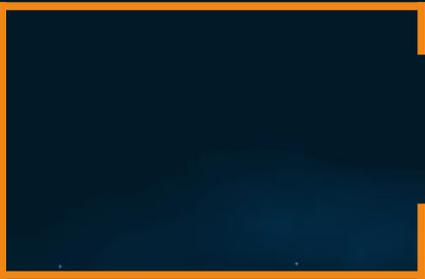


This document was provided to the Disruptive Technologies Roundtable participants and summarizes the research performed on technology innovation trends, their potential impact on audit and assurance, and initial proposed next steps for the IAASB and others.



Technology Disruption in Audit and Assurance



Prepared by IAASB Staff
November 2020

Introduction

- The purpose of this report is to share the key themes arising from technological innovations impacting audit and assurance services, as well as the impact of the themes to both the audit and assurance profession and the IAASB.
- In preparing this report, the IAASB worked with Founders Intelligence who investigated new technology trends influencing the professional services industry and investigated over 100 technology innovator companies and interviewed 23 organizations comprising of the innovators, audit and assurance practitioners, regulators, associations and national standard setters.



Innovations are Happening Across Audit and Assurance



-  NLP and Computer Vision for Digitising Documents
-  AI for Deriving Insights from Unstructured Data
-  API Access to External Data Sources for Enriched Analysis
-  Data Standardisation Platforms for Enabling Data Access
-  IoT Networks for Asset Monitoring and Data Generation
-  New Imaging Tools for Capturing On-site Physical Data
-  Blockchain for Digitising Ledgers of Financial Transactions

-  Robotic Process Automation for Executing Repetitive Tasks
-  Analytics for Assessing Data, and Error and Fraud Detection
-  AI-Powered Advanced Analytics for Risk Detection and KRI Design

-  Virtual Data Rooms for Sharing Sensitive Files
-  Data Anonymisation for Filtering Sensitive Information
-  Homomorphic Encryption for Analysing Encrypted Data

-  OCR, NLP and ML for Intelligent Document and Voice Analysis
-  AI for Detecting External Threats and Risks
-  Simulations for Scenario-Testing Controls and Policies
-  Process Mining and Computer Vision for Observing Controls Compliance
-  AI and Behavioural Analytics for Monitoring Employee Conduct and Communications

