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The impact of Digital and Artificial Intelligence on audit and finance professionals: harnessing the opportunities of disruptive technologies

30 January 2019

REPORT

On 30 January 2019, ACCA (Association of Chartered Certified Accountants) and EY jointly organised an event in Brussels on the **impact of Digital and Artificial Intelligence on audit and finance professionals: harnessing the opportunities of disruptive technologies**.



Jeanne Boillet, Global Assurance Innovation leader, EY, kicked off the debate and **MEP Ivana Maletić** gave a welcoming speech. **Alain Deckers**, head of the Corporate Reporting, Audit and CRAs unit, DG FISMA, moderated the panel that comprised of **Sue Almond**, member of IAASB's data analytic working group, Global Head of Assurance, Grant Thornton International Ltd, **Mark Edmondson**, CEO, info, **Prof Marleen Willekens**, KU Leuven, **Olivier Boutellis-Taft**, CEO, AccountancyEurope. ACCA's Head of Audit and Assurance **Andrew Gambier** gave concluding remarks.

Discussions revolved around how data mining/ analytics can reinforce the quality of the audit, and how auditing standards will evolve as a result of digital transformation. Speakers also tackled the role of the auditors and finance professionals in embracing change - how to adapt their skills, training and education- , as well as the major challenges of big data in auditing, from a "behavioral" auditing perspective.

The debate confirmed that Data analytics and AI can have significant benefits for audit quality and create opportunities, but also risks in relation to the audit process. Digital and AI tools will be critical to meeting the need to constantly review the expectations around audit and assurance.



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Main highlights

Jeanne Boillet, Global Assurance Innovation leader, EY

- To understand the impact of Digital and Artificial Intelligence on audit and finance professionals it is important to understand the forces that are driving the Fourth Industrial Revolution. One of these forces is the explosion of data which is fuelling digital disruption. Another force is the acceleration of the pace of change which is bringing additional complexity in managing trust in an environment that is more and more uncertain. For example, cyber-attacks are getting more complex and widespread. Social media are also creating new risks.
- As finance professionals, we first need to understand the transformation that is going on and the type of risks and controls which need to be monitored. On the other side, these trends are also bringing new opportunities for the finance professionals to bring additional added value to the business overall.
- There is a burning platform for audit and finance professionals to grasp these changes.
 - As an example, two years ago, an EY survey showed that 74% of CEOs were saying that they had no strategic plans on Artificial Intelligence. One year after, exactly the same survey results demonstrated that 73% of CEOs are already adopting AI or plan to adopt in the next 2 years.
 - A second statistic, provided by the World Economic Forum, shows that 30% of every corporate audit will be performed by AI by 2025.
 - Finally, the OECD has counted more than 200 blockchain initiatives on-going in the public sector across 46 countries.
 - These show the importance to be prepared for this changing environment.
- To deal with these challenges, audit and finance professionals need to understand (i) how “what” they have to analyse is changing, (ii) the new risks that are emerging, (iii) the new opportunities offered by these disruptive technologies.
- (i) Typical examples of “what” is changing are the amount of data that we need to process which is increasing exponentially to a point of information overload. Another example is the increasing use of social media by employees and customers which can cause information leaks or reputational damage. Finally, audit and finance professionals have to learn to deal with new types of asset class like crypto-assets and cryptocurrencies that they were not used to deal with in the past.
- (ii) Looking at new risks that are emerging, we can mention the risks around the use of blockchain and smart contracts which are becoming key part of companies IT infrastructure, especially around supply chain management.
- The adoption of Artificial Intelligence is also introducing new risks. According to Gartner’s 2018 CIO Agenda Survey, 85% of AI projects through 2020 will deliver erroneous outcomes due to bias in data, algorithms or development teams. We should not overestimate AI capabilities and keep in mind that the quality of the data that is used is of most importance. There are also risks related to legal issues and liability.
- (iii) It is also essential to understand how finance professionals can benefit from the adoption of these disruptive technologies.
 - Analytics can help improve quality of audits by giving to auditors the ability to analyze larger volumes of audit-relevant data in order to derive insights and a more in-depth understanding of financial close and business operations. Advanced analytics offers audit teams with forward-looking capabilities that improve ability to predict outcomes through scenario analysis and forecasting.



