ACUA
Association of College & University Auditors

March 24-26, 2026

ACUA VIRTUAL SPRING SUMMIT

Audit in Action

Power to the People!

The Democratization of Data Analytics

Presented by Lisa Nykolyshyn, Director of Internal Audit,
Northern Alberta Institute of Technology (NAIT)

March 24, 2026

Learning Objectives

1. Learn how the ***assurance landscape*** is rapidly changing
2. Understand how AI-supported tools can assist ***all three lines of defense*** with strengthening your PSI's controls
3. Explore how AI-supported tools can help ***make data analytics more approachable*** for new auditors, too.
4. Link this all back to ***Global Internal Audit Standards***
5. Demo time!

A Little About Me…

- B.Sc. [yep!]
- CPA (Canada)
- CIA, CCSA, CISA
- Four years at NAIT
- Lead a 2-person audit team
- IA dept is piloting the latest data analytics software from Diligent (we're willing to share the good, the bad & the ugly!)

And NAIT….

- *Canadian technical institute*
- *19,300 students enrolled in credit programs*
- *8,700 apprentices registered in apprenticeship training*
- *14,300 students enrolled in non-credit courses*
- *166 research projects*
- *2,637 staff members*

NAIT

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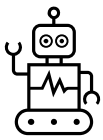
1. The Rapidly Changing Assurance Landscape

Change is Being Driven by the Big Four

- The “Big Four” consulting firms are continuously innovating and improving their audit processes through ***AI, cloud computing, and automation***.
- The firms view the enhanced ability to ***harness large datasets, detect anomalies, and ensure transparency*** as critical to increasing audit quality.
- Key takeaway: Through effectively integrating AI technology into their audit services, these firms are now ***setting new industry standards*** for accuracy, reliability, and efficiency.



Source: https://big4stats.com/the-big-four-ai-innovations-in-auditing/

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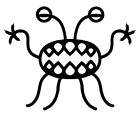
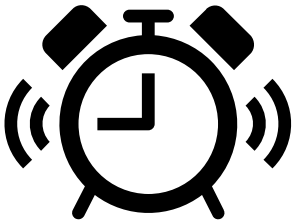
The Big-Four's Massive (and Transformative) Investments in AI…



- Collectively, the big-four consulting firms are expected to invest **over $4B (!)** in AI and related technologies to improve external audit quality and consulting services
  - Source: https://thefinancestory.com/big-4-invest-over-usd-4-bn-in-ai
- PwC is leading the way, investing **$1.5B** in AI
  - Harbinger of things to come? See PwC's 2025 article and webinar: ***"The End of Traditional Internal Audit: Human-led, Agent-powered"***
  - https://www.pwc.com/us/en/services/consulting/cybersecurity-risk-regulatory/internal-audit/ai-internal-audit.html

Poll #1:



Within the past two years, have your *external auditors* or Board asked if Internal Audit or management is using "AI-supported" data analytics?

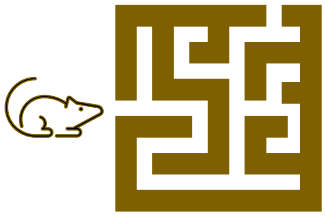
- ❑Yes
- ❑No
- ❑I don't know

The Imbalance of Power…

- PSI internal audit departments often face significant challenges with respect to data analytics expertise:
  - *Can't get 'em*
    - Limited budgets for technology and in-demand (costly) talent
  - *Can't keep 'em*
    - Turnover for tech-savvy talent
  - *Definitely need 'em*
    - *2025 North American Pulse of Internal Audit:* Only **28%** of internal audit departments (all sectors) use analytics at an advanced/mature level

https://auditboard.com/resources/ebook/2025-north-american-pulse-of-internal-audit

Poll #2



What ***prevents you*** from analyzing your data more effectively? (Multiple responses are allowed but focus on the big ones!)

