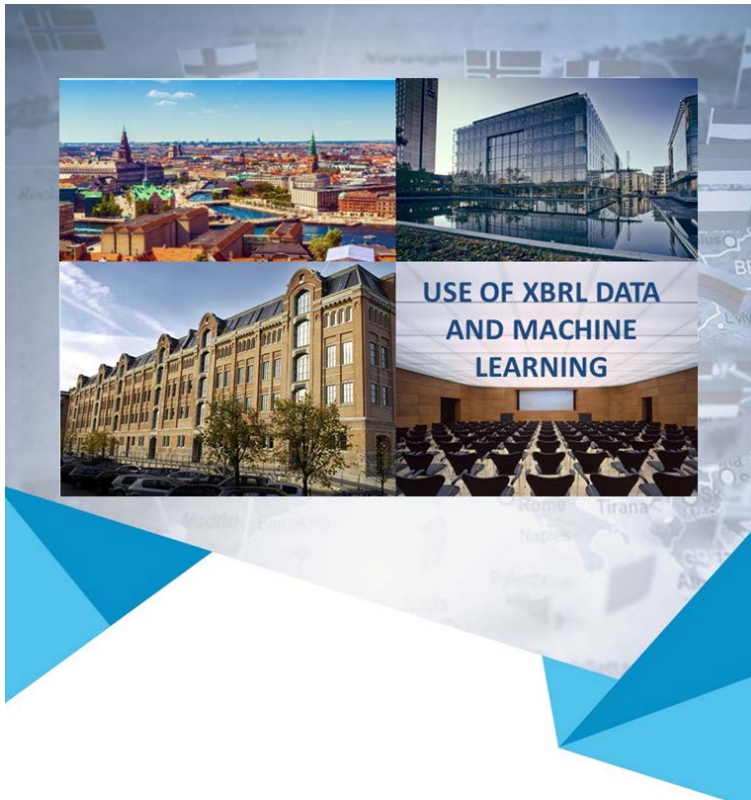**XBRL | EUROPE** **XBRL | DENMARK**

XBRL + Blockchain + AI/Machine Learning = Continuous Audit Tool

- Eric E. Cohen
- Auditchain
- Member, XBRL US; guest of XBRL Europe

Abstract

As the market calls for more - and different - types of business reporting, more often, with new levels of assurance and comfort, the facilitating components of a total solution are coming together and becoming practical.

THESE INCLUDE:

AREA OF INTEREST	XBRL'S POTENTIAL IMPACT
Audit Data Standards for audit evidentiary data	XBRL GL as toolset for representing AICPA ADS, ISO/PC 295
Reporting content	XBRL taxonomies
Standardized formulas, rules and assertions	XBRL Formula and taxonomies for Smart Contracts
Practical AI and machine learning tools, including analytics	Fed by better "fuel"
Seamless, transparent, available, cryptographically-supported standardized audit trail	Facilitated by blockchain/DLT; potential role of tokenization

