TECHNOLOGY AND AUDIT: A MUTUAL FUTURE

THERESA GRAFENSTINE
CHAIR, ISACA BOARD OF DIRECTORS

AGENDA

THE AUDIT LANDSCAPE

- PROCESSES AND TRENDS
- CHANGES

LOOKING FORWARD

- AUDIT OF THE FUTURE
- ENTERPRISE OF TOMORROW
- FOCUS ON THE FUTURE
- FOCUS ON RESILIENCE

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EVOLUTION OF IT AUDIT

Regulatory has been a major driver:

- SOX
  - Financial reporting
- HIPAA
  - OCR/RAC audits
- PCI DSS
  - Cardholder data requirements
  - Annual report on compliance (or self-assessment)

"It is important to understand that future leaders in the IT Audit profession must be open to developing skills beyond traditional IT risk and control knowledge as technology continues to synergize with emerging business expectation"

WALT BLACKWOOD
CISA, COL(R)
Senior Director, IT Audit, Internal Audit, TIAA, Financial Services

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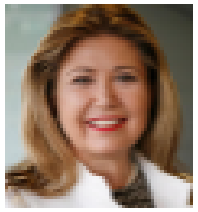
THE PROFESSION IS CHANGING

Challenges:

- Pace of changes
- Audit scope expansion
- New business models and ways of doing things
- Increasing technical sophistication
- Resourcing

"Audit committees should be aware of cybersecurity trends, regulatory developments and major threats to the company, as the risks associated with intrusions can be severe and pose systemic economic and business consequences that can significantly affect shareholders."



ROSEMARY M. AMATO
CISA, CMA
Audit Committee Chair for the Institute of Management Accountants (IMA) and Director Deloitte Netherlands

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THE IT AUDIT PROFESSIONAL LANDSCAPE

Survey key findings:

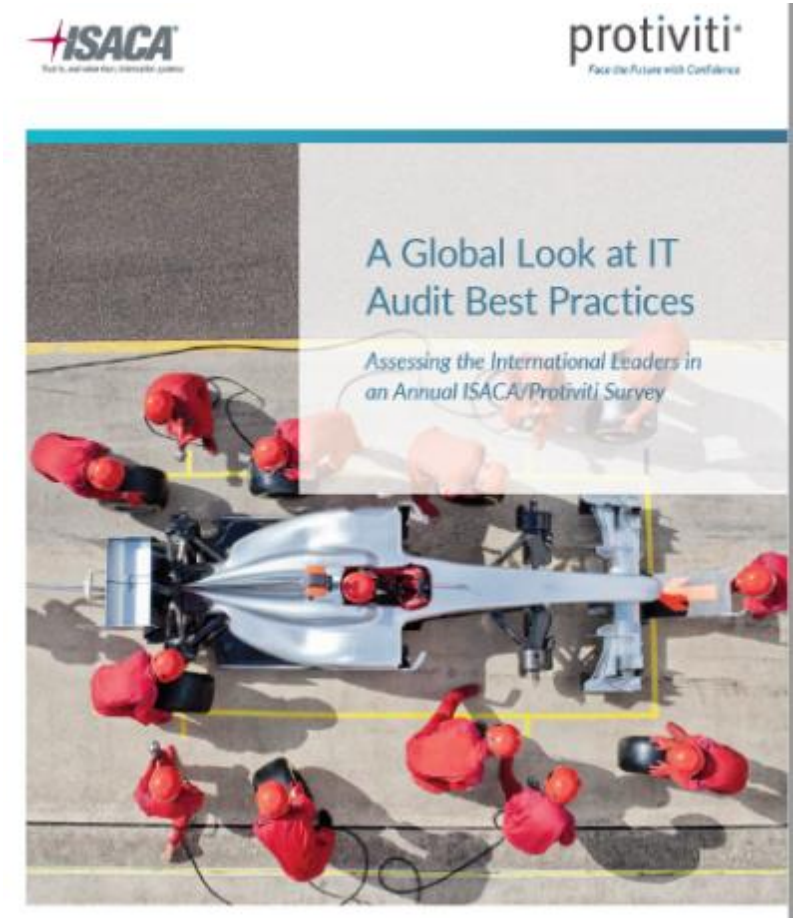
Cybersecurity is the top challenge

Increasing executive interest in IT audit

CAE's carrying leadership for IT audit directly

Most IT auditors involved in key technology projects

Most perform audit risk assessment; majority do so annually



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Source: *2017 ISACA/Protiviti Study: A Global Look at IT Audit Best Practices*

PROCESSES AND TRENDS IN IT AUDIT

Enterprise risk management (ERM)

Supply chain risk management

Assurance of partners

Supply chain relationships

Corporate governance

Extends to IT governance

Source: *2017 ISACA/Protiviti Study: A Global Look at IT Audit Best Practices*

ADDITIONAL TRENDS IN AUDIT TO LOOK FOR, SHORT-TERM

ROBOTIC PROCESS AUTOMATION (RPA) AND COGNITIVE INTELLIGENCE (CI)

Increasingly being adopted in business and ‘second-line’ functions, particularly in data-driven or data-intensive industries, such as financial services

