IIA 2015 Worldwide survey of 15,000 internal auditors

Michael P. Cangemi CPA, retired CISA, CGMA retired

Former CFO, CEO & Director; Audit Com Chair

Senior Fellow Rutgers CA Lab
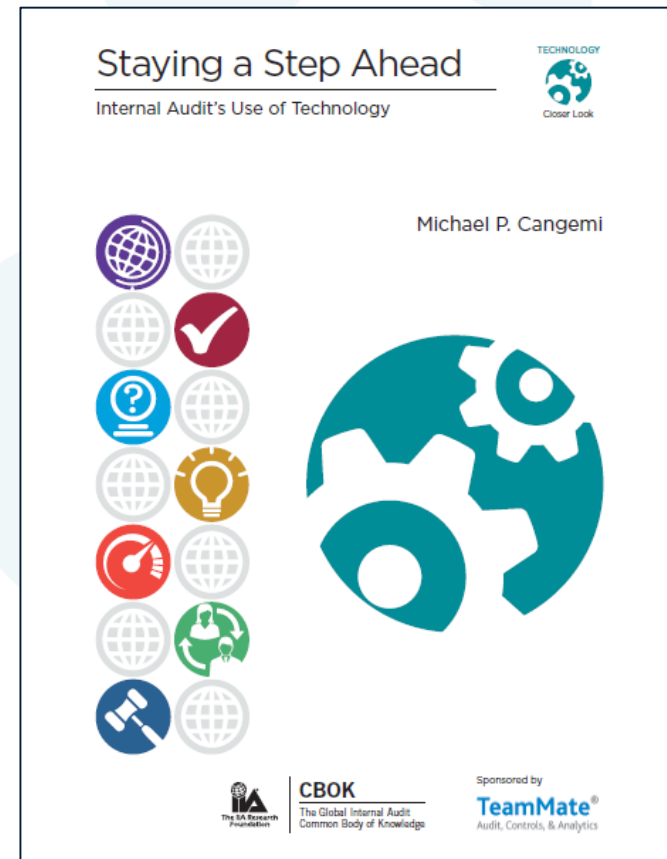
Senior Advisor/Investor Tech companies

Rutgers University 35 CA&R Nov 6 2015

Staying a Step Ahead
Internal Audit's Use of Technology

By Michael P Cangemi

Author – Managing the Audit Function; former CAE, CFO, CEO and AC Chair

Available free of charge:

www.theiia.org/goto/CBOK
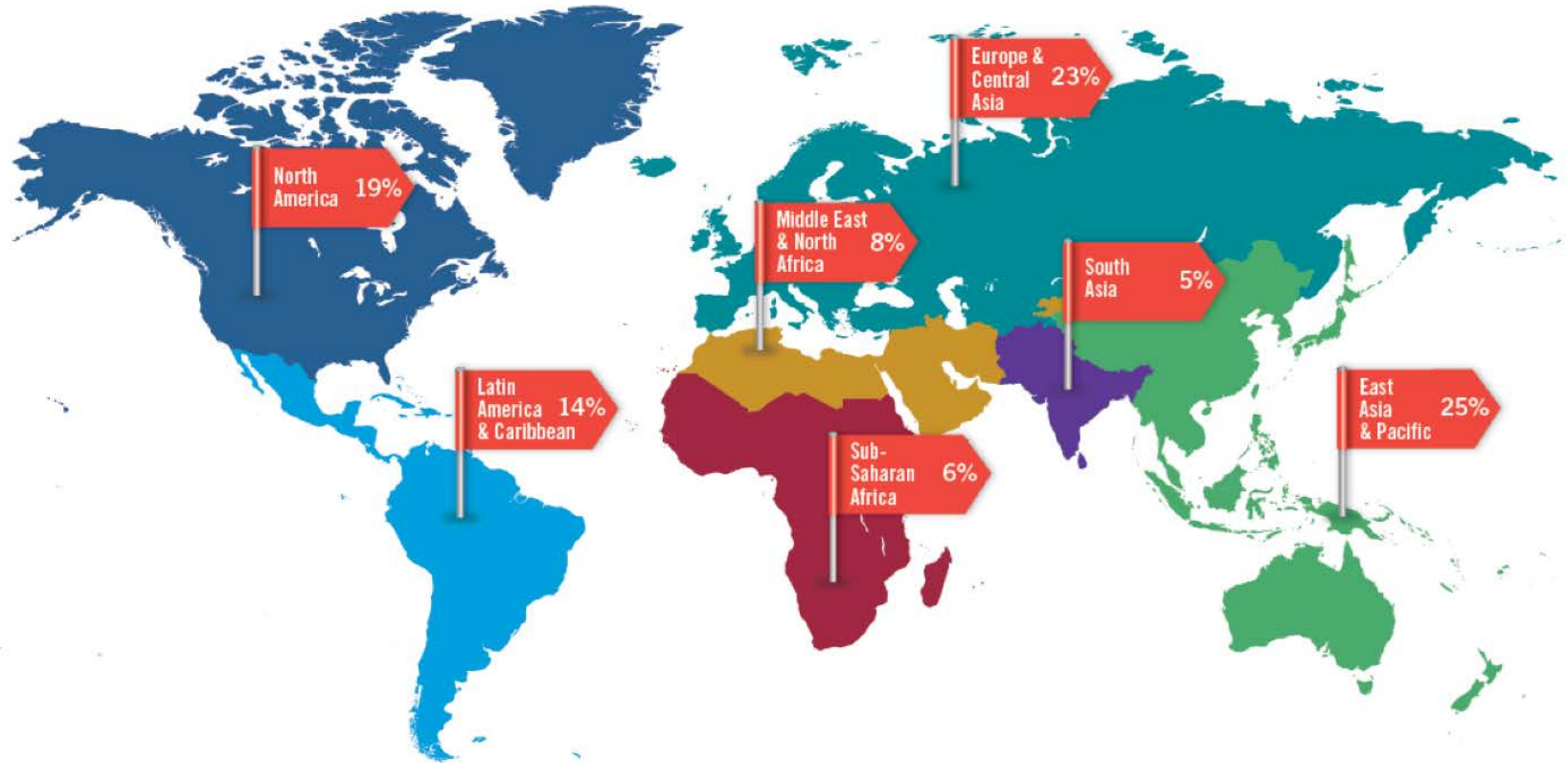
CBOK 2015 Practitioner Study