Abstract

Together, they may provide the new information delivery method that can facilitate organizations and auditors in meeting regulatory and market demand. In this session, the attendee will learn about:
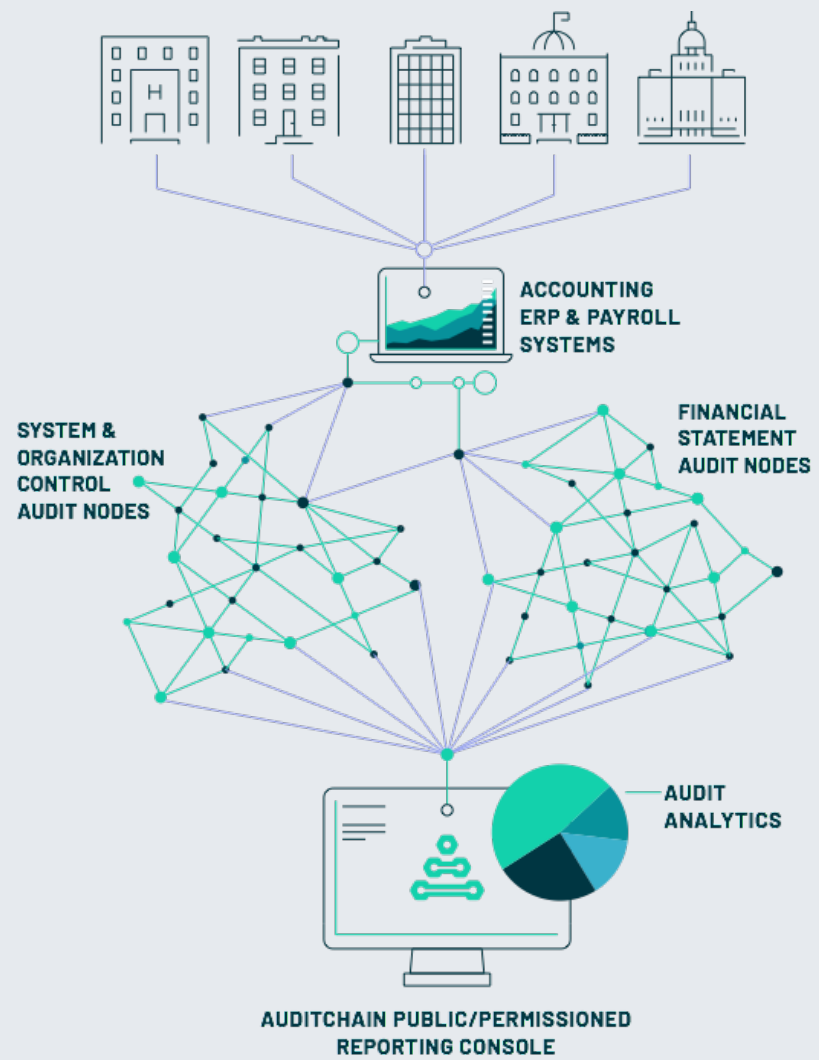
− Efforts to move accounting and audit to Blockchain/Distributed Ledger technologies (B/DLT*)

− Methods to include or reference audit evidentiary payload using B/DLT

− How AI and Machine Learning can support automated analytics and help bridge the gap from periodic to real-time

1. Moving Accounting & Audit to B/DLT

