IOT FOR AUDITORS AND ACCOUNTANTS; AUDITING THE IOT

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INTERNET OF THINGS AND ACCOUNTING

- IoT is happening: monitoring, recording, acting
- Benefits and concerns for the business reporting supply chain
  - Automating collection of information necessary for record-keeping and decision making with potential benefit of facilitating the capture of increased amounts of information (*more detail, more often*) with reduced manual errors
  - Reducing time lapse between an event and its recording for more timely decision making
  - Facilitating assessment of process-driven activities
  - Good news/bad news: more data, more action, more observation, reduction of immediate direct human impact
EMERGING TECHNOLOGIES IMPACT ON THE ACCOUNTING PROFESSION

- Accounting and audit profession’s history of embracing technology
  - History of my inspiration: NYS CPE circa 1990
  - From Lotus 1-2-3 to PCAOB AI 20.16-.18 (early adopter or white-flag)
  - IFRS updating its principles of disclosure ... role of digital reporting?
    - "The [IASB] decided that the staff should perform further analysis about whether and how to consider the effect of technology and digital reporting within the scope of the Principles of Disclosure project for discussion at a future Board meeting."
IOT IN AUDITING; AUDITING IOT

• Nonetheless, technology can be a facilitator
  • Facilitation of human involvement
    • Drones, virtual/augmented reality, virtual presence, wearable tech
  • Facilitation of automated processes to maximize human involvement
    • RF ID, advanced analytics, use of exogenous data, AI, Tokenization, autonomous vehicles
• IOT in auditing
• Auditing IoT
IOT IN AUDITING

• Auditor’s “physical” involvement – but not full-time involvement – is expected in practice
• The observer effect (Hawthorne Effect)
  • Theory that observing a process necessarily changes the process
• Insulation: benefits and concerns
  • Greater and lesser exposure at the same time (remote proctoring example)
  • Necessary for dealing with increased technology, need for speed, globalization and automation
  • Gut-feel, whistleblowers, observation of topics other than those under focus
IOT: GATHERING EVIDENCE TO SUPPORT ASSERTIONS

Valuation
Existence
Location
Occurrence
Completeness
Classification
Understandability
Accuracy
Presentation
Cut-off
Obligations
Rights
OBJECTS INTERACTING WITH PEOPLE AND SYSTEMS

Sensors / Individually identified objects (people and things) interacting on the Network

Standard Rules
Artificial Intelligence
Visualizations

Occurrence / Action / Acquisition
Collection / Communication
Analysis / Analytics
Aggregation / Preparation
Interpretation
Storage

Network

Standards
EXAMPLE: EXPECTATION OF PHYSICAL PRESENCE

• Attend, observe, inspect ... or modify your opinion (ISA 501)
• Be “present”
  • .01 **Observation of inventories is a generally accepted auditing procedure.** The independent auditor who issues an opinion when he has not employed them must bear in mind that he has the burden of justifying the opinion expressed.
  • .09 **When inventory quantities are determined solely by means of a physical count, and all counts are made as of the balance-sheet date or as of a single date within a reasonable time before or after the balance-sheet date, it is ordinarily necessary for the independent auditor to be present at the time of count** and, by suitable observation, tests, and inquiries, satisfy himself respecting the effectiveness of the methods of inventory-taking and the measure of reliance which may be placed upon the client’s representations about the quantities and physical condition of the inventories. (PCAOB AS 2510: Auditing Inventories)

• Has “present” changed in an IoT era?

AS 2510 (PCAOB), AU-C Section 501.11 - .15, .A21-.A38 (AICPA); ISA 501.4-.8, .A1-.A16 (IAASB)
# AUDIT PROCEDURES AND PHASES

Risk assessment procedure, Test of controls, Substantive procedures

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<th>Procedures to obtain audit evidence</th>
<th>Internet of Things</th>
<th>Blockchain/DLT</th>
<th>Audit &amp; Accounting Standards</th>
<th>AI/Machine Learning</th>
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<tr>
<td>(ISA 500 .A2, AS 1105 .15 -.21, AU-C 500 .A14 -.A26)</td>
<td>Actors on the Network; sensors and “doers”</td>
<td>How do you store it</td>
<td>How do you represent it? (Data and Asserted Rules)</td>
<td>How do you perform it?</td>
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<td>Inquiry</td>
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**WORKING ON THESE AREAS:**

- What’s practical – today
- What’s practical – tomorrow
- What’s necessary or no longer necessary tomorrow (e.g., token economy)
Auditing the Internet of Things

• For us to audit with IoT, we need to have comfort in IoT
• For us to have comfort in client’s and third party IoT, we need to have ways to assess it
AUDITING THE INTERNET OF THINGS

- Organizational oversight, policies, controls
- Assessing and remediating risks
  - Existence/completeness, tracking, monitoring the pieces in place
  - Configurations, patching (firmware, OS, apps) and maintenance
  - Security of sensors (esp. privacy); security of actors
  - Resiliency, dealing with DoS
  - Safety
  - True to purpose
- Prevention, detection, remediation
Good morning, Dave.

I need you to follow up on an audit issue.

And to get two gallons of milk.

Any questions?
QUESTIONS?

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