporate resources, both in terms of financial cost and in the number of staff dedicated to audit activities. According to a 2017 survey of 161 U.S. public companies conducted by The Financial Executives Research Foundation, audit fees averaged $7.4 million, with a median of $2.8 million. The average percentage increase in audit fees reported was 6.9 percent from 2016 to 2017, and the median increase was 1.3 percent. Audits are also time-consuming, typically taking from one to three months to complete.

The oil and gas industry is one of the world’s largest in terms of dollar value. The sector spends billions of dollars on audit services and employs hundreds of employees working full-time on audit-related activities. These teams deal with specific elements that add complexity to the audit process for oil and gas companies.

Government is one of these elements. If the government wholly or partially owns the sector, the company must engage government officials or work through well-connected intermediaries. Oil and gas companies may contract with national oil companies and form joint ventures and may also hire third-party engineering, procurement and construction management (EPCM) firms to manage in-country operations. An audit of the financial statements for oil and gas producers is often required because the entity is a public company, or because the entity has debt requiring audited financial statements.

Oil prices also play a part. When oil prices drop, significant spending cuts are common in the sector, but pressure to deliver target levels of production continues, potentially creating a situation in which business activities do not align with corporate policies.

In addition, multiple transactions in the sector remain manual. The business typically involves many parties and different operations, leading to greater complexity and increasing the risk of errors.

Now, however, there are signs of change. A combination of new technologies including robotic process automation, smart contracts, blockchain, analytics, artificial intelligence and machine learning is beginning to transform the audit process, decreasing costs while improving reliability. And this is taking place in the face of increased regulatory complexity and demands by investors for more information and greater transparency.

We anticipate that audit firms will adapt to this disruption by changing their service offerings, focusing more on advisory capabilities and value-added auditing. Audits may, in fact, become a free-of-charge service, provided as an incentive to encourage companies to use audit firms’ other services. This only becomes possible due to the cost decreases associated with automation, as well as through innovations such as blockchain, which accurately maintain consistent, high levels of transparency across transactions.

Accenture believes that technological transformation will not only reshape oil and gas companies’ internal auditing procedures but will also disrupt the competitive landscape for auditing firms. Companies should learn how to use internal audit procedures to gain information to support critical management decisions, streamlining processes so that audit firms can focus on delivering fresh perspectives, industry best practices and strategic guidance. With the availability of state-of-the-art technology at affordable prices, audit teams can identify and control costs at a micro level.

The audit process will rely increasingly on internal procedures, due to their enhanced capabilities in ensuring compliance. Blockchain will play an important role, helping to provide fair, equitable and regular public distribution of information pertaining to the compliance state of companies while preventing tampering of proof records.

New Roles for Auditors

In this environment, external auditors will not disappear, but they will play different roles. Auditing firms will reinvent their service offerings, repositioning themselves as corroborators of claims made by internal audit. They will also act as independent sources ensuring the validity and reliability of financial reporting.

Disruption to the competitive landscape in audit has been long anticipated, and we expect two new and different types of players. First, we think technology companies will grasp the opportunity to provide pay-per-use solutions to smaller audit firms, acting as a link between clients and audit firms and competing on price for data collection work. Second, we see the emergence of what we call financial intelligence firms, which use the output of data collection and curation companies to develop business and financial insights for clients. These firms will be a hybrid between consulting and audit firms, competing with the latter to provide value added services such as the identification of areas of improvement or the creation of roadmaps for value realization.

The key technical skills needed by auditors will also change. The labor-intensive tasks associated with core accounting activities will become easily executable by software “bots” and AI. Auditors will need not only audit knowledge but skills in areas including automation, data interpretation, analytics and communication.

The audit revolution has been a long time coming, but now it is coming quickly. Oil and gas companies that make the needed adjustments will be better positioned to unlock the value that is currently trapped in both internal and external auditing processes.
The Transformative Power of New Technologies

We anticipate that a combination of new technologies including blockchain, smart contracts, analytics, artificial intelligence (AI) and robotic process automation (RPA) will, over the next three to five years, help transform the audit process.

• Blockchain

We expect blockchain or distributed ledger technology to fundamentally change the nature of auditing due to its ability to automate the tracking and recording of every transaction. Blockchain can simplify and partially automate elements of accounting and compliance, making it easier to do business and enabling elements of the audit process to be completed with greater speed and accuracy.

Regulators and other governmental authorities are gaining trust in blockchain as a means for the secure dissemination of information and may in the future mandate its use for fair disclosure of market information. This can lead to the development of “triple entry” accounting with the inherent cost of verification of transactions lowered by blockchain’s ability to secure and facilitate the process. Accounts may eventually be reflected on a public blockchain in real time.

Blockchain replaces trust in the intermediary with trust in the code, allowing for costless verification of problems arising in transactions.² Blockchain has been considered by The Institute of Chartered Accountants in England and Wales (ICAEW), which sees it as a replacement for bookkeeping and reconciliation work, and a facilitator for faster processing of audit work.

• Smart Contracts

Smart contracts are self-executing contracts with the terms of the agreement between buyer and seller written into lines of code. The code and the agreements it contains then exist across a distributed, decentralized blockchain network. Smart contracts permit trusted transactions and agreements to be carried out among different parties, with oil and gas companies, for example, making payments to vendors based on completion through consensus on the contract.