- CBOK is the Global Internal Audit Common Body of Knowledge:

  - The global practitioner survey is the largest ongoing study of internal audit professionals in the world.

  - More than 25 free reports about practitioners and the profession will be released from July 2015 to July 2016.

  - Download free reports from the CBOK Resource Exchange at The IIA website at any time (www.theiia.org/goto/CBOK).

The IIA Research Foundation

CBOK
The Global Internal Audit
Common Body of Knowledge

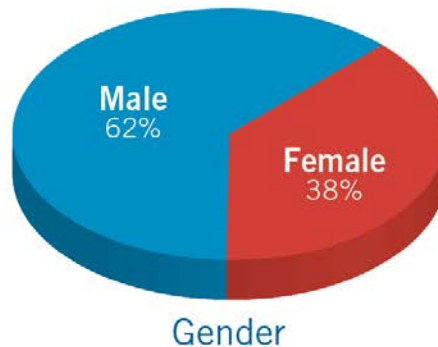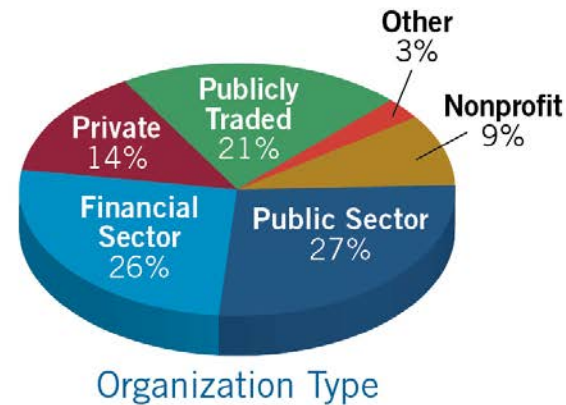# CBOK 2015 Practitioner Survey

- Practitioner Survey Results
  - Survey completed April 1, 2015
  - 14,518 usable survey responses

- Participation Levels
  - 100% representation from IIA institutes
  - Responses from 166 countries
  - 23 languages

CBOK 2015 Practitioner Study

CBOK 2015 Practitioner Survey: **Participation from Global Regions**

Europe & Central Asia 23%

North America 19%

Middle East & North Africa 8%

South Asia 5%

Latin America & Caribbean 14%

Sub-Saharan Africa 6%

East Asia & Pacific 25%

The IIA Research Foundation

CBOK
The Global Internal Audit
Common Body of Knowledge

CBOK 2015 Practitioner Study
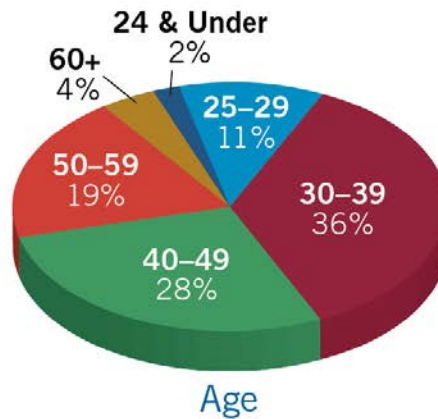
Age was obtained from 12,780 respondents; Organization Type was obtained from 13,032 respondents; Gender was obtained from 14,357 respondents; Staff Level was obtained from 12,716 respondents.

A Closer Look

1 Powering Audit Processes with Technology
2 Technology Tools Used by Internal Audit
3 Ten-Year Trends
4 A Closer Look at Data Mining and Data Analytics
5 A Closer Look at Continuous Auditing
6 Technology Education and Certifications
7 Increasing Technology Skills in the Internal Audit Department