- ❑Poor data quality (or limited/no data available in the area you want to audit)
- ❑Data sets are scattered across different systems, or even outside them (e.g., in manually-maintained spreadsheets).
- ❑Fields are formatted differently than what you need and take a long time to fix.
- ❑The formulae in Excel/other tools are too fussy or hard to use.
- ❑You follow your train of thought but then have trouble replicating what you did.
- ❑Sometimes it's just hard to know where to start…
- ❑Other reasons – please put them in the chat!

What Now?!!

- In addition to the Big Four, PSIs' *compliance auditors* are likely also using AI to improve the quality of their audits.
- In this very dynamic audit ecosystem, *how does internal audit stay relevant*? Are we left "bringing a knife to a gun fight?"
- Plus, is this really just about *Internal Audit's* capabilities?
  - It takes a village…
- Let's discuss the Three Lines Model.

2. Data Analytics & The Three Lines Model

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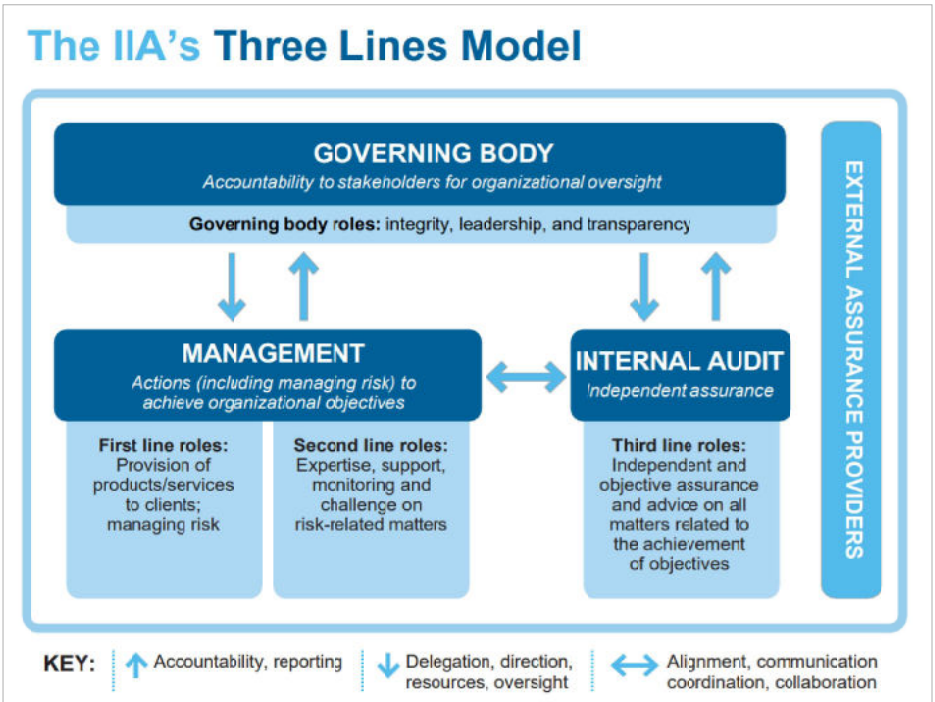
Data Analytics and the Three Lines

- In response to the big-four consulting firms upping their game, PwC predicts that **internal audit departments** will need to increase their own **continuous auditing**.
- *The dilemma*: This could mean that IA would be getting ahead of business areas' *own* monitoring controls, *making IA the default* monitoring control. **Not good governance.**
- Key takeaway: ***All three lines*** need to up their game!!

Recap:



https://www.theiia.org/globalassets/site/about-us/advocacy/three-lines-model-updated.pdf

Second-line Monitoring (excerpt from TLM)

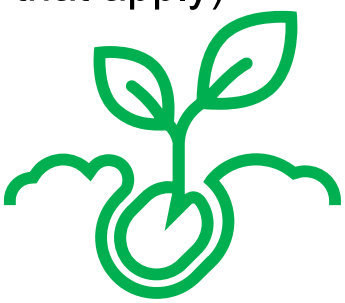
Second line roles

- Provides complementary expertise, support, monitoring, and challenge related to the management of risk, including:
  - The development, implementation, and continuous improvement of risk management practices (including controls) at a process, systems, and entity level.
  - The achievement of risk management objectives, such as: compliance with laws, regulations, and acceptable ethical behavior; controls; information and technology security; sustainability; and quality assurance.
- Provides analysis and reports on the adequacy and effectiveness of risk management (including controls).

