

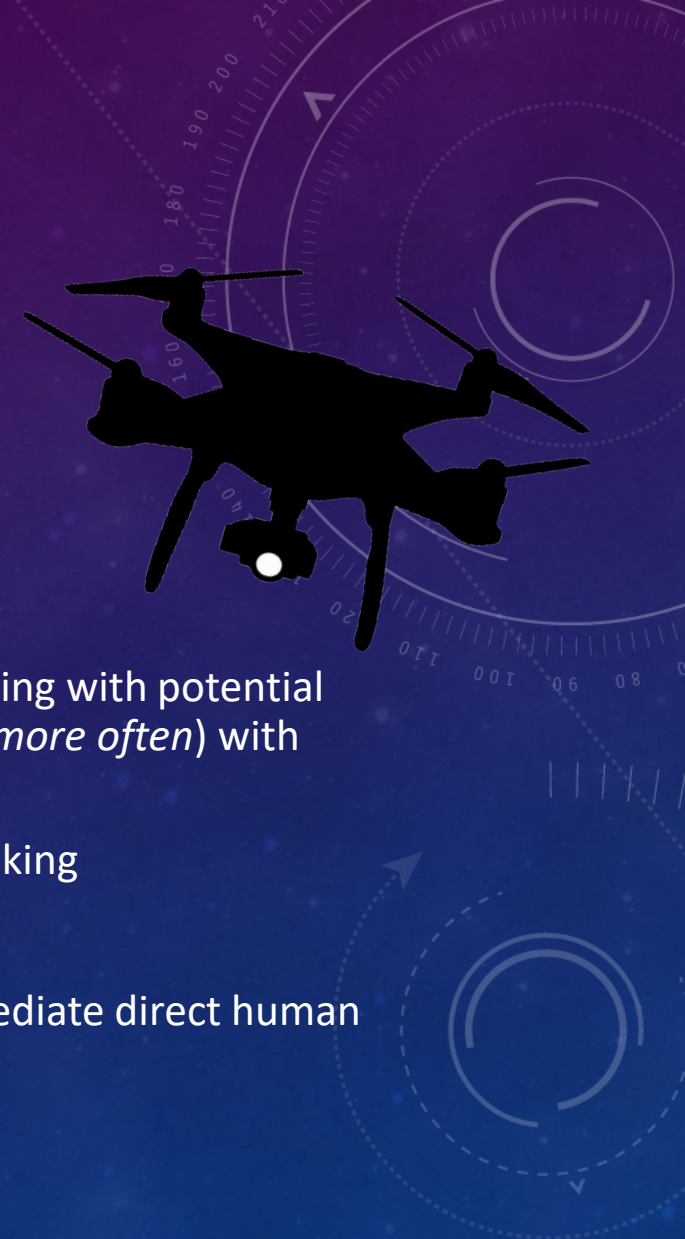


IOT FOR AUDITORS AND ACCOUNTANTS; AUDITING THE IOT

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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



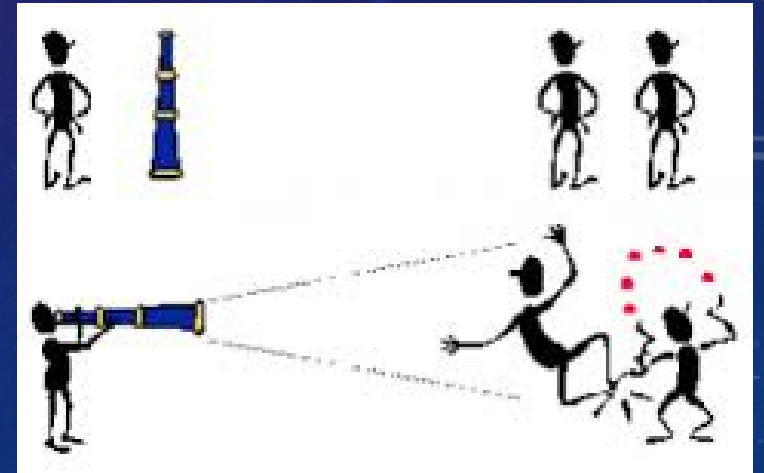
EMERGING TECHNOLOGIES IMPACT ON THE ACCOUNTING PROFESSION

- 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."