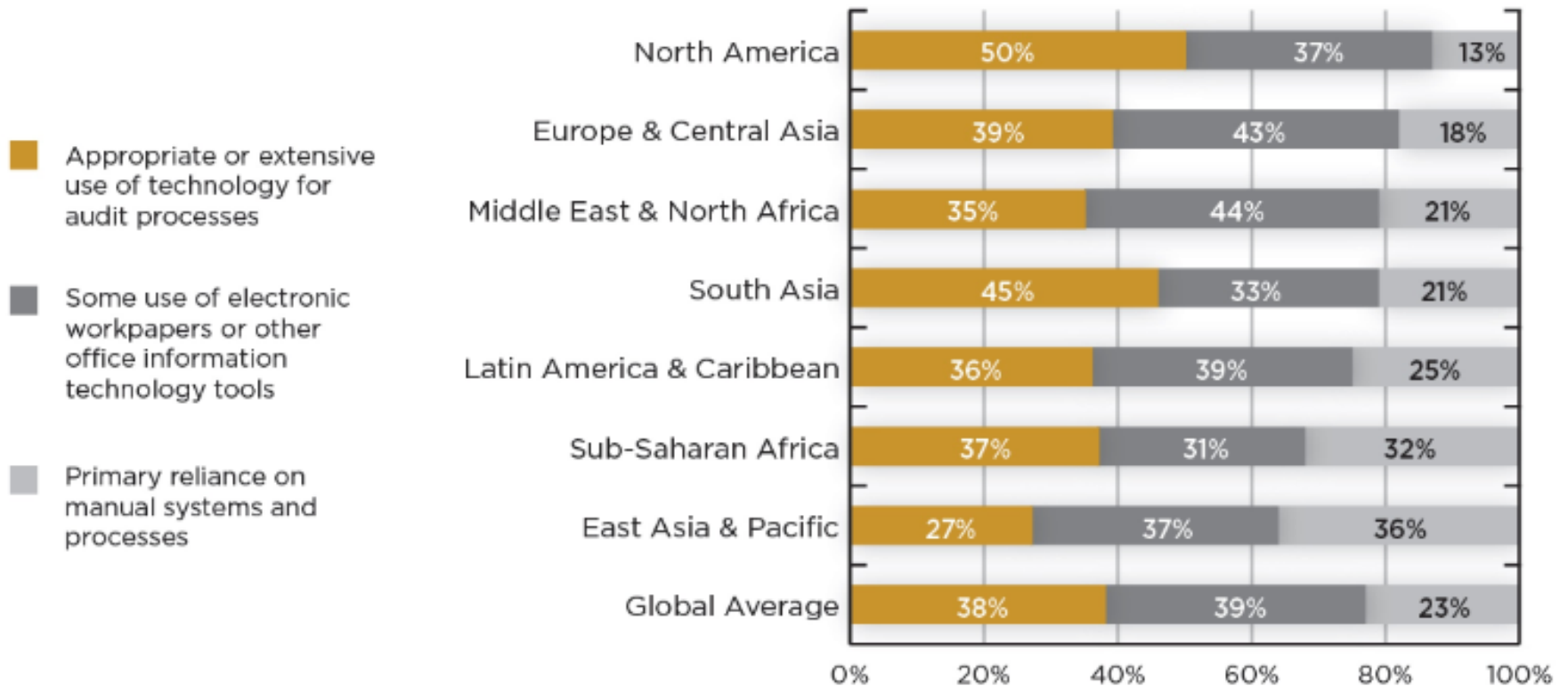# Staying a Step Ahead
Internal Audit's Use of Technology

Executive Summary - Introduction

- Technology continues to evolve and expand in financial, operations, and business systems.

  - Adding productivity and creating disruptions to and new business models.

- Internal Audit responded by expanding IT training and adding IT audit functions.

Measure of Use of Technology for IA Processes

Exhibit 1 Overall Use of Technology for Internal Audit Processes

Legend:
- ■ Appropriate or extensive use of technology for audit processes
- ■ Some use of electronic workpapers or other office information technology tools
- ■ Primary reliance on manual systems and processes

Region	Appropriate/extensive	Some use	Primary reliance
North America	50%	37%	13%
Europe & Central Asia	39%	43%	18%
Middle East & North Africa	35%	44%	21%
South Asia	45%	33%	21%
Latin America & Caribbean	36%	39%	25%
Sub-Saharan Africa	37%	31%	32%
East Asia & Pacific	27%	37%	36%
Global Average	38%	39%	23%