Poll #3:

Just between us…: Which *other* business units could benefit from *better* data analytics? (check all main ones that apply)

- ❑Financial Reporting
- ❑Procurement
- ❑Research/Schools
- ❑Risk & Insurance
- ❑Other – put your answer in the chat



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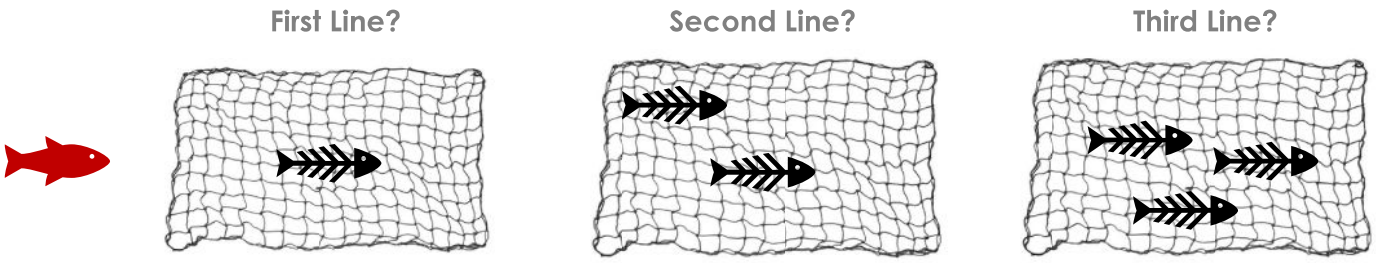
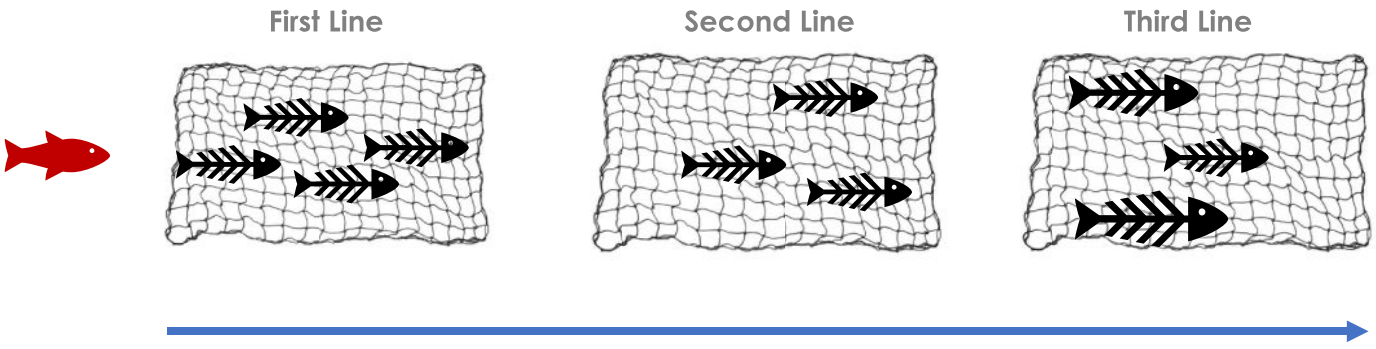
Present Monitoring?



Not coordinated, differing levels of expertise, over-reliance on Internal Audit?

Dream Bigger: Possible Future State?



With stronger first and second lines, Internal Audit can focus on detecting *more complex* anomalies.

So, how do you “teach a man to fish”?