What if there was an ecosystem that uses distributed ledger technology and an open source library of accounting smart contracts sufficient to capture, process, audit and report enterprise data and performance data on a real time continuous basis under a continuous independent audit exceeding current accounting, audit and control standards?

One with the capacity to meet and exceed the reliability of existing reporting and audit standards but laying down a foundation for the potential token economy?
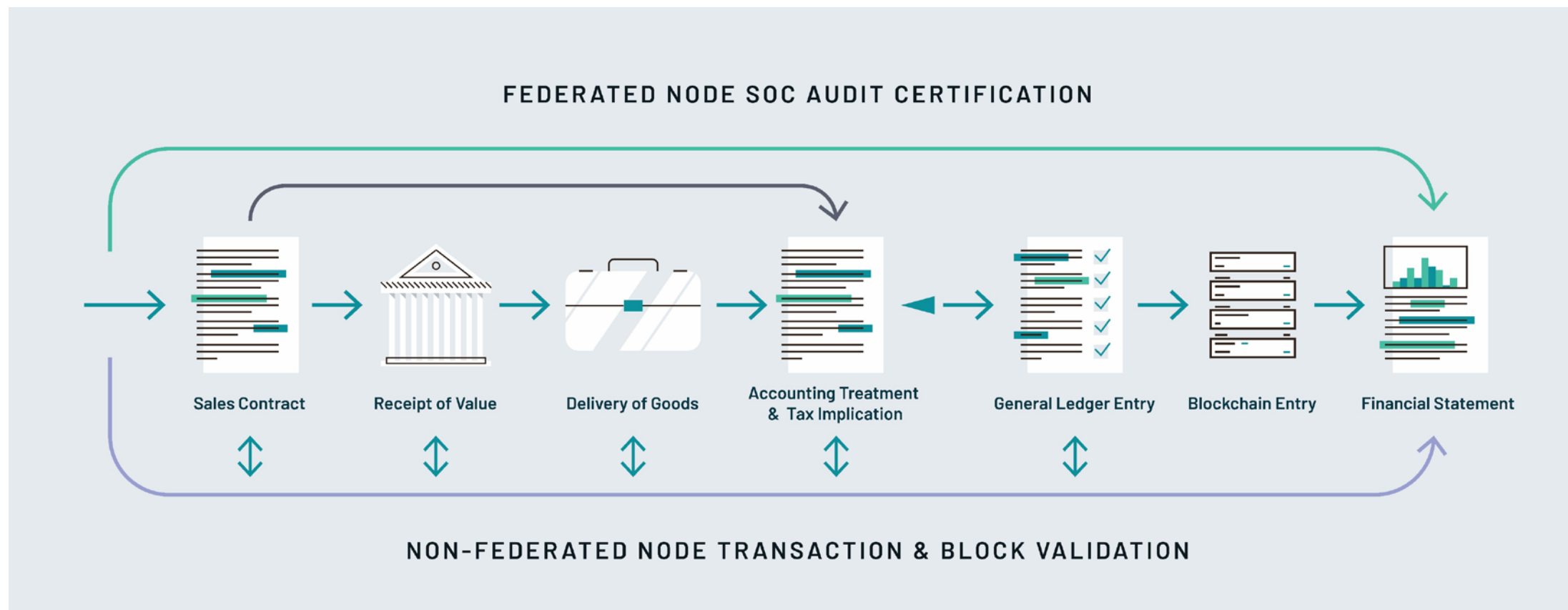
ACCOUNTING
ERP & PAYROLL
SYSTEMS