CBOK
The Global Internal Audit Common Body of Knowledge
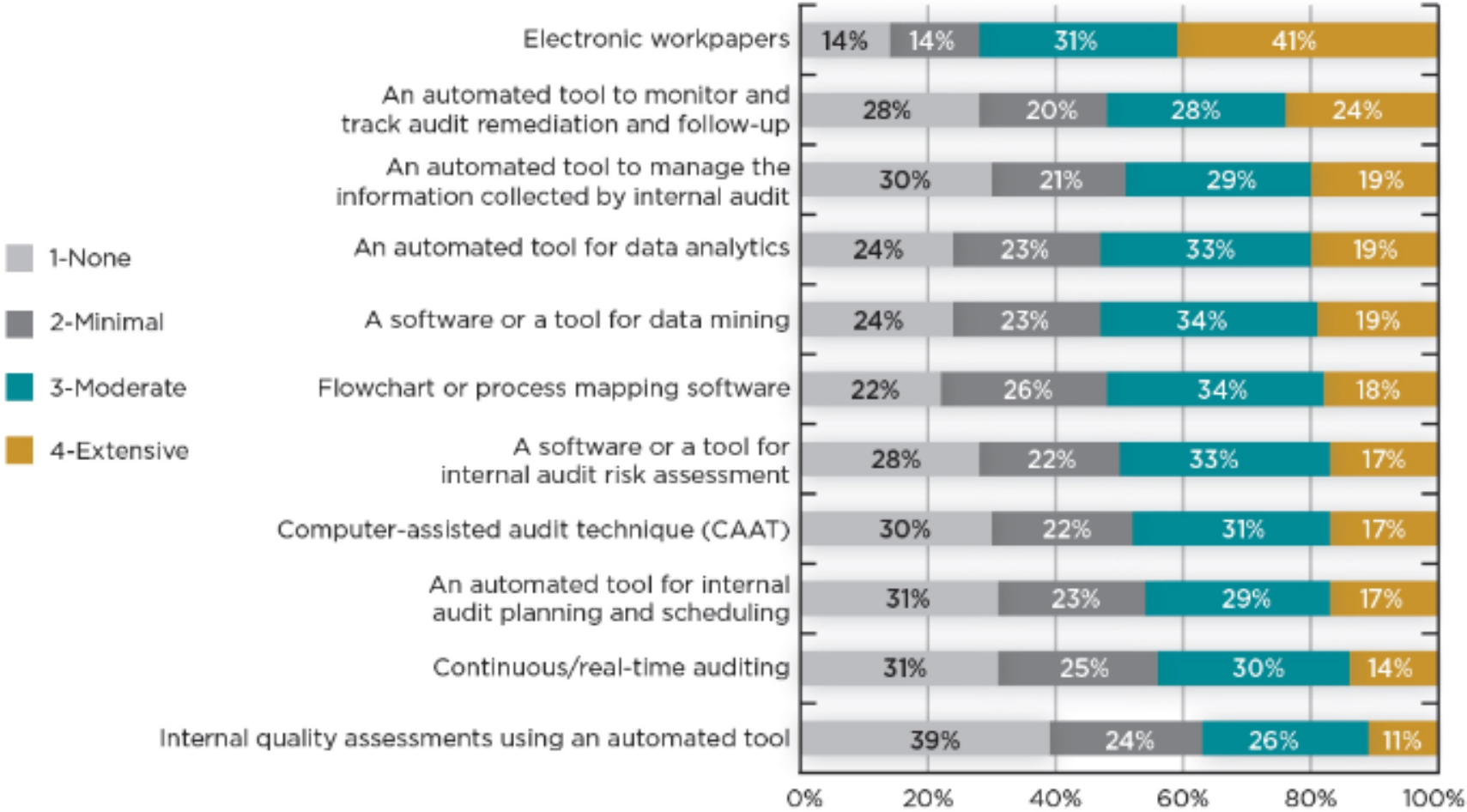
The IIA Research Foundation

Powering Audit Processes with Technology

Basic summary among CAEs Worldwide:

- 20% say their internal audit departments primarily rely on manual techniques.

- 40% report at least some use of technology,

- 40% indicate appropriate or extensive use of technology across the entire audit process.

Measure of Use of IT Tools and Techniques by IA

Exhibit 2 Current Use of IT Tools and Techniques by Internal Audit

	1-None	2-Minimal	3-Moderate	4-Extensive
Electronic workpapers	14%	14%	31%	41%
An automated tool to monitor and track audit remediation and follow-up	28%	20%	28%	24%
An automated tool to manage the information collected by internal audit	30%	21%	29%	19%
An automated tool for data analytics	24%	23%	33%	19%
A software or a tool for data mining	24%	23%	34%	19%
Flowchart or process mapping software	22%	26%	34%	18%
A software or a tool for internal audit risk assessment	28%	22%	33%	17%
Computer-assisted audit technique (CAAT)	30%	22%	31%	17%
An automated tool for internal audit planning and scheduling	31%	23%	29%	17%
Continuous/real-time auditing	31%	25%	30%	14%
Internal quality assessments using an automated tool	39%	24%	26%	11%

Legend:
- 1-None
- 2-Minimal
- 3-Moderate
- 4-Extensive

The IIA Research Foundation

CBOK
The Global Internal Audit
Common Body of Knowledge

Technology Tools Used by Internal Audit

- Electronic Workpapers scored the highest usage.
  - Most likely due to the use of generalized software tools & expansion of automated workpaper packages

- Great expansion of the use of data mining, data analytics and CA.

- Yet globally, usage of most technology tools is reported "none" or "minimal."

"The internal audit profession should be pleased to see that the reported use of technology by internal audit appears to be growing nicely since prior surveys.

While the numbers remain lower than many would like to see, over the years more internal audit departments are making productive use of analytics, including forms of continuous auditing and risk monitoring, to enhance the value and efficiency of their work."

-Norman Marks,
retired CAE and author of
World-Class Internal Audit
and *World-Class Risk
Management*

Ten-Year Trends

- The use of technology by internal auditors has increased over the past decade.
- Use of data mining and continuous audit increase significantly.
- Now encompassing CAATS which as a result showed a slight decline.
- Use of flowchart or process mapping and e-workpapers up considerably.
- Technology in the audit process continues to grow, but there is room for improvement.

A Closer Look at Data Mining and Data Analytics

- Expansion of data:
  - From structured business applications.
  - From explosion of social media and other unstructured data.