This enables easier tracking of documents referred to in the audit process and brings transparency to the system by providing for easy contract validation. We believe that smart contracts will eventually make paper documentation obsolete, reducing the manpower and effort required for the documentation process.

• **Analytics**

Analytics can improve operating efficiency through root cause analysis and industry benchmarking, enabling external audit to provide diagnostic and prescriptive offerings and predict behavior before it happens. Analytics will initially enable business managers to make decisions based on better information and will later power continuous audits. Continuous auditing and monitoring capabilities will deliver impressive benefits such as strengthening risk assessments, more effectively tracking fraud indicators and key operational risk indicators and providing a real-time view of organizational risk.

The power of data analytics could make it possible for external financial statement auditors to improve audits by testing complete sets of data, rather than just testing samples. Combined with AI, analytics can be used to extract key terms and provisions from contracts, visualize populations and findings, and scan financial statements to suggest areas of risk. The importance of analytics has been recognized by The American Institute of Certified Public Accountants (AICPA), which, after a detailed study of the enablement of continuous audit through analytics, argued that the future audit will encompass an audit module, and/or a monitoring and control layer embedded within the client systems, to ensure a real-time audit of the entered data. The AICPA also posits the future existence of a single, company-wide data repository linked with the various and disparate enterprise systems to generate exception reports for auditor review and investigation.

• **Artificial Intelligence/Machine Learning**

Artificial Intelligence (AI) will support the identification of systematic errors in the auditing process, while helping devise ways to eliminate such errors through reinforcement learning. AI can review high volumes of contracts in conjugation with RPA. A project involving processing of thousands of documents can take months for a human-only audit team but can be done in a few days with AI, with humans handling exceptions. Natural language generation (NLG) is another enabler of AI that is expected to empower the industry with automatic report production.

• **Robotic Process Automation**

Robotic process automation (RPA) can be deployed to replace manual tasks like reconciling data, copy-pasting content and cross-referencing data during audits. RPA can also be used in tracking progress against the annual audit plan, in tracking and monitoring key risk indicators (KRIs), or automating reporting and dashboarding activities, including populating audit committee and management report templates or internal audit’s balanced scorecard. We believe that RPA and automation will enable faster, cheaper, comprehensive and more accurate audits. This new-found ease of auditing will in the initial stage increase the frequency of audits and will eventually help make the process of auditing continuous and seamless.

Changes in External Audit

Technological innovation will result in significant changes in the way external auditors engage with clients and conduct audits. For example, machine learning can provide more accurate estimates of the complexity of operations in a client’s business, resulting in more accurate pricing estimates. But, while technology will assist in the development of the audit plan and the overall audit strategy, technology will not replace current methods of performing the actual audit.

Technology will, however, affect testing and controls. For example, drones may take over inventory and asset verification (such as counting rigs in operation) while process automation reduces data collection time from weeks to hours. Augmented and/or virtual reality systems may allow an auditor to “virtually” walk through an entire warehouse, while video-conferencing and other forms of virtual presence will limit the need for auditors to be on-site.

Technology will enable external auditors to improve their benchmarking capabilities. Using data from multiple clients – without disclosing any sensitive information – external auditors can develop analytics to provide meaningful comparisons and evaluations.

Finally, technology will significantly change the reporting and documentation phase of the audit process. The audit process will be essentially continuous, with reports distributed via blockchain and visible to everyone. These reports will list issues related to industry compliance and industry best practices.

While there will be no deadlines as such (except for mandated compliance dates) the response of the capital markets will be a powerful incentive to implement these recommendations. The markets may, in fact, respond daily to findings published on the blockchain, reducing the volatility of companies’ share prices by eliminating swings related to earnings and other material announcements.
Getting Ready for the New Audit

The audit process, once relatively static, is now on the verge of unprecedented change. Company stakeholders will find little resemblance between today’s audit process and that in place 20 years from now. We believe oil and gas companies should take three key steps to get ready for these major changes:

1. Upgrade information systems.

Finance and IT teams should evaluate the current state of information systems and the steps needed to achieve industry-leading standards. A cost-benefit analysis can assess potential returns on investment from an internal overhaul of the audit process. Companies that have grown through mergers and acquisitions (as is common in the oil and gas industry) can see particularly large benefits from such an upgrade.

2. Assess technology preparedness.

Companies should identify potential bottlenecks and work with technology providers and integration solution providers to address issues as they appear. Teams can prepare the business case for technology deployment and determine the right pace of change to create value while avoiding disruption. Stakeholder analysis can help align objectives for the entire ecosystem.

3. Create a roadmap.

The company then should have a comprehensive plan, with clearly stated objectives and a detailed roadmap for the adoption of technologies. The roadmap should address incorporation of existing systems, strong program management, governance and monitoring mechanisms, and change management to ensure a smooth transition.

A formal strategy and roadmap will provide the level of rigor for the transformation initiative that is required to deliver and maintain the desired results. Well-designed and well-delivered training can arm internal audit end users with the skills necessary to execute a long-term, sustainable digital workforce in the new operating model.

With the strategy and roadmap in place, the company should be better positioned to determine what it wants from its external auditor, and how to work with the auditor to achieve the outcome it seeks.

Change in internal and external audit is only beginning. Oil and gas companies should act now to take advantage of technological innovation in this area and to receive the benefits – including lower costs, improved compliance, and a better flow of management information – related to the New Audit.
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