SYSTEM &
ORGANIZATION
CONTROL
AUDIT NODES

FINANCIAL
STATEMENT
AUDIT NODES

AUDIT
ANALYTICS

AUDITCHAIN PUBLIC/PERMISSIONED
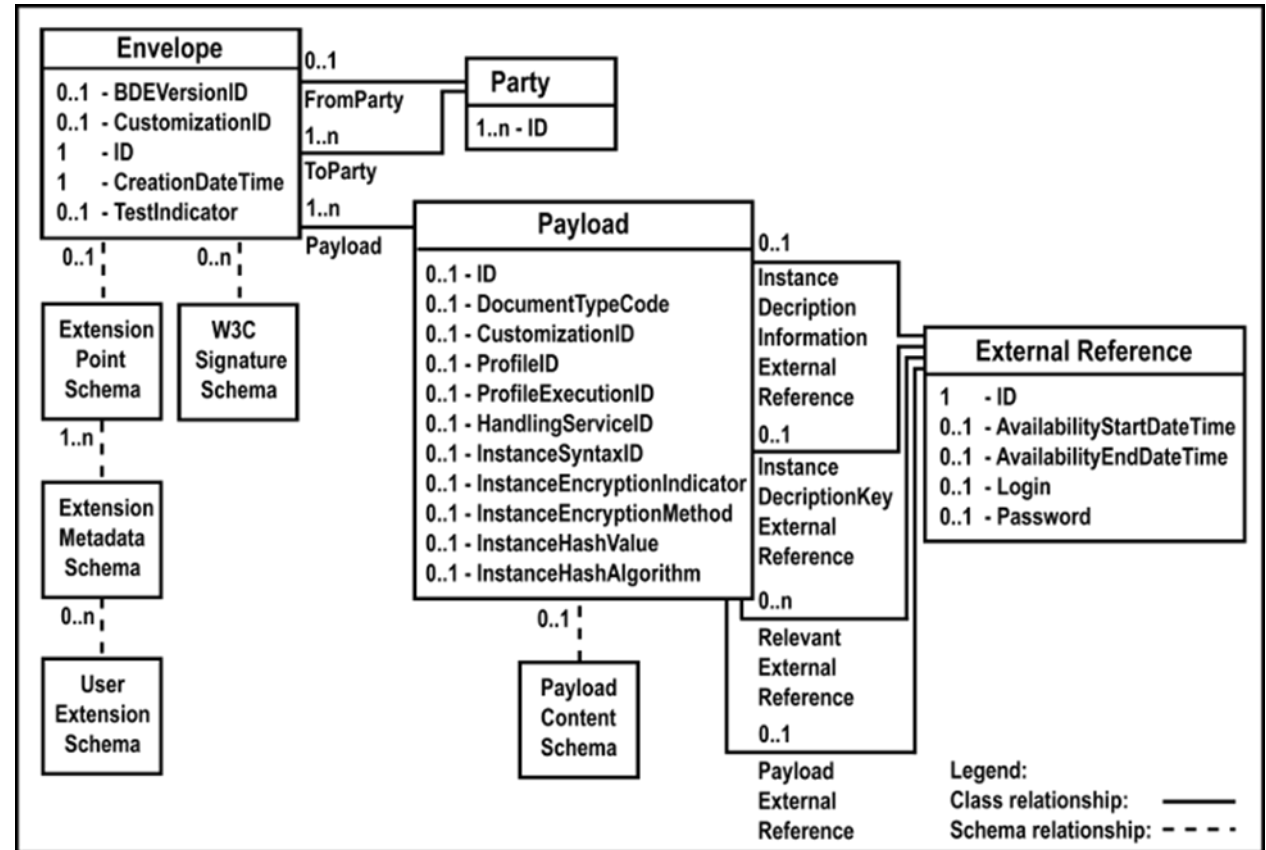REPORTING CONSOLE

Transaction Lifecycle

2. Including or Referencing Audit Evidence

It's not just about "facts"

It's also about context and interrelationships

Transactions do not stand on their own

- XBRL GL DISC

- OASIS BDXR

- UN/CEFACT SBDH

SOURCE: https://xbrlgl.wixsite.com/bdltaudit/blog

Inputs and Outputs of Audit

The objective of the auditor is to **plan** and **perform** the audit to obtain appropriate **audit evidence** that is sufficient to support the **opinion** expressed in the auditor's report.[1]

INTERNATIONAL STANDARD ON AUDITING 500

AUDIT EVIDENCE

(Effective for audits of financial statements for periods beginning on or after December 15, 2009)

AS 1105: Audit Evidence

Effective Date: For audits of fiscal years beginning on or after Dec. 15, 2010

Final Rule: PCAOB Release No. 2010-004

Guidance on AS 1105: Staff Audit Practice Alerts No. 8 and No. 12

AU-C Section 500

Audit Evidence

Source: SAS No. 122; SAS No. 128.

See section 9500 for interpretations of this section.

Effective for audits of financial statements for periods ending on or after December 15, 2012.

Audit Evidence

Information used by the auditor in arriving at the conclusions on which the auditor's opinion is based. Audit evidence includes both information contained in the accounting records underlying the financial statements and other information.

Sources of Evidence

| |
|---|
| Accounting system/records |
| **Work of a management's expert** |
| Information prepared by the client, such as minutes of meetings, or a management representation |
| Information from previous audit |
| Information from acceptance and continuation evaluation |
| Information from third parties including confirmations, analyst reports, benchmarking data |
| Correspondence with legal entity |