- Leads to expansion of data mining, CM and the use of data analytics

- In audit: IA is turning to more CA software applications and starting to focus on real time audit

Increase in IA Use of Technology Tools

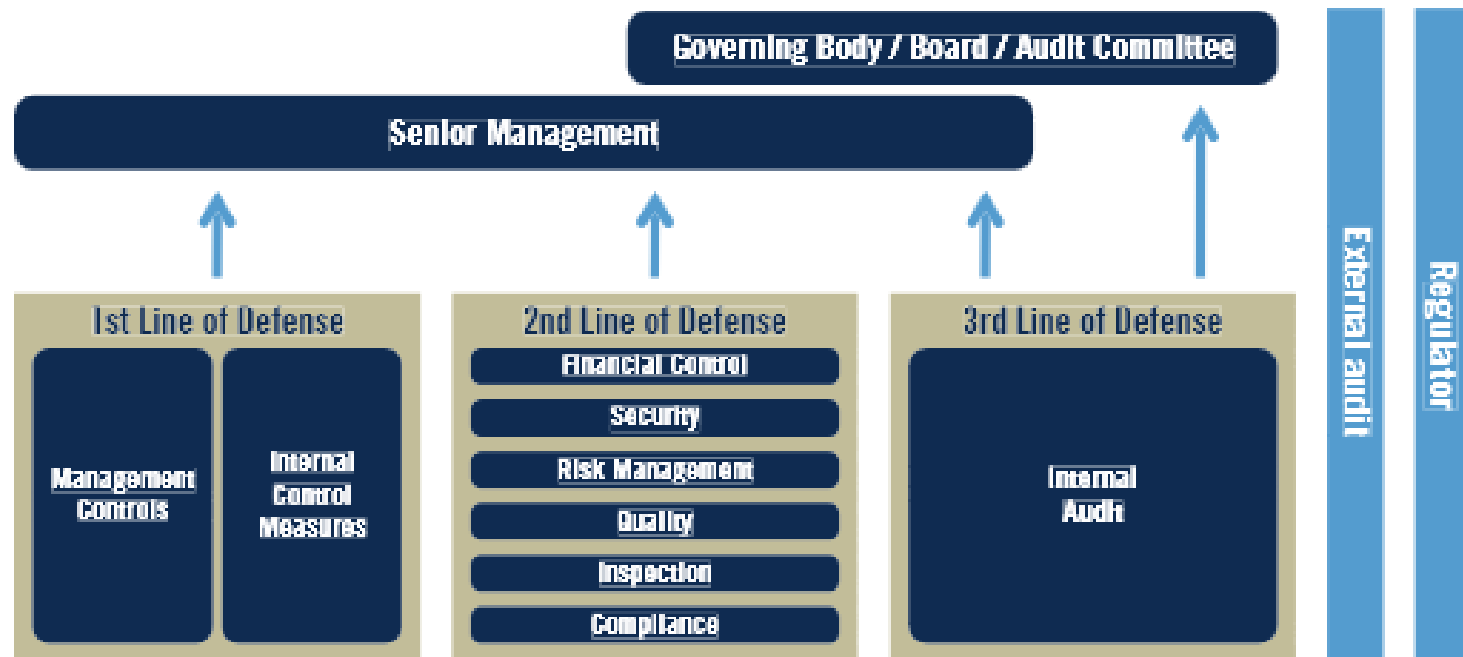**Exhibit 4** Increase in Internal Audit Use of Technology Tools

Continuous/real-time auditing
- 37% (2006)
- 44% (2015)

Computer-assisted audit technique (CAAT)
- 52% (2006)
- 48% (2015)

A software or a tool for data mining
- 39% (2006)
- 53% (2015)

Flowchart or process mapping software
- 43% (2006)
- 52% (2015)

Electronic workpapers
- 65% (2006)
- 72% (2015)

Legend: 2006 | 2015
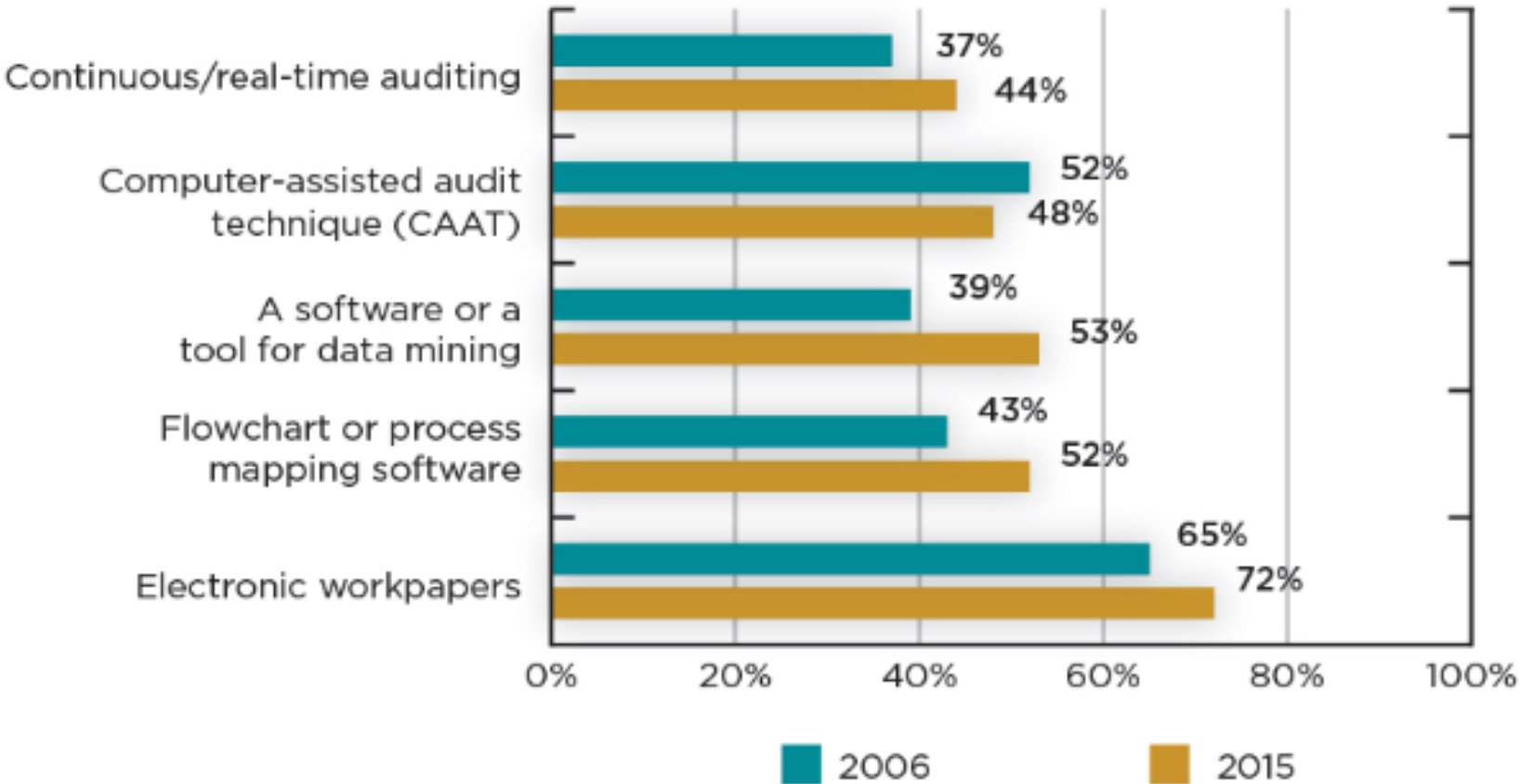
Key Findings: technology in the IA process