- Teach management how to do ***risk assessments***
  - Tools: AI-supported risk assessments (vs. blank page)
  - Skill Level: Basic
  - Example Prompt (enter into Copilot/Gemini/etc.): “Create a risk and control matrix for grant funding at a post-secondary institution.”
- Teach management how to ***link its <u>actual</u> controls*** to the risks, checking for gaps and overlaps.
- Teach management ***how to use data*** to assess the ongoing functioning of its controls (aka “Deming cycle”: plan, do, check, act).

Problems with Data Quality?

- The more often the *first and second lines* use their own data to search for anomalies and trends, *the more they will care about*:
  - Data accuracy
  - Data consistency (e.g., how it is entered)
  - Data completeness (i.e., a reduction in missing fields)
  - The insights that additional fields could offer
- Key takeaway: Make it easier for them to use data analytics!

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Bonus: Some Data Analytics Software can Do Most of This for You

- Demo 1
- Partnership with others

Poll #4

What main tool/system does your internal audit shop use to analyze data?

❑Excel as the main tool
❑ACL
❑Alteryx
❑Arbutus
❑IDEA
❑Power BI
❑Python
❑SQL
❑Other – share it in the chat!

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Poll #5

How mature is your team's data analytics use?

- ❑Fledging
- ❑Maturing
- ❑Mature



3. Making Data Analytics More Approachable

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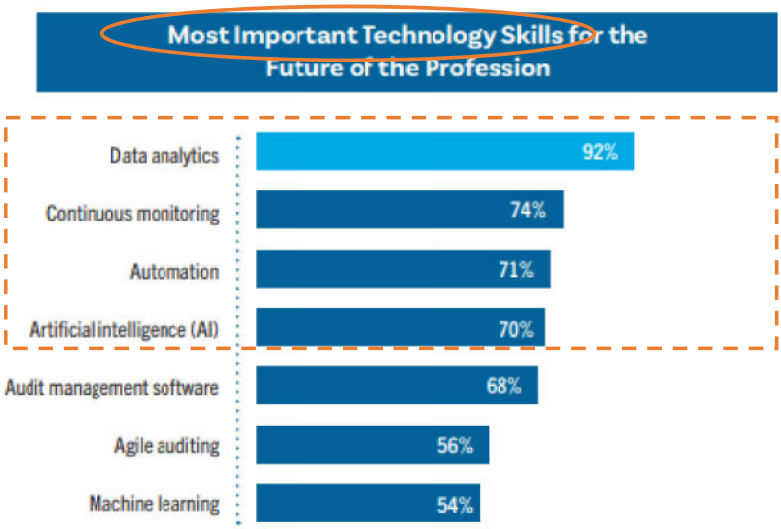
Data Analytics Talent is in Demand!

2025 North American Pulse of Internal Audit

Benchmarks for Internal Audit Leaders

Internal Audit FOUNDATION



https://www.theiia.org/globalassets/site/resources/research-and-reports/pulse-of-internal-audit/2025-iia-pulse-report.pdf

Vs. The Current Talent Pools at PSIs

- You may not have data analytics talent, but you likely *do* have:
  - Bright staff *with* PSI expertise, but *without* coding expertise
  - Diverse work vs. cyclical work
  - An aging workforce
  - A small team
  - Burn out
- Average age of internal auditors (all sectors): 43 years old
  - Source: Internal Auditor Demographics and Statistics [2026]: Number Of Internal Auditors In The US

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Filling Vacancies

- Links to the ACUA conference theme: ***Audit in Action – Elevating Assurance for the Next Generation***
- How can we make auditing and data analysis *more approachable* for "auditors in the making"?
- Solution: "Natural language" programming interfaces
  - Is low/no-code auditing!
  - Improves understandability, ease of use, and adoption levels for new and seasoned auditors alike
  - Auditors can more readily follow their train of thought, increasing creativity.