Eric's Blackbox Audit Trail from 15 Years Ago
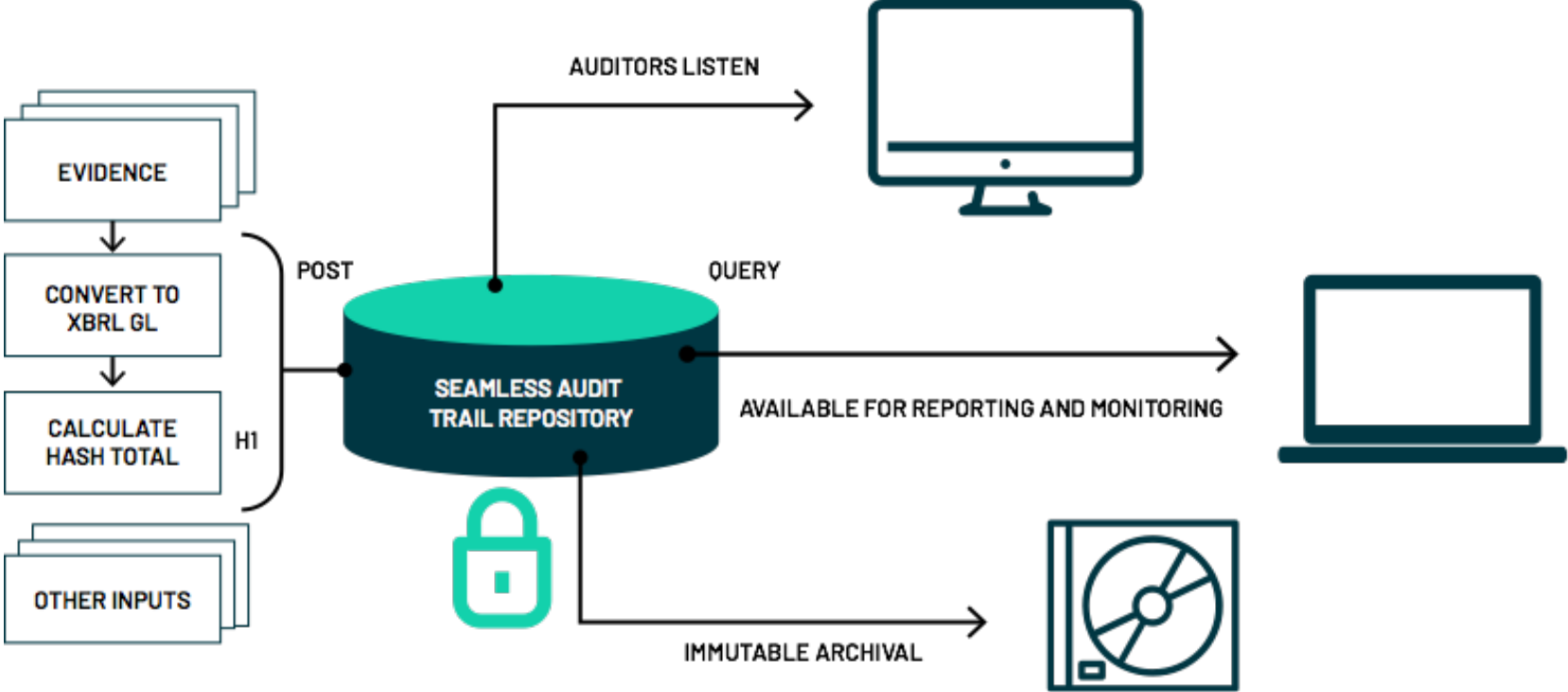
XBRL as Standard for B/DLT Audit