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- Large-scale automation will allow more routine auditing tasks to be done by machine, freeing finance and audit professionals to focus their attention on more valuable tasks.
- Artificial Intelligence is a set of technologies which exhibit some form of human intelligence. Used with other technologies, it can expand their initial capabilities like advanced analytics or smart automation. AI is also strong at making sense of natural language and unstructured data which can be used to assist with revenue and lease contract reviews.
- Looking at the future of assurance, these technologies will enable auditors to be more agile in leveraging controls and forward-looking on the insights they can bring to decision makers. Assurance of some business processes could become more “continuous” and close to real-time. There are also new requirements that need to be considered as increasing assurance will be required on algorithms, AI solutions or blockchain smart contracts for example
- Key questions that we need to ask ourselves in order to bring this future to life: How to balance risks and opportunities related to disruptive technologies? What innovation strategy to adopt? How to adapt my talent model to the new environment? How to manage change with internal & external stakeholders?

Ivana Maletić, MEP

- Despite many ongoing debates, AI is now, it is not in the future. We need to work in cooperation with each other in developing management information systems.
- There are some common barriers with regards to artificial intelligence in finance: Lack of necessary skills or resources to manage or deploy AI; Worries about data compliance / data privacy /data protection issues, e.g. GDPR; Actual or expected employee resistance to deploying AI; Actual or perceived immaturity of the technology; Lack of widespread trust in AI's capability / potential.
- Key drivers of AI adoption are: Working better and smarter; Optimizing time; Sharing data, knowledge and capabilities in an open and collaborative approach across departments; Reduction of business risks by secure and centralised collection of information, records and process logs; Elimination of human bias in the decision-making process; Easier approach and faster use of service; Large resource savings; Smart machines that minimize the environmental impact.
- If we would combine new knowledge, specialized skills and talent with digital technologies and AI, then we can be sure that we would achieve better performance, time planning, productivity and efficiency.
- Human capital is essential in this process. We should do a lot in reforming our educational systems so that people are no longer afraid of digital and AI. Without having people that are ready for the future jobs, we will not have better performance, time planning, productivity and efficiency.
- At EU level, we have the New Skills Agenda. This framework should be improved and go deeper. We have to identify the main challenges, elaborate on possible scenarios, prepare efficient strategies and policy frameworks, and discuss future possibilities.
- Data analytics is very important for auditors. It helps them to easily establish the scope of audit and carry out risk assessment. Robotic Process Automation and analytics facilitate tracking records for the audit of routine transactions. Cognitive computing, AI and predictive analytics help with more complex and non-routine transactions that require estimates and judgements.



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- EY has introduced AI in the process of lease contracts. “The company spent the past 10 months developing a machine learning-based software program that can read hundreds of pages of contract documents and reduce the time it takes for humans to review and audit contracts. Now, humans review lease contracts, for example, in minutes, instead of hours with the help of the program. That frees up workers to focus on more interesting questions about contracts, such as the risks associated with them” (Jeff Wong, EY’s chief innovation officer).
- The EU is very slow to make developments in the area of digital and AI. There are a lot of discussions on the Digital Single Market and different EU interventions. The EU is trying to increase private and public investment in AI. These are all good developments but we are still very much behind.
- Our goal should be to use AI as support in order to increase quality of life of people, as well as efficiency and productivity. Educating society is fundamental.



Alain Deckers, head of the Corporate Reporting, Audit and CRAs unit, DG FISMA, moderated the panel discussion.

Sue Almond, member of IAASB’s data analytics working group, Global Head of Assurance, Introduction – GTIL

- Technology and the AI are important elements for the IAASB and its work. The IAASB sees that data analytics and various other activities in this space can have significant benefits for audit quality.
- The initial work of the IAASB’s data analytics working group started on data analytics but it has become a much broader topic that now involves automation, assurance tasks, management’s use of AI, technology-enabled remote audit/assurance work.
- All of these create opportunities and risks in relation to the audit process.
- The working group was established over 3 years ago to monitor developments, gain stakeholder feedback and input to the standard setting process.
- Challenges around standard setting in this area include balancing pace of change and need for due process– there is tension there. Another challenge is making sure there is sufficient flexibility to foster innovation because anything that is written today might be different in the future.
- Standards are designed to cover all audits and there are challenges around that. Should certain techniques be mandated?
- DAWG has also been focussing identifying areas where analytics could add value during updates of current standards, eg ISA 315.
- The IAASB is going to have a working group looking at technology, see www.iaasb.org.



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- There are many great examples of innovation and quality work. However, it is sometimes difficult to pull things together and standardise across a diverse client base.
- We need to remember the basics, as well as some great opportunities that are out there. It is important to focus on basics, such as having complete information.
- Education and skills are absolutely critical. It is about having the people who have the flexibility mind-set and can ask the right questions.
- There is a lot going on in the audit environment in the UK and technology and the AI can be a part of the solution for the future of audit.
- Innovation, such as blockchain can revolutionise elements of audit, particularly at the transactional level. Audit is about financial statements that tell us a story and it is not just about transactions, it is about evaluations and activities. Therefore, it will not replace auditors just yet.
- Given the depth of information and insight that can come from data analytics, and the restrictions on non-audit services, an audit proposal could in fact end up creating an audit and a non-audit assignment performed by different firms. This could result in reducing a number of firms as regards to competition.