Retaining Your Current Staff

- Through natural language programming, the latest evolution of data analytics software can make work more engaging and intrinsically rewarding by offering a fresh perspective.
- Supports exploring the data more deeply/differently due the ease of joining disparate sets of data.
- Turns them into strategic advisors for the first and second lines of assurance
  - As noted in section 2, it is important for Internal Audit to elevate the contributions of these two lines for the entire institution to get stronger.

Demo #2

- Joining disparate data sets
  - Just when it felt impossible…
- Data lineage features
  - Your visual roadmap of where you've been! ☺

4. Data Analytics and the *Global Internal Audit Standards*

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Guidance from the Standards

- Main Standard
  - S10.3 – Technological Resources
- Related Standards
  - S 3.1 – Competency
  - S 5.3 – Maintain Confidentiality
  - S14.1 – Gathering Information for Analyses and Evaluation
  - S14.2 – Analyses and Potential Engagement Findings

S10.3 – Technological Resources

Standard 10.3 Technological Resources

Requirements

The chief audit executive must strive to ensure that the internal audit function has technology to support the internal audit process. The chief audit executive must regularly evaluate the technology used by the internal audit function and pursue opportunities to improve effectiveness and efficiency.

When implementing new technology, the chief audit executive must implement appropriate training for internal auditors in the effective use of technological resources. The chief audit executive must collaborate with the organization's information technology and information security functions to implement technological resources properly.

The chief audit executive must communicate the impact of technology limitations on the effectiveness or efficiency of the internal audit function to the board and senior management.

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S10.3 – Technological Resources (cont'd)

Considerations for Implementation

The internal audit function should use technology to improve its effectiveness and efficiency. Examples of such technology include:

- Audit management systems.
- Governance, risk management, and control process mapping applications.
- Tools that assist with data science and analytics.
- Tools that assist with communication and collaboration.

To evaluate whether the internal audit function has technological resources to perform its responsibilities, the chief audit executive should:

- Assess the feasibility of acquiring and implementing technology-enabled enhancements across the internal audit function's processes.
- Collaborate with other departments on shared governance, risk, and control management systems.
- Present sufficiently supported technology funding requests to the board and senior management for approval.
- Develop and implement plans to introduce approved technologies. Plans should include training internal auditors and demonstrating the realized benefits to the board and senior management.
- Identify and respond to the risks that arise from technology use, including those related to information security and privacy of individual data.

S3.1 – Competency

Standard 3.1 Competency

Requirements

Internal auditors must possess or obtain the competencies to perform their responsibilities successfully. The required competencies include the knowledge, skills, and abilities suitable for one's job position and responsibilities commensurate with their level of experience. Internal auditors must possess or develop knowledge of The IIA's Global Internal Audit Standards.

Internal auditors must engage only in those services for which they have or can attain the necessary competencies.

Each internal auditor is responsible for continually developing and applying the competencies necessary to fulfill their professional responsibilities. Additionally, the chief audit executive must ensure that the internal audit function collectively possesses the competencies to perform the internal audit services described in the internal audit charter or must obtain the necessary competencies. (See also Standards 7.2 Chief Audit Executive Qualifications and 10.2 Human Resources Management.)

S3.1 – Competency (continued)

Considerations for Implementation

Internal auditors should develop competencies related to:

- Communication and collaboration.
- Governance, risk management, and control processes.
- Business functions, such as financial management and information technology.
- Pervasive risks, such as fraud.
- Tools and techniques for gathering, analyzing, and evaluating data.
- The risks and potential impacts of various economic, environmental, legal, political, and social conditions.
- Laws, regulations, and practices relevant to the organization, sector, and industry.
- Trends and emerging issues relevant to the organization and internal auditing.
- Supervision and leadership.

Principle 5 – Maintain Confidentiality

(→ If you <u>use</u> it, you'd better <u>protect</u> it!)

Standard 5.1 Use of Information

Requirements

Internal auditors must follow the relevant policies, procedures, laws, and regulations when using information. The information must not be used for personal gain or in a manner contrary or detrimental to the organization's legitimate and ethical objectives.