- Payload for Generic BDLT Design: Any BDLT an Audit BDLT

    - Normalize information from disparate systems for storage or reference

- Smart Contracts

    - Drive Smart Contract "variables" using XBRL taxonomies

    - Represent Smart Contract logic using XBRL Formula

Smart Contract Platform

- Board Resolutions

- Audit Committee Resolutions

- Employment Agreements

- Equity Issuance Agreements

- Debt Issuance

- Equity Based Compensation

- Equipment Purchase

- Purchase Orders

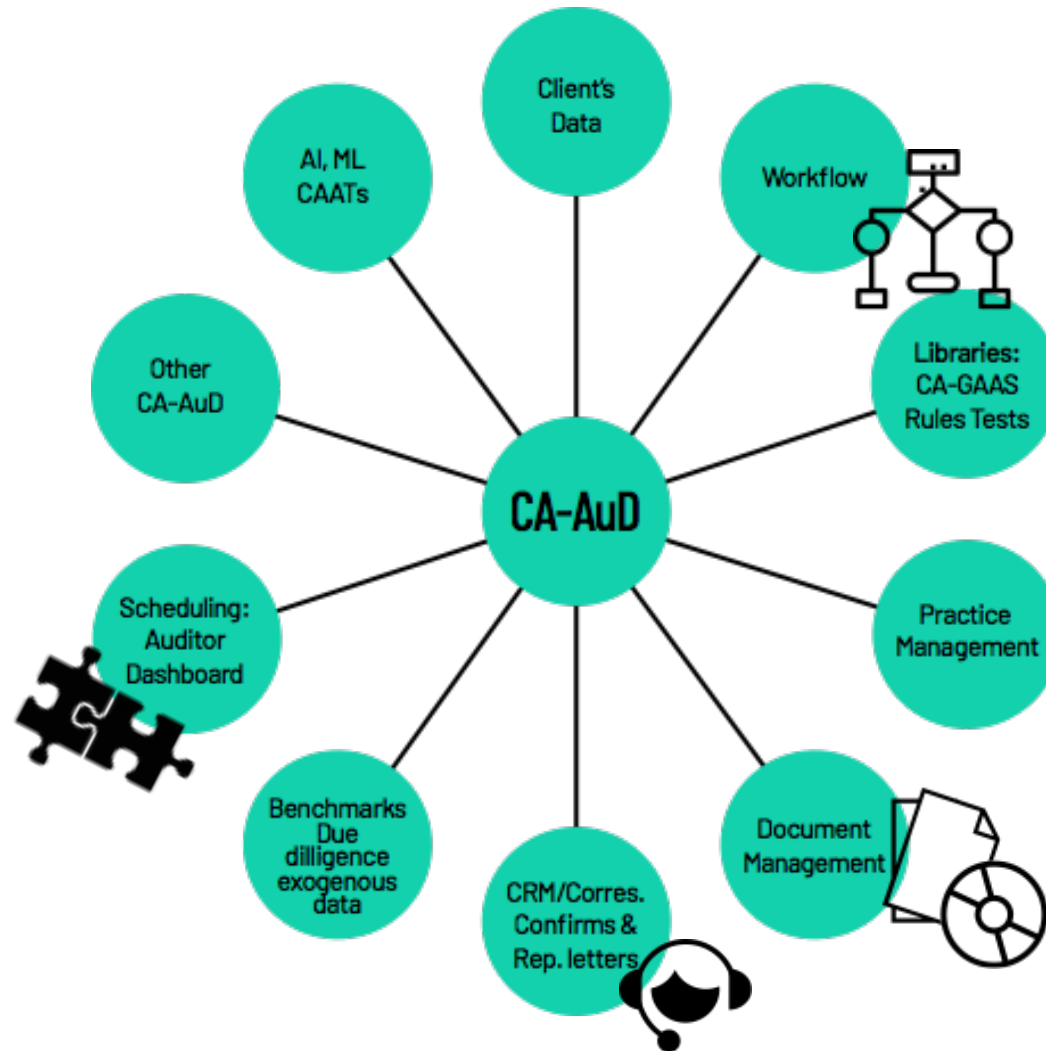# 3. Role of AI and Machine Learning

- Supporting automated analytics

- Bridging the gap from periodic to real-time

- Learning and adapting

- Reducing delays from need for manual effort

- Example: Steps related to the work of management's expert

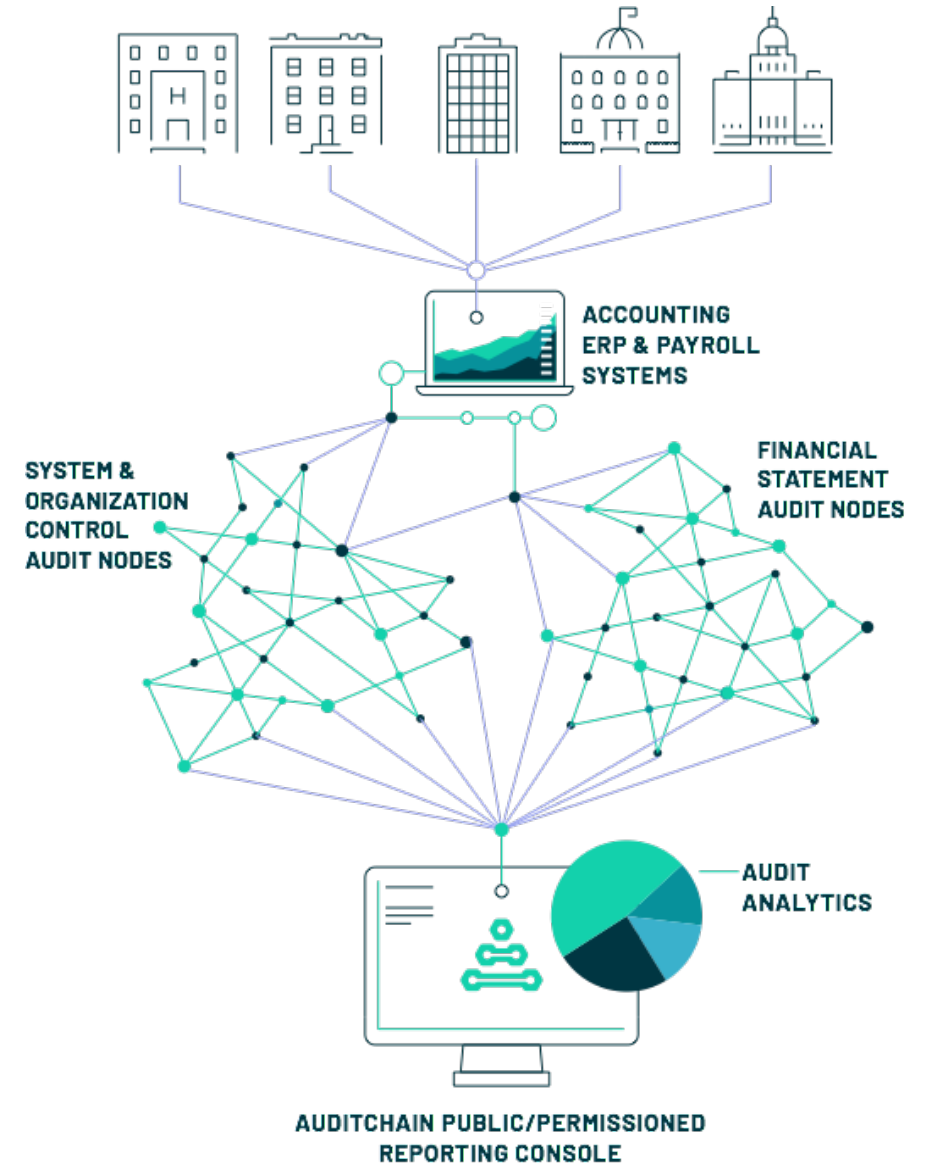# Example: Role of AI/ML and Management's Expert

- Information regarding the competence, capabilities and objectivity of a management's expert may come from a variety of sources, such as:

  - **Personal experience** with previous work of that expert.

  - **Discussions** with that expert.

  - **Discussions** with others who are familiar with that expert's work.

  - Knowledge of that expert's **qualifications**, membership of a professional body or industry association, license to practice, or other forms of external recognition.

  - **Published papers** or books written by that expert.

  - An **auditor's expert**, if any, who assists the auditor in obtaining sufficient appropriate audit evidence with respect to information produced by the management's expert.

Fully Integrated Continuous process

WCARS 2005

Questions?

ACCOUNTING ERP & PAYROLL SYSTEMS

SYSTEM & ORGANIZATION CONTROL AUDIT NODES

FINANCIAL STATEMENT AUDIT NODES

AUDIT ANALYTICS

AUDITCHAIN PUBLIC/PERMISSIONED REPORTING CONSOLE

Appendix: Accounting Records from ISA 500

The records of initial accounting entries and supporting records, such as checks and records of electronic fund transfers; invoices; contracts; the general and subsidiary ledgers, journal entries and other adjustments to the financial statements that are not reflected in journal entries; and records such as work sheets and spreadsheets supporting cost allocations, computations, reconciliations and disclosures.

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)	Blockchain/DLT How do you store it	XBRL 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)		**WORKING ON THESE AREAS:**	
(External) Confirmation		What's practical – today	
Recalculation		What's practical – tomorrow	
Reperformance		What's necessary or no longer necessary tomorrow (e.g., token economy)	
Analytical procedures, including scanning (AICPA)			
Inquiry			