- use of monitoring and data analytics increased by 14% from 2006 to 2015.

- Yet only 4 out of 10 chief audit executives (CAEs) worldwide feel their departments' use of technology is appropriate or better.

The Three Lines of Defense Model

The Three Lines of Defense Model

Governing Body / Board / Audit Committee

Senior Management

1st Line of Defense	2nd Line of Defense	3rd Line of Defense	External Audit	Regulator
Management Controls	Financial Control	Internal Audit		
Internal Control Measures	Security			
	Risk Management			
	Quality			
	Inspection			
	Compliance			

Adapted from ECIIA/FERMA *Guidance on the 8th EU Company Law Directive, article 41*

Business Process Improvement

- In a general question in the CBOK survey respondents listed, *assuring the adequacy of internal control* , as the top activity of internal audit to bring value to the organization.

- Internal audit adding value through *Business Improvement* did not make the top five perceived by internal audit value generating activities.

I believe technology driven business process improvement should be much more integrated into the internal audit work plan improving the control and compliance processes, as well as the efficiency and effectiveness of operations.

IA Opportunity -- CM

- Opportunity for IA to recommend even more CM to improve IC systems to operation ,1st line of defense, and compliance departments, 2nd line of defense (Cangemi EDPACS 2010)

- Then build independent CA application on top – strengthening the 3rd line of defense.

Challenges to expanding the use of Tech by IA

- IA foundation skills are in accounting and auditing – need more tech focus
- Capital to invest – fight for it
- Other priorities – time restrictions.
- Need for creativity skills and vision.
- Need to take risks - IT implementations do not always work out
- Need to add value to the business

Action Steps

1. Assess your overall use of technology tools.
2. Develop a vision for use of technology tools over the next two to three years.
3. Develop a strategic plan to attain your vision.
4. Communicate the vision and plan to the internal audit group.
5. Implement the plan and periodically assess performance.