Considerations for Implementation

When handling sensitive and/or personal data, the internal audit function should apply appropriate digital security measures. Examples include automated controls such as passwords and encryption.

Principle 14 – Conducting Engagement Work

Standard 14.1 Gathering Information for Analyses and Evaluation

Considerations for Implementation

When gathering information, internal auditors should consider whether to test a complete data population or a representative sample. Using data analysis software facilitates the ability to test complete or targeted data populations. If internal auditors choose to select a sample, they should apply methods to ensure that the sample is as representative of the entire population as possible.

Standard 14.2 Analyses and Potential Engagement Findings

Examples of Evidence of Conformance

- Workpapers that document the analyses performed, including data analytics programs or software used, test populations, sampling processes, and sampling methods.

5. Where to From Here?

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Where to from here?

- Consider partnerships with additional second line units
  - The best roadmap is your institution's ERM Program
  - Better data analytics can be used to create better key risk indicators
- *Pssst!* Three Lines Model + ERM = Assurance Mapping!
  - Can be used to inform the direction of your internal audit department as captured in your internal audit strategy.

Key Inherent Institutional Risks → *ERM*

- Enrollment and retention risks
- Accreditation risks
- Academic integrity risks
- Student mental health and wellbeing risks
- Health and safety risks
- Research compliance risks
- Regulatory volatility risks
- Cybersecurity risks
- Funding variability risks
- Deferred maintenance risks
- Workforce talent risks
- *And so on!*

TLM + ERM = Assurance Mapping…

Assurance Coverage Provided by Area:	
	Comprehensive Risk Coverage
	Partial Risk Coverage
	Limited or No Risk Coverage
	Risk Area Outside Function's Mandate

Assessed Level of Reliance:	
H	High Reliance
M	Moderate Reliance
L	Low Reliance
N	No Reliance

Responsibility for Managing Risk: First-Line Risk Owner

		MANAGEMENT: First Line Provision of products/services to clients; managing risk										MANAGEMENT: Second Line Expertise, support, monitoring, and challenge on risk-related matters							INTERNAL AUDIT: Third Line Independent, objective assurance and advice	EXTERNAL Assurance Providers					
	RISK CATEGORIES / DESCRIPTION	Business Lines	Human Resources	Treasury	Operations	Information Technology	Procurement	Marketing	Budgeting & Planning	Communications	…	Risk Management	Compliance	Financial Control	Legal	Management Committees	Quality Management	…	Internal Audit	Outside Quality Auditors	Environmental, Health & Safety Consultants	Risk Management Consultants	Financial Statement Auditors	Regulators	Outsourced Consultants
Strategic																									
	Crisis Management											H	M		M	L						M		M	
	Competitive Environment																								
	Resource Allocation													H											
	…																								
Operational																									

Source: Global Practice Guide: Coordination and Reliance | The IIA

Can form part of your IA Strategy

Standard 9.1 Understanding Governance, Risk Management, and Control Processes

Requirements

To develop an effective internal audit strategy and plan, the chief audit executive must understand the organization's governance, risk management, and control processes.

To understand governance processes, the chief audit executive must consider how the organization:

- Establishes strategic objectives and makes strategic and operational decisions.
- Oversees risk management and control.
- Promotes an ethical culture.
- Delivers effective performance management and accountability.
- Structures its management and operating functions.
- Communicates risk and control information throughout the organization.
- Coordinates activities and communications among the board, internal and external providers of assurance services, and management.

S.9.1 – Understanding GRC Processes (cont'd)

To understand risk management and control processes, the chief audit executive must consider how the organization identifies and assesses significant risks and selects appropriate control processes. This includes understanding how the organization identifies and manages the following key risk areas:

- Reliability and integrity of financial and operational information.
- Effectiveness and efficiency of operations and programs.
- Safeguarding of assets.
- Compliance with laws and/or regulations.

Final Demo

- Using data analytics software to do risk scoring
  - Software can suggest risk categories (no, really!)

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Thank you!

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