Mark Edmondson, CEO, inflo

- Emerging technologies offer many benefits. Most obvious one might be audit quality. Technology often brings a natural association to efficiency due to its ability to automate processes. This is an exciting development but it doesn't mean we need less people. We can actually use the talent that comes into the profession in different ways. Education is therefore crucial.
- Technology can provide a real change in client experience. Auditors are able to offer something that is much more real-time, responsive and future-oriented. This drives positive change on both sides. It is more interesting for accounting firms to deliver audit or compliance services that feel more like advisory services. Organisations also get something that is more valuable to them. It is not just about analysing things that they are comfortable with already, it is about providing a different perspective on their business.
- It has been emphasised for a long time that continuous audit is the future, however it hasn't happened yet. One of the reasons for that was that clients didn't want it. It also wasn't giving them what they want – something of value. If we can shift the value of audit to something that gives real-time insights and helps growing the business, it will become a much more interesting proposition.
- Digital technologies can make handling data seamlessly from one system to another in a way that it isn't about doing audit twelve times a year, but it is about doing it incrementally and automatically.
- When it comes to the use of technology, one of the biggest risks to the profession is the expectation gap. The AI marketing creates a lot of hype that doesn't necessarily reflect the reality. There is a balance to be had between the excitement behind new technologies and what is actually being delivered.
- There is a need for collaboration. There are very few accounting firms that have enough data to really harness true AI capabilities. A significant benefit exists in firms working with technologies that pool data and experience across the profession.
- There are stepping stones for companies that want to start using AI. One of the biggest barriers is that most accounting firms are currently working with summary level financial information, sometimes in a pdf format, and are being tasked with providing insights. Step one is getting into the detail in order to be able to provide insights. It is easy if everyone uses the same accounting system which is not usually the case – only the UK has over 1000 accounting systems. There are some elements of audit that should be



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delivered consistently and others require a more bespoke approach. It is also important that audit firms are building the right skills within their organisation.

- As regards to audit quality, we should avoid moving towards AI that is still evolving.
- Non-financial information adds to the story-telling element of reports. That is where the focus should shift to more quickly if that is where we can get more value.

Prof Marleen Willekens, KU Leuven

- There is a lot of upside potential using technology in audit practice. It opens a lot of new possibilities to assess various risks. Nevertheless, we should remember that auditors are human beings and therefore have limitations in the way they are processing information. Auditing will always require some human judgment and with human judgment come cognitive limitations.
- There hasn't been done a lot of academic research that has looked at cognitive limitations of auditors in settings where data analytics or big data are used. However, there is some research related to cognitive limitations of auditors in the traditional audit process.
- Important in this setting is to emphasise that analytics uncovers correlations and not causations. Based on what is derived from big data, auditors still need to make decisions.
- Based on such prior research, academics have identified some potential limitations relating to processing information in a big data environment, which can be summarized as follows:
 1. Information overload: we know from research in psychology that decision makers have limited ability to process large amounts of information. Audit studies have shown that when there is an overload of information, audit related decisions were suboptimal. It seems difficult for auditors to recognize correlation between details and the overall perspective in settings with information overload. It is important to develop good tools so that the risk of bias from information overload is minimalised.
 2. Information relevance: risk of not being able to disregard irrelevant information. Irrelevant information can cause a dilution effect – it becomes difficult to focus on relevant information. Some tools can be developed to deal with this issue.
 3. Pattern recognition: studies have shown that auditors are not always very good at recognising patterns when the data they need to process is complex. This should be kept in mind when training auditors in the big data environment.
 4. Ambiguity: it is shown that, in general, individuals differ in how they can handle ambiguity, and big data introduces some ambiguity for a variety of reasons. There are ambiguity-intolerant and ambiguity-tolerant individuals. Ambiguity-intolerant individuals tend to seek certainty and prematurely stop investigation because it becomes overwhelming.
- There is still a lot we don't know in this area and need to do much more research before drawing reliable conclusions. People have different mental models that lead to different conclusions. There are big benefits in working together - stakeholders should be invited to provide more input into the research. Experience is very important in audit and more research needs to be done on that in a big data environment.
- We know from research that, in general, auditors compete on both price and quality. With regard to price, there has been very limited evidence that introduction of big data analytics has real impact on cost. However, as audit pricing is sharp, it is not very likely that prices will drop because of audit analytics, actually. Quite the contrary, expensive data analytic tools would increase price and this might be a hurdle in markets in which pricing is sharp. Quality wise, studies show that auditors do compete on quality and that



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seems to be a good strategy to be successful. So data analytics could be a way for audit firms to differentiate.