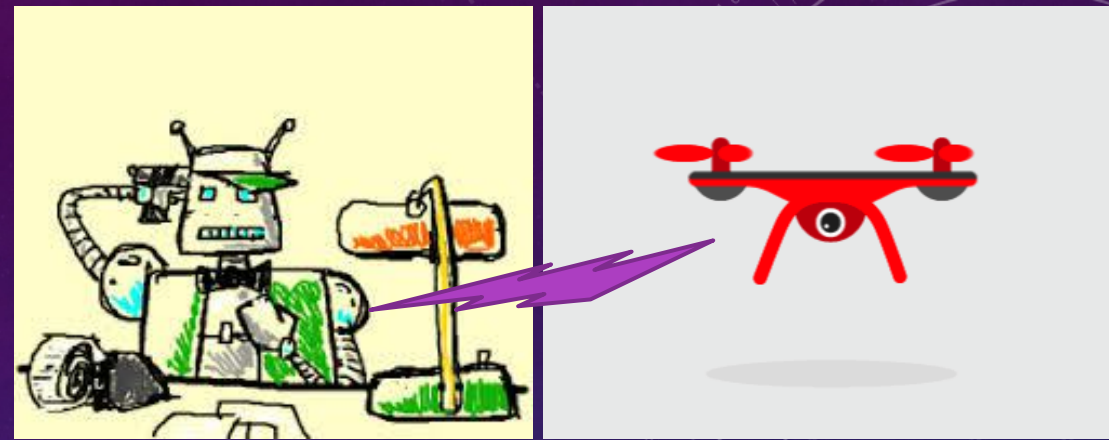


IOT IN AUDITING; AUDITING IOT

- 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

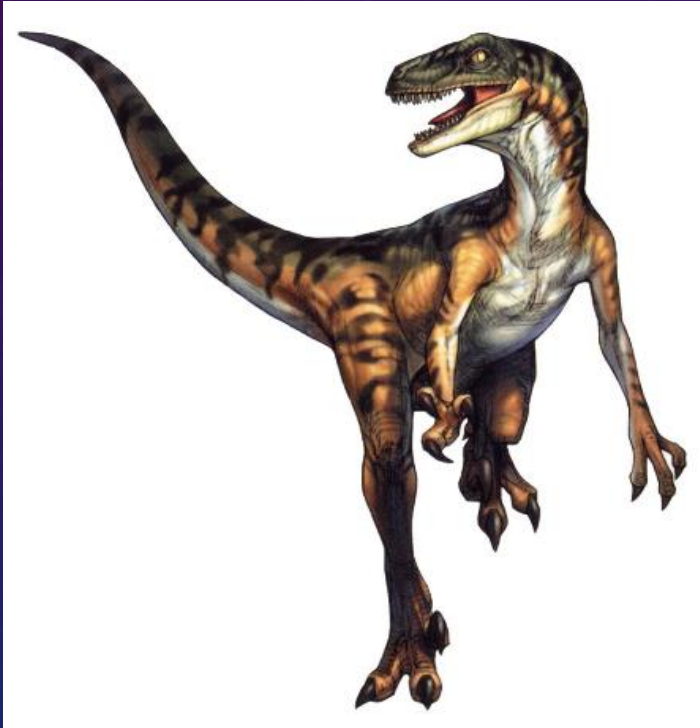


IOT IN AUDITING



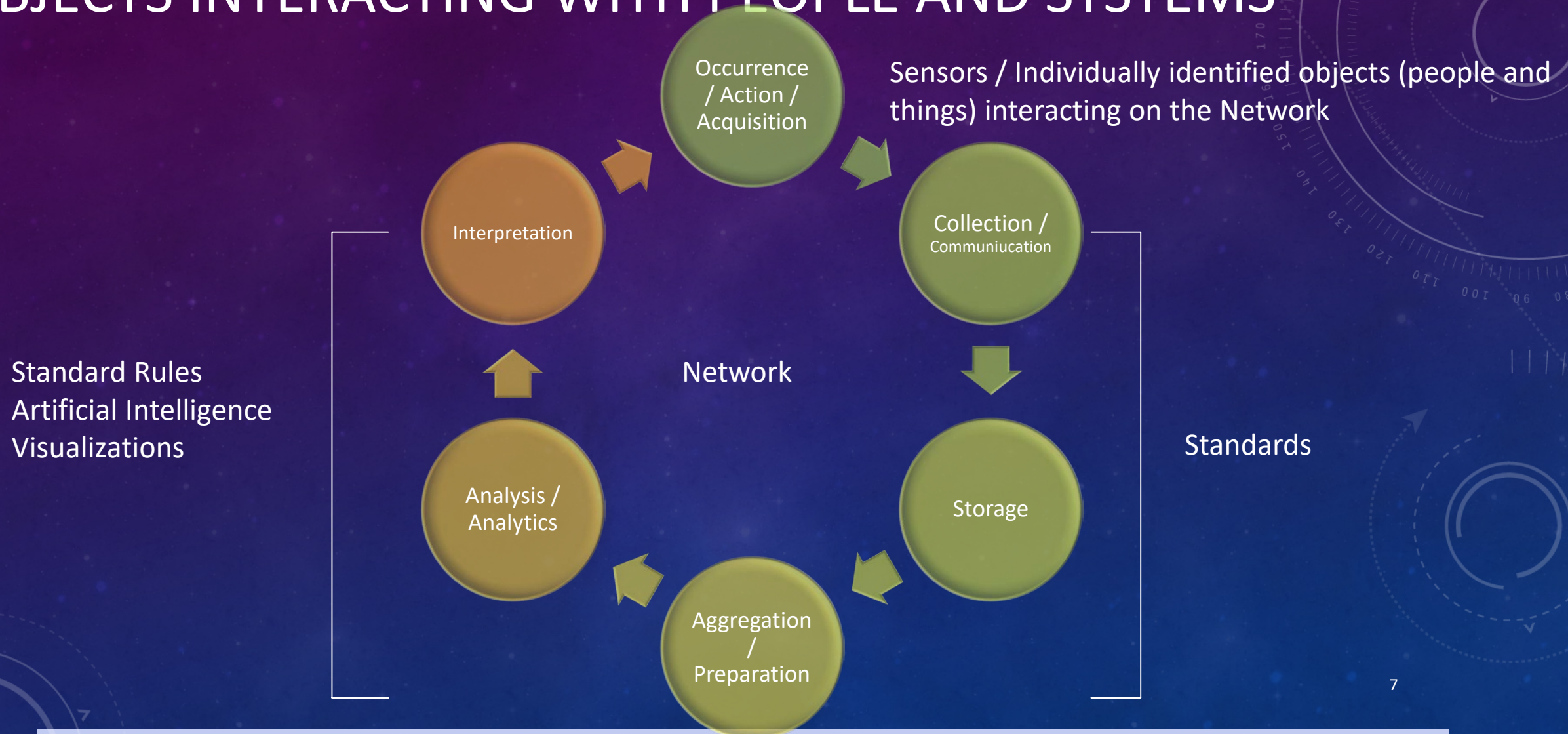
- Auditor's "physical" involvement – but not full-time involvement – is expected in practice
- The *observer effect* (Hawthorne Effect)
 - Theory that observing a process necessarily changes the process
- Insulation: benefits and concerns
 - Greater and lesser exposure at the same time (remote proctoring 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
a**L**location
Occurrence
Completeness
class**I**fication
unde**R**standability
Accuracy
Presentation
cu**T**off
Obligations
Rights

OBJECTS INTERACTING WITH PEOPLE AND SYSTEMS



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

Procedures to obtain audit evidence (ISA 500 .A2, AS 1105 .15-.21, AU-C 500 .A14 - .A26)	Internet of Things Actors on the Network; sensors and “doers”	Blockchain/DLT How do you store it	Audit & Accounting Standards How do you represent it? (Data and Asserted Rules)	AI/Machine Learning How do you perform it?
Inspection (documentation, including vouching, tracing, scanning?)				
Observation (processes or procedures)				
(External) Confirmation				
Recalculation				
Reperformance				
Analytical procedures, including scanning (AICPA)				
Inquiry				

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





Any questions?



QUESTIONS?

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- *Your Intelligent Designer using Internet of Things (IDIoT)*