Action Steps

1. Identify and inventory manual audit processes.

2. Identify near-term opportunities to automate processes to enhance efficiency and effectiveness.

3. Implement appropriate technology.

4. Assess effectiveness.

5. Identify the next opportunity.

Data Analysis Performed Outside of the IA Audit Department

Exhibit 5 Percentage of Data Analysis Performed Outside of the Internal Audit Department
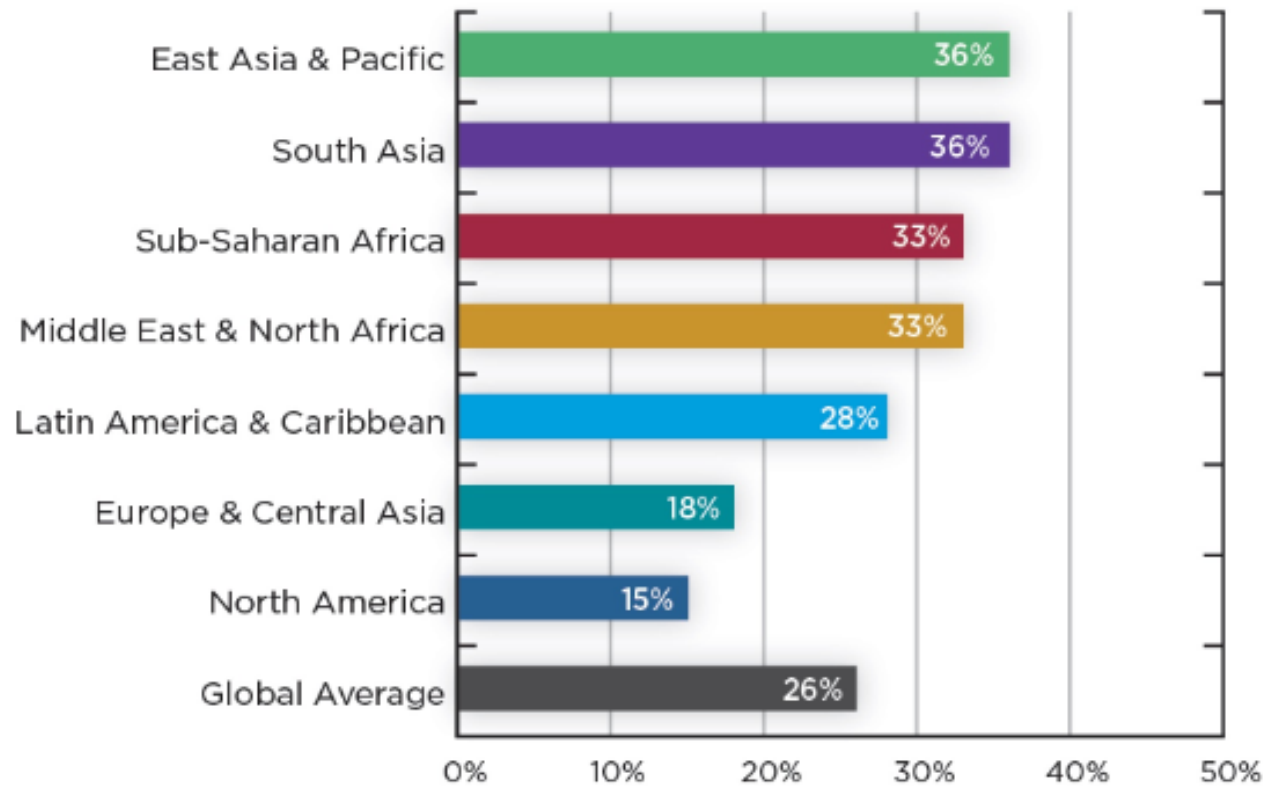
5 A Closer Look at Continuous Auditing

Continuing on the theme of more data:

- IA is turning to more CA software applications.
- Which also addresses the real time nature of many business applications.

Management ,1st line of defense, and compliance departments, 2nd line of defense are turning to more CM:

- Opportunity for IA to recommend even more CM to improve IC systems.
- Then build independent CA application on top – strengthening the 3rd line of defense.

Key Findings- Education

Globally, about 60 % of IA's entered the profession with education in accounting, and 10 % had education in information systems or computer science.

6 Technology Education and Certifications

Exhibit 6 Higher Education Among Internal Auditors

1% 1%
6%
92%

92% ■ Bachelor's degree or higher

6% ■ Undergraduate diploma or associate degree (less than four years)

1% ■ Secondary/high school education

1% ■ None of the above
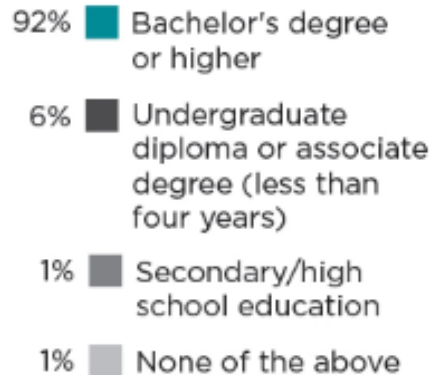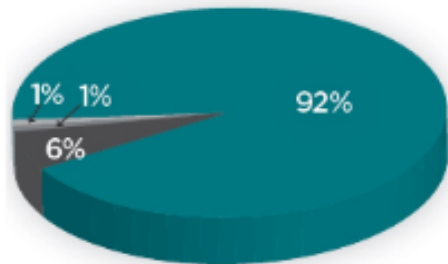
How do you prepare to be an IA professional?

- 90% have university or college degrees.
  – Mostly in accounting, auditing Finance or business.

- Only 10% have IT degrees.
  – However- technology training is incorporated in to majors.

- Regions with more formal IT training have less IT certifications and visa versa.

IIA The IIA Research Foundation | CBOK The Global Internal Audit Common Body of Knowledge

Majors and Significant Fields of Study

Exhibit 7 Majors and Significant Fields of Study (Trends)

	2006	2015
Accounting	58%	57%
Auditing (internal)	13%	43%
Finance	25%	31%
Business management/general business	28%	35%
Auditing (external)	19%	23%
Economics	21%	22%
Computer science or information technology (IT)	12%	13%
Law	7%	10%
Mathematics/statistics	6%	7%
Engineering	4%	6%
Other	8%	5%
Arts or humanities	4%	4%
Other science or technical field	3%	2%

CBOK
The Global Internal Audit
Common Body of Knowledge

The IIA Research Foundation

7 Increasing Technology Skills in the Internal Audit Department

- IA departments continue to develop and hire IT Audit specialists.

- New hires arrive with better IT skills.

- IT continues to become more complex and specialize.

  – Therefore, efforts to train and hire specialist will continue.

Action Steps

1. Perform a separate risk assessment of the organization's technology risks.

2. Assess the technology skills required for internal audit to address the organization's technology risks.

3. Implement a plan to acquire the needed technology skills, including which skills can be developed within the internal audit staff and which skills you will need to acquire periodically from a third party.

4. Advise management and the audit committee about how you are addressing the organization's technology risks.

Staying a Step Ahead – Questions to Consider

- What new technology-based applications are being used in your organization? Has the internal audit department deployed new technologies of its own to ensure that it can effectively audit the new systems?