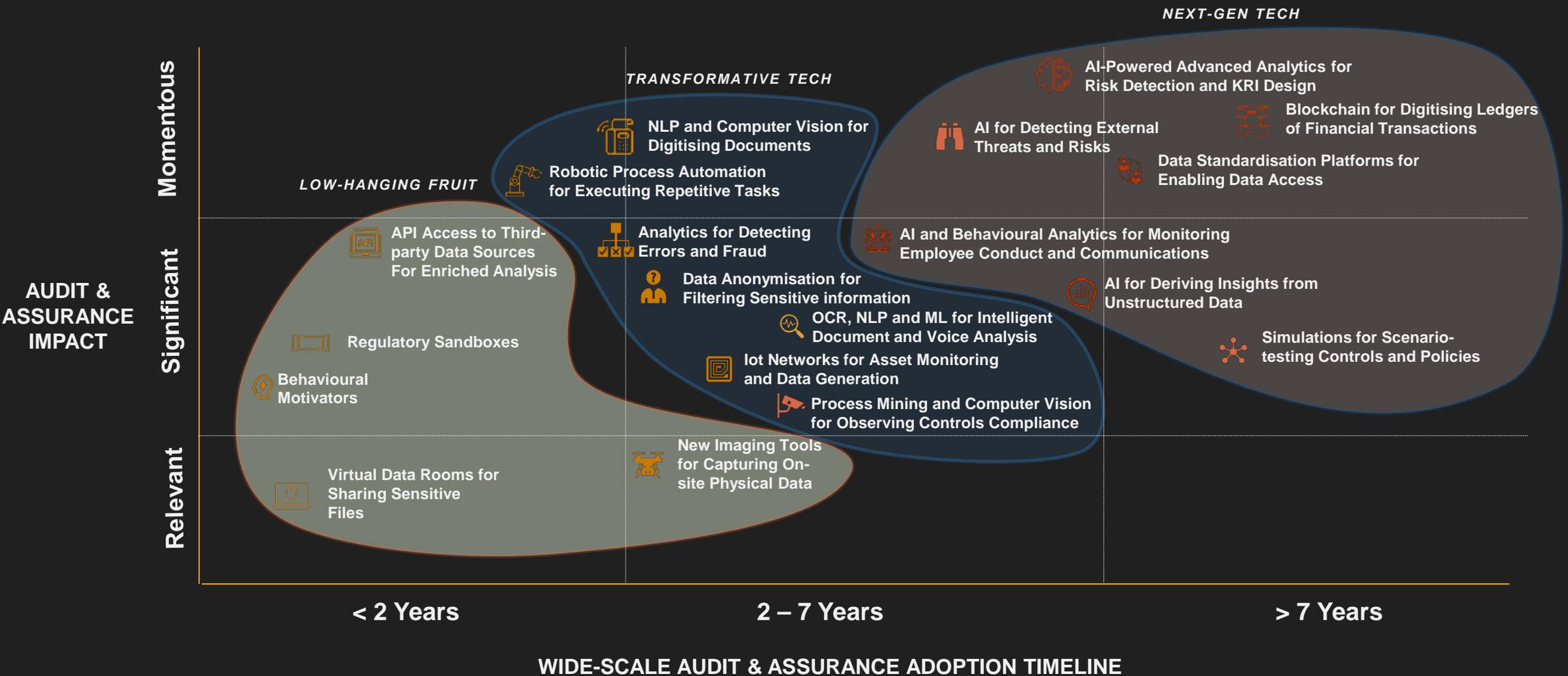
 **OTHER RELEVANT TRENDS**

-  Regulatory Sandboxes
-  Behavioural Motivators

 **UNIFYING THEMES**

-  Continuous and Real Time Audit and Assurance
-  Remote Audit and Assurance
-  Analytics Based Audit and Assurance
-  Technology-Enabled Profession

Impact on Audit and Assurance Will Increase



The Future of Audit and Assurance Looks Different from Today



Continuous and Real Time Audit and Assurance

Audit and assurance will increasingly involve checking and validating each transaction and information entry on a real time basis



Technology-Enabled Profession

Audit and assurance will increasingly need practitioners highly skilled in the application of emerging technologies and mixing them with human intellectual capabilities

This “flywheel” will be self-reinforcing



Analytics Based Audit and Assurance

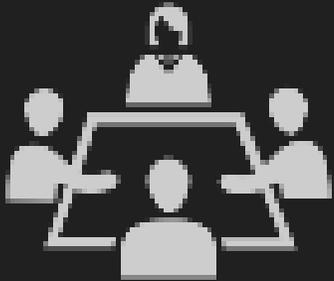
Audit and assurance will highly benefit from – and be strongly impacted by – advances in AI data analysis capabilities



Remote Audit and Assurance

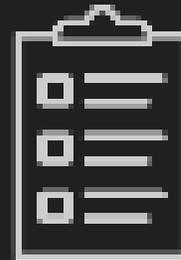
As working processes becoming more remote this trend will also penetrate audit and assurance world

Getting Future Ready: Areas for Action



Convene key stakeholders

Act on Standard Setting Considerations



Short-term



Build Board and Staff capacity



Longer-term



Continuous and Real Time Audit and Assurance

Continuous and Real Time Audit and Assurance

How it Works

Assembling information in electronic software systems



Direct access by auditors to company systems and infrastructure



Checking information via electronic documents and API access to third party data



Performing audit and assurance procedures in real time on a continuous basis

Enablers – What Needs to Happen For This to Become Reality

- Information reporting (accounting or other) fully present and accessible in electronic software systems
- Direct viewing access to company's systems and infrastructure by audit and assurance specialists
- AI and Machine Learning paired with behavioural analytics understand behavioural patterns and report deviations in real time
- API access to third party data to verify information
- Documentation for the transactions existing in electronic format

Implications for Audit and Assurance

- Audit and assurance engagements could be spread throughout the year. E.g., a continuous check on controls and payment cycles; verification of transactions when they occur, earlier warning of risks (e.g., going concern)
- Auditors' testing of controls becomes more complex and integrated into client systems (requiring algorithms, coding etc.)
- Expectations about what real-time auditing on a continuous basis means

Continuous and Real Time Audit and Assurance

Action Items for the IAASB



Continue to monitor technology developments in the audit and assurance space to drive possible further actions. Themes to consider may include:

- Auditors no longer focusing audit efforts once (or a few times) a year
- Increased need for standbacks and reevaluations of planning and risk assessment as new information is obtained
- Modernization of standards related to the effects of technology and sources of information

Upskilling of Board and Staff on audit quality implications of continuous and real time audit and assurance

Action Items for Others



- Upskilling of auditors and enhancing education and training programs;
- Users and those charged with governance clarifying information needs (including services other than audits of financial statements);
- Role of regulators, NSS and other standard setters related to other assurance services



Analytics Based Audit and Assurance

Analytics Based Audit and Assurance

How it Works

Assembling information in electronic software systems



Underlying confidential and sensitive data is anonymised and encrypted



Errors and fraud are detected using AI based analytics trained on aggregated data, with benchmarks and behavioural models



