Disruptive Technologies

Agenda Item 3
IAASB Meeting
September 12, 2022
Current and Future Workplan activities
Explore how the IAASB most effectively can respond to technology via new or revised International Standards or non-authoritative guidance.

Investigate disruptive technology trends
Explore technology’s effect on audit and assurance – both in the current environment and in the future – in order to be prepared for technology disruption and be able to respond appropriately to support audit and assurance quality.
Objectives of the Disruptive Technologies initiative

Build

Build processes and structures to support the IAASB’s disruption initiative

Maintain

Maintain and improve the IAASB’s knowledge about disruption trends and their implications for standard-setting and the public interest

Share

Share knowledge and agenda with stakeholders in the reporting ecosystem to improve audit and assurance quality and strengthen external reporting quality.
Disruptive Technologies - Activities to date

**Build**
- Initial research into innovation landscape for Audit and Assurance (Board presentation Jan. 2021)
- Seconded Staff Fellow focused on Disruptive Technology Trends
- Technology Knowledge base built for upskilling staff and Board
- Digital Advisory Group established - first meeting held May 2022

**Maintain**
- Ongoing outreach and research update activities and interviews
- Board update and awareness sessions
- Interactions with Technology Consultation Group and Current Project teams (e.g., Fraud, Audit Evidence)
- Liaison with IESBA, IAAER and IFAC Technology

**Share**
- Disruptive Technologies Roundtables Nov 2020 and Feb 2022
- Regular Digital Technology Market Scan publications
  - Data Standardization
  - Application Programming Interfaces (APIs)
  - Artificial Intelligence : A Primer
  - Natural Language Programming (NLP)
- Thought leadership - Assurance in a Digital Age
Technology Maturity Model – 2020 Research

Impact on/Usage within Audit and Assurance

- Significant
- Moderate
- Low

Auditor  Entity  Both

Embryonic

- Homomorphic Encryption for Analyzing Encrypted Data
- Blockchain for Digitising Ledgers of Financial Transactions
- Simulations for Scenario-testing Controls and Policies

Growth

- Data Anonymisation for Filtering Sensitive Information
- IoT Networks for Asset Monitoring and Data Generation
- OCR, NLP and ML for Intelligent Document and Voice Analysis
- AI for Detecting External Threats and Risks
- AI for Deriving Insights from Unstructured Data
- New Imaging Tools for Capturing On-site Physical Data

Emerging

- AI-Powered Advanced Analytics for Risk Detection and KRI Design
- Remote and Distributed Workforce Analysis
- AI for Detecting External Threats and Risks
- New Imaging Tools for Capturing On-site Physical Data
- AI for Deriving Insights from Unstructured Data

Maturing

- Analytics for Detecting Errors and Fraud
- Robotics Process Automation for Executing Repetitive Tasks
- API Access to Third-party Data Sources For Enriched Analysis
- Virtual Data Rooms for Sharing Sensitive Files
- NLP and Computer Vision for Digitising Documents
- Process Mining and Computer Vision for Observing Controls Compliance
- AI and Behavioural Analytics for Monitoring Employee Conduct and Communications
- AI and Behavioural Analytics for Monitoring Employee Conduct and Communications
- AI for Detecting External Threats and Risks
Technology Maturity Model – 2022 Research

**DRAFT**

**Embryonic**
- Quantum computing for enhanced processing power
- Digital twins for assessing asset performance

**Emerging**
- Blockchain based business models and processes
- Smart contracts for automating transactions
- IoT Networks for Asset Monitoring and Data Generation
- Behavioural Analytics and Simulations for Internal controls monitoring

**Growth**
- NLP and Computer Vision for Digitising Documents
- AI for Deriving Insights from Unstructured Data
- Process Mining and Computer Vision for Observing Controls Compliance
- Imaging Tools for Capturing On-site Physical Data
- Cloud and Edge computing for flexible data storage
- Digital assets (creation, trading and ownership)
- Data anonymisation and encryption technologies

**Maturing**
- Robotic Process Automation for Executing Repetitive Tasks
- Data access and transformation technologies (inc. data standardization and APIs)
- NLP and Computer Vision for Digitising Documents
- AI-Powered Advanced Analytics for Risk Detection and Risk Response
- Cybersecurity and Data Governance
- Descriptive Analytics for Risk and Error Detection

**Impact on/Usage within Audit and Assurance**
- Auditor
- Entity
- Both
- Significant
- Moderate
- Low
Trends from research and outreach activities

• Consistent access to appropriate data (including for use in training AI) continues to be a barrier to greater and more widespread use of technology

• Technology adoption lags innovation – people-related factors are a significant contributor including required skills/expertise, confidence, capacity and mindset shift

• Artificial Intelligence and Machine Learning technologies are consistently identified as the most revolutionary and are increasingly used:
  • To support risk identification and anomaly detection
  • To identify key terms in unstructured documents (e.g., leases, contracts)
  • To perform predictive analytics to support forward looking procedures (e.g., going concern)

• Diverse views exist on the expected impact of Blockchain and related technologies – however Digital Assets are becoming more prevalent

• Remote working continues to influence technology innovations
New technology trends identified

- Cybersecurity and Data Governance
- Cloud and Edge Computing for flexible data storage
- Digital Twins for assessing asset performance
- Quantum Computing for enhanced processing power
- Immersive Technologies (Augmented/Virtual Reality/Metaverse) for enhanced user experience

See Appendix for technology trend terms modified since original research
1. The Board is asked for its views on the technology innovation trends highlighted. Of particular interest is which technologies are likely to have the greatest impact on audit and assurance?
Digital Advisory Group
Digital Advisory Group – Items and Themes

Items covered
1) Are the IAASB playing the right role?
2) The future of audit – expert talk
3) Project exploration opportunities

The role of the IAASB
- Technology in Auditing Standards
- Encouraging the Use of Technology
- Convening, Communicating & Collaborating

Other themes
- Accessibility and Consumption of Auditing Standards
- Barriers to Adoption of Technology - Data
- The Attractiveness of the Audit Profession
Breakout Session
Appendix
## Modified technology trend terms

<table>
<thead>
<tr>
<th>Original Research 2020</th>
<th>Updated Research 2022</th>
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<tbody>
<tr>
<td>• Analytics for Assessing Data and Error and Fraud Detection</td>
<td>• Descriptive analytics on financial and non-financial data</td>
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</table>
| • NLP and Computer Vision for Digitizing Documents  
  • OCR, NLP and ML for Intelligent Document and Voice Analysis | • NLP and Computer vision for Document digitization and enhancement |
| • AI and Behavioral Analytics for Monitoring Employee Conduct and Communications  
  • Simulations for Scenario Testing Controls and Policies | • Behavioral analysis and Simulations for internal controls monitoring |
| • Blockchain for Digitizing Ledgers and Financial Transactions | • Blockchain based business models and processes  
  • Digital Assets (creation, trading and ownership)  
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| • API Access to External Data Sources for Enriched Analysis  
  • Data Standardisation Platforms for Enabling Data Access  
  • Virtual Data Rooms for Sharing Sensitive Files | • Data access and transformation technologies (inc. data standardization and APIs) |