- Does the internal audit department have the capital funds to acquire technologies that are needed to properly audit the organization's systems?

- Does the internal audit department have sufficient IT technical skills to address the level of technology used by the organization?

Staying a Step Ahead – Questions to Consider

- What are the internal audit department's plans to address the "big data" that is important to the organization (both structured and unstructured)?

- Are there any organizational applications or processes that take place entirely in the "black box" (the computer) (for example, the computation of interest charges on loans)? If so, how are they audited?

- What types of software does the internal audit department use to make audits more efficient and effective? How extensively are they used, and how often?

Summary -Ten-Year Trends

- The use of technology by internal auditors has increased over the past decade.

- Use of data mining and continuous audit increased significantly.

- Technology in the audit process continues to grow,

- but there is room for improvement.

CBOK 2015: What's Coming

IIA International Conference

Governance, Risk, and Control Conference
South Africa Conference

IIA Financial Services Exchange
ECIIA Conference

All Star Conference

Southern Regional Conference
ACIIA Conference

IIA Midyear Committee Meetings

Jul. 2015

Driving Success in a Changing World: 10 Imperatives for Internal Audit

Aug. 2015

Auditing Technology Risks

Use of Technology for Internal Audit Processes

Sept. 2015

Financial Services Outlook

Oct. 2015

Who Owns Risk? Internal Audit's Changing Role

Combined Assurance and the Three Lines of Defense

Fraud Risk: Detection and Prevention

Nov. 2015

Measuring Internal Audit Value and Performance

Public Sector Outlook

Dec. 2015

Core Competency Levels for Internal Auditors

Interacting with Audit Committees

8

CBOK
The Global Internal Audit
Common Body of Knowledge

The IIA Research Foundation

CBOK 2015: What's Coming

GAM Conference
SoPac Conference

Leadership Conference

IIA International Conference

Jan. 2016

The Skills Most Desired by IA Managers for Their Staffs

Use of Third Parties by Internal Audit

Feb. 2016

CAE Career Path

Women in IA: Representation and Trends

Mar. 2016

Maturity Levels for IA Dept. Around the World

How to Evaluate and Motivate Your Staff

Apr. 2016

Certifications Held by Internal Auditors

Ethical Pressures Faced by Internal Auditors

May 2016

IIA *Standards*: Conformance and Trends

Quality Assurance and Improvement Program Trends

Jun. 2016

Integrated Reporting

Organizational Governance: Internal Audit's Role

CBOK
The Global Internal Audit
Common Body of Knowledge

The IIA Research Foundation

YOUR DONATION DOLLARS AT WORK

FREE thanks to generous contributions from individuals, organizations, and IIA chapters and institutes around the world.

Download your FREE copy today at the CBOK Resource Exchange.

www.theiia.org/goto/CBOK
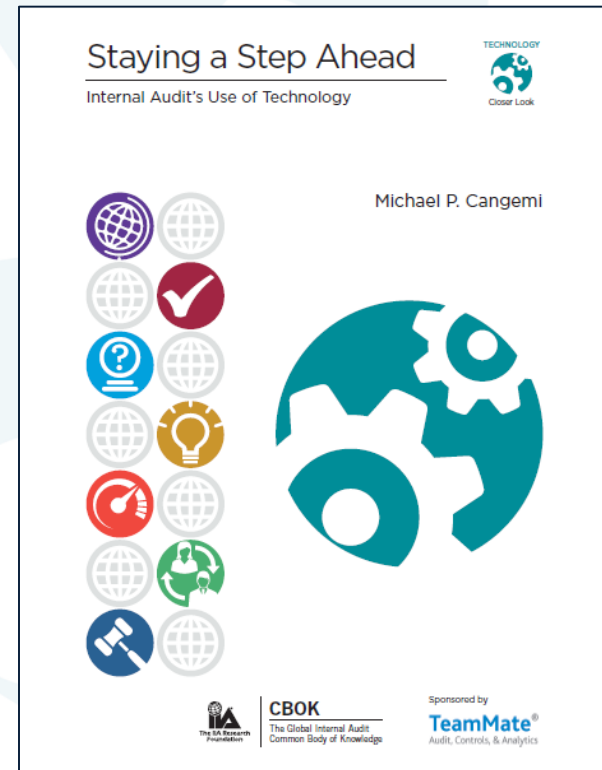
About The IIA Research Foundation

CBOK is administered through The IIA Research Foundation (IIARF), which has provided groundbreaking research for the internal audit profession for the past four decades. Through initiatives that explore current issues, emerging trends, and future needs, The IIARF has been a driving force behind the evolution and advancement of the profession.

For more information, visit:
www.theiia.org/Research

Build a World Class Audit Business

My CAE years: high level summary of MAF

- Good People
- Following well thought out procedures
- Focused on **significant issues and positive deliverables**
- **Focused on use tech for E & E**
- Using a team approach to management

Copyright and Disclaimer

CBOK

The Global Internal Audit
Common Body of Knowledge

The IIA Research
Foundation

AICPA Resources

- White Paper "The Current State of Continuous Auditing and Continuous Monitoring"
  - "positive gains in usage are being noted in IA" ; less usage by accounting firms
- Audit Data Standards – Project and ED
  - Assurance Services Exec Committee
  - Standardize data for the financial audit
  - First application GL and AR
  - Partners CaseWare (IDEA) Oversight