Providing audit and assurance without accessing underlying data, but analysing it, spotting patterns and deviations

Enablers – What Needs to Happen For This to Become Reality

- Information reporting (accounting or other) fully present and accessible in electronic software systems
- Digital data within companies aggregated in structured data lakes and pools
- Data standardization within industries
- AI data analytics algorithms advanced enough to detect errors and fraud with anonymised and encrypted data
- Regulators and investors becoming comfortable with analytics based audit and assurance

Implications for Audit and Assurance

- A near-term focus in practice on extracting and cleaning data and automating data extraction and clean up
- Longer term focus on data standardization
- Increased focus on data and cyber security as large amounts of data are being shared with auditors.
- Increasing resource and capability gap between firms [and regions]
- Auditors will need to become more data and tech savvy and comfortable with understanding how these technologies work

Analytics Based Audit and Assurance

Action Items for the IAASB



Continue to monitor technology developments in the audit and assurance space to drive possible further actions. Themes to consider may include:

- Testing 100% of the population
- Greater variety of data sources auditors may consider
- Whether entities are following data standards
- Link between analytics-based and risk-based audit
- Scalability of the use of analytics

Examples of topics to reflect on, include:

- Risk assessment implications of entity following data standards
- How the application of concepts like performance materiality is affected
- Implications of analytics to sampling techniques
- Considering the reliability of information from digital sources and of information obtained through using technology

Action Items for Others



- Consider the role of the profession in data standardization and data governance
- Ensure accountancy education integrates sufficient data and technology related topics for a future-ready profession
- Development of implementation materials and tools for small- and mid- sized firms



Remote Audit and Assurance

Remote Audit and Assurance

How it Works



Enablers – What Needs to Happen For This to Become Reality

- Information reporting (accounting or other) fully present and accessible in electronic software systems
- Direct viewing access to company systems and infrastructure by audit and assurance specialists
- Drones and Internet of Things widely adopted
- Anonymised and encrypted data sharing and transfer
- API access to all third party data to verify information
- Documentation of transactions existing in fully electronic format
- Regulators and investors comfortable with remotely conducted audit and assurance

Implications for Audit and Assurance

- Firms can provide more diverse talent to client engagements
- Once technology enablers are readily available, the need for an auditor's physical presence is reduced
- Regulators, investors, other users may have expectations for the auditor to physically be present. Evaluate whether the auditor's physical presence has quality implications

(This has already moved forward significantly as a result of the Covid-19 pandemic)

Remote Audit and Assurance

Action Items for the IAASB



IAASB issued a staff audit practice alert which highlighted that this trend has already moved forward significantly, with increasing numbers of auditors working remotely as a result of Covid-19.

Continue to monitor technology developments in the audit and assurance space to drive possible further actions.

Examples of topics to reflect on including:

- Incorporating the use of technology into the fraud standard (both in the use of technology to perpetrate fraud and the use of technology to address the auditor’s responsibilities relating to fraud).
- To better acknowledge technology and audit evidence gathered from digital sources and using technology.
- Opportunities and special considerations for group auditors interacting with component auditors or certain components remotely

Action Items for Others



- Regulators and investors to consider their expectations for the auditor to be physically present during an audit
- Enable wider availability of remote-working audit tools



Technology-Enabled Profession of Audit and Assurance

Technology-Enabled Profession of Audit and Assurance

How it Works

AI will become better in simple workstreams in audit and assurance, eventually automating most of it

Human involvement in routine tasks and simple analytics will be minimised

Skills like critical thinking and creativity will be in high demand, to detect errors and fraud conducted by machines

Future professionals will be savvy in technology and AI tools, complementing it with the power of human intelligence

Implications for Audit and Assurance

- Increased use of experts e.g. non-auditors may be required to conduct tech-enabled data acquisition, or to verify processes used by the audited entity (authenticating the source of the information)
- Audit firms will need to engage more internal and external experts, who bring the knowledge to interrogate and interpret data in a way that ensures the effective use of technology

Advanced technologies offer great promise to the audit. However technologies are only as good as the audit team's ability to use them

Technology-Enabled Profession of Audit and Assurance

Action Items for the IAASB



- Skills matrix for IAASB Staff – diverse technological background
- Organize annual roundtable on technology innovation
- Develop and maintain technology innovation inventory – annually/biannually updated
- Include technology innovation in regular outreach program agenda

Action Items for Others



- Consider appropriate skills matrix for IAASB members incorporating technology professionals
- Ensure accountancy education integrates sufficient data and technology related topics for a future-ready profession
- Development of implementation materials and tools for small- and mid- sized firms, and collaboration with service providers

IAASB

International Auditing
and Assurance
Standards Board®

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