- In an ideal world, we would be able to develop a system to identify unreliable data. However, it is not that unrealistic as it sounds.

Olivier Boutellis-Taft, CEO, AccountancyEurope

- When we talk about technology, experience shows that we don't really know what kind of changes will happen and when it will occur. Therefore becoming future-ready is key.
- We have to invest in education and training. But it is essential to be smart about where these investments are going. The reality is that many of the technical skills will either be automated or become outdated. Therefore we must invest in fundamentals skills like logic, ethics and soft skills that will help to adapt and thrive in unknown futures.
- Technology also requires heavy investment which most audit firms are already doing.
- We need to focus on enhancing 360° cooperation. One-to-one dialogue is important but we need to go beyond it. It is not just about data scientists talking to accountants. It is about people from all different disciplines, like psychologist, political scientists, engineers, engaging with accountants. Cooperation with clients and stakeholders also needs to be deepened.
- Regulators continue legislating based on models that have already disappeared. There is a need for the profession and regulators to cooperate.
- We cannot afford having three years of discussions before reaching conclusions – we have to accelerate. This is difficult to achieve in an environment where the possible outcomes are unknown. We need to go back to basics and be principle-based. Only in this way we can have flexibility to adapt.
- The profession needs to change focus and concentrate on three main elements: diagnose, decide and design. Diagnose – companies are still run by human beings and it often takes human emotional intelligence to understand the real (sometimes hidden) problem that needs to be solved. Design – AI will only do what we ask it to do. Humans still have the key role to play in system design. Decide – AI is very good at automated decisions but it is still fundamental to have a professional that can exercise skepticism and emotional intelligence. We all have examples of absurd AI decisions – professional judgement remains essential. Human beings are able to explain decisions – a decision that is not explained means nothing. Professionals can also include a public interest and forward looking dimension in their decisions.
- The best combination is to have humans and machines working together.
- As regards ethics in technology, some real life cases are really worrying and make the case for human input at design and judgmental phase. It remains crucial that we remain involved in the use of AI and we don't surrender the ultimate decision-making to machines. Machines are there to assist and do what we struggle doing. However, judgment needs to be exercised by humans. Adding trust to processes and outcomes remains the cornerstone of the profession.
- There are quite a few examples of sectors where technology has reduced competition significantly. There are some worries that it could happen in audit as well for instance because of the magnitude of the investments but there are also some opportunities here. We have seen the cost of many technologies reducing significantly over time lower the barriers to entry into difficult sectors like telecom and media. Cloud computing also makes certain technologies widely available. There might in fact be an opportunity to make more players competitive in a world where widely available technology enhances data processing, quality assurance and drives related costs down. This could shift competition to judgement and added value.



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- There is also a big urgency to discuss connecting non-financial information to financial information. There is no finance without people and climate. We should therefore look at how AI could help us work not only on price and quality but also on the content of the audit.

Andrew Gambier, head of Audit & Assurance, ACCA

- Data analytics will help the finance profession in giving it more time to talk to people. We don't need to be afraid of technology – it is something that is going to help us.
- It is important to consider ways how management can use AI. Even firms that are not up to speed with technology will be eventually affected by it.
- Auditors need to become more advisory-like when moving into the future world. Information that auditors provide is unique because companies cannot get it from anywhere else.
- Academic research shows that, although auditors tend to think they are very good at spotting patterns, it is not always the case. And not everyone is good at dealing with ambiguity.
- Finance profession needs to do more in order to be ready for the future world.
- There is a lot of discussion about upscaling every professional accountant. At the same time, many people don't necessarily need in-depth knowledge to access technology, especially when it is made easy for them to use.
- There is quite a lot of tension between benefits of technology for audit quality and benefits for entities that they are auditing. In the end, technology can benefit everyone, but the profession needs to articulate the benefits carefully.
- There are risks that come from the adoption of technology by audited entities. If there are risks to audit quality of adopting technology, auditors will proceed cautiously because audit quality is the most important thing. There are also risks that come from clients' activities and this is the risk that cannot be easily avoided. It creates new risks that are maybe auditors are less familiar with and therefore it is more difficult to assess how much audit work need to be done to respond to them.
- We need to think how we use these new tools to our best advantage. Academic evidence can help us in this journey. ACCA is working on a project on audit and technology which should be delivered in June 2019.