Innovation in audit

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The scale and pace of innovation in science and technology will have a profound impact on all areas of work, including audit. The evolution of several technologies will all shape the nature of finance and financial reporting, hence audit. This paper will consider some of these technologies and how these have the potential to disrupt the audit process.

Data and Analytics

"Data is the new oil" (Titus, 2010)

The change in data and analytics is not a fundamental shift for the audit professional, but with new innovations the speed and the volume of data that can be handled is unprecedented (O'Donnell 2016, KPMG).

For example, the days when the auditor completed sample testing of limited data will be replaced by analyzing much larger sample sizes, even 100% of the data. Technology allows for much of this mundane activity to be completed very quickly. However, the real value add is the ability to extract the data directly from the company and to be able to compare this to internal and external sources, including suppliers. Therefore, the auditor is able to focus on higher risk areas and use the 'wider landscape of data' to inform their findings.

The deeper insights available using enhanced data and analytics could be translated using powerful data visualizations to convey the 'story hidden in the data.' (KPMG 2018)

Blockchain

Raphael predicts the impact of blockchain to be like how the internet has changed the way research is conducted today (Deloitte 2018).

What is block chain?

A blockchain is defined as a continuously growing list digital records in packages (called blocks) which are linked and secured using cryptography. These digitally recorded "blocks" of data are stored in a linear chain. Each block in the chain contains data, is cryptographically hashed, and time stamped.

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[1] Data, Analytics and your audit: What the finance executive needs to know, KPMG
https://assets.kpmg.com/content/dam/kpmg/us/pdf/2016/data-analytics-audit.pdf

[2] Blockchain and financial reporting: Impact of blockchain in the audit function, Deloitte
https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-fsi-fei-blockchain-report-future-hr.pdf

The blocks of hashed data draw upon the previous-block (which came before it) in the chain, ensuring all data in the overall "blockchain" has not been tampered with and has not been altered (Blockchain Technologies, 2018).

Hence of the key benefits of blockchain technology is that it allows easy access to structured data. Better access to lots of data can be used to generate advanced analytics and accelerate machine learning.

This will enable tools to get smarter and move towards continuous auditing and assurance.

Machine Learning and predictive analytics

Machine learning techniques build on human cognitive strengths and develop these further through pattern recognition and learning. Most sophisticated techniques in this area include artificial neural nets and deep learning have resulted in major breakthroughs in natural language processing, translation, machine vision and game playing (ICAEW, 2018)

Machine learning can handle large volume of data, identify complex and changing patterns consistently without human frailties of tiredness or boredom.

However, there are limitations:

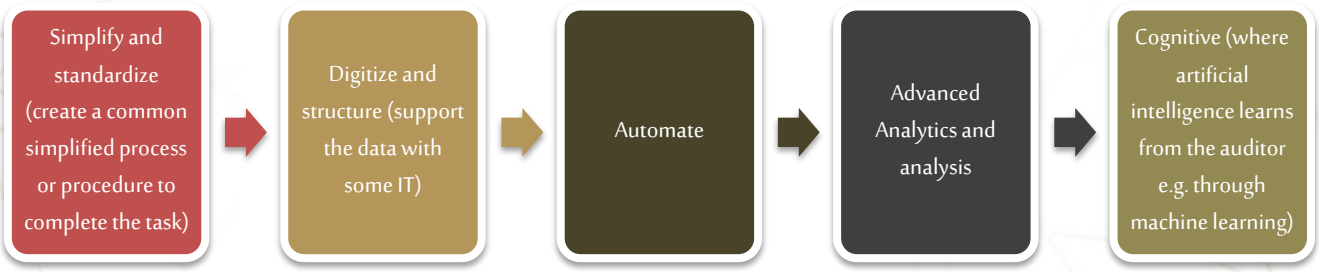
- Lack of flexibility – It will only complete very specific tasks on a given set of data
- Quality and Quantity of data required is high to allow the 'machine to learn'
- Data often reflects existing bias/prejudice in society. Although it is possible to develop models that potential eliminate biases, they can also embed societal bias that already exist and
- Not every problem is suitable for a machine learning approach.

[3] The Ultimate Guide to Understanding Blockchain Technology) ***https***://www.blockchaintechnologies.com/blockchain-technology/

[4] Artificial intelligence and the future of accountancy ICAEW https://www.icaew.com/-/media/corporate/files/technical/information-technology/technology/artificial-intelligence-report.ashx?la=en

Cognitive technologies

Cognitive technologies have the potential to greatly increase the value of the audit process. (Deloitte 2018)1, by following a standardized process to:



It is expected that this approach can lead to improving an auditor's professional judgment by modelling thought processes (comparing the results with that expected that can be contrasted with initial conclusions.) Although there are some potential pitfalls in artificial intelligence that will need to be managed: such as intentional and unintentional cognitive bias (as discussed above in machine learning).

The impact on the auditing profession

The result is an enhanced role for auditors. It will allow the auditor to be released from performing repetitive mundane activity, i.e. low value, to high value activity functions such as monitoring the outcomes of automated tasks, reviewing advanced analytics, and assessing the implications of findings.

This will enable auditors to spend more time using their professional judgment (and scepticism), and to better understand their client's business. In a world where 'cognitively-transformed audit processes' dictate the audit approach this will also result in higher value added activity and insight for the audit profession.

In this new era there will still be the need for the audit professional but their activity will be enhanced. New skills and training in the new innovation will be crucial to remain relevant and a valued resource. The SAI of the UAE is ready to rise to this challenge and has committed to the professionalization agenda (as Chair of INTOSAI) and its strategy for Artificial Intelligence.

[5] Cognitive technologies: Bringing value to the audit process
https://www2.deloitte.com/us/en/pages/audit/articles/cognitive-technologies-and-audit-process.html