Audit can support RPA and CI implementations by being proactive in identifying, assessing and monitoring risk(s) of these technologies; requires understanding of a new risk landscape

RPA can be used to automate repetitive controls testing and internal reporting tasks, but first, auditors should ascertain the effect(s) of RPA and CI on existing processes, on management, and on the enterprise as an entity—and this means involvement early in the adoption of these technologies, not later

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Source: various authors: *Internal Audit Insights 2018: High-Impact Areas of Focus;* Deloitte, January 2018

ADDITIONAL TRENDS IN AUDIT TO LOOK FOR, SHORT-TERM
ANALYTICS

Has always been a significant force in audit, but lately has evolved into one of the most important strengtheners of audit efficiency and effectiveness; this only becomes more important with the increasing digitization of business

With that increasing digitization also comes increased stakeholder need for stronger risk anticipation, better insights, and greater assurance

Analytics and visualization tools for data are becoming less expensive, more user friendly, and more prevalent in the marketplace

Focus of audit can and should be on generating relevant insight, not merely a list of exceptions; use of RPA and CI has a role to play in analytics efforts, automating tasks and accelerating reporting (as well as improving it)

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Source: various authors: *Internal Audit Insights 2018: High-Impact Areas of Focus;* Deloitte, January 2018

ADDITIONAL TRENDS IN AUDIT TO LOOK FOR, SHORT-TERM
CYBERSECURITY

Cybersecurity audits have traditionally examined regulatory compliance; the most significant risks now, though are coming from the cloud, from external contractors, and from shadow IT

Challenge lies in identifying cyber risk before it occurs; critical to fold in organizational culture as well, to ensure employee decisions and behaviors minimize cyber risk

Consider ‘war gaming’ or operational exercises to test how cyber incidents will impact data, infrastructure, operations, and financial/reputational assets; gauge responses and resilience

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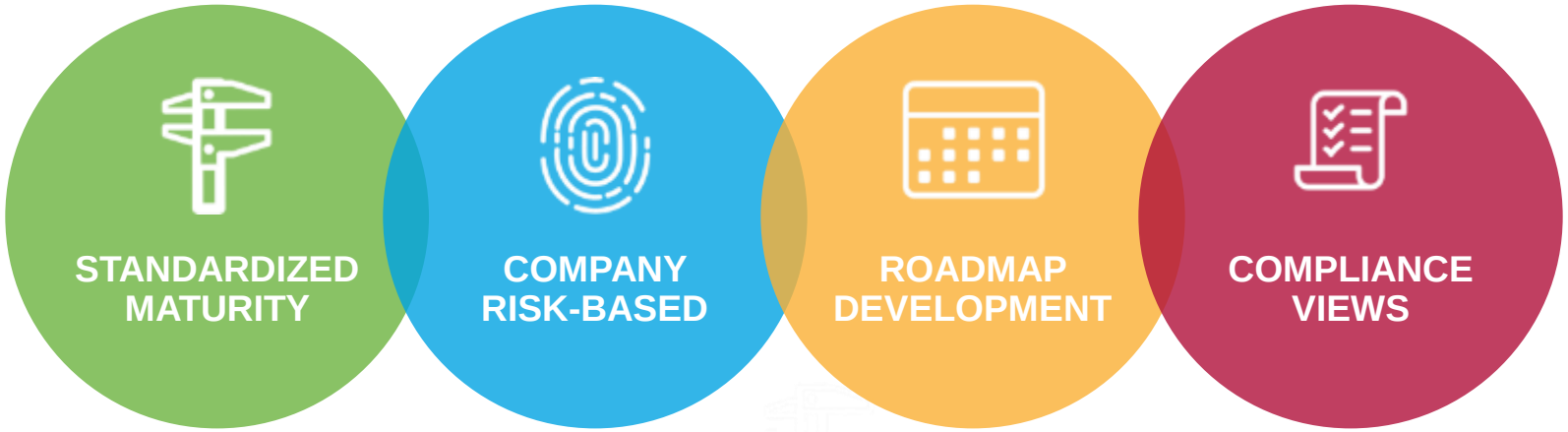
Source: various authors: *Internal Audit Insights 2018: High-Impact Areas of Focus;* Deloitte, January 2018

CYBER SECURITY MATURITY ASSESSMENT

BENEFITS AND IMPACT



Defines maturity for people, process and technology; includes hygiene; enables industry benchmarking

Defines company's risk profile and sets maturity targets

Provides risk-based prioritization of gaps in maturity to support roadmap development

Provides views into compliance with ISO27001, NIST CSF, CMMI Threat Kill Chain, ASD, etc.

WE PRESENT OUR RESULTS IN

BUSINESS TERMS

SIMPLE GRAPHICS TO SUPPORT BOARD COMMUNICATION

OUR

COMPREHENSIVE SCOPE

LEVERAGES LEADING FRAMEWORKS, STANDARDS AND CONTROLS

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INCREASING TECHNICAL SOPHISTICATION

Technical sophistication required by audit teams necessary to assess new technologies

Artificial Intelligence (AI)

Robotics

New methods required for conducting audit

Data visualization

Machine learning

Source: *2017 ISACA/Protiviti Study: A Global Look at IT Audit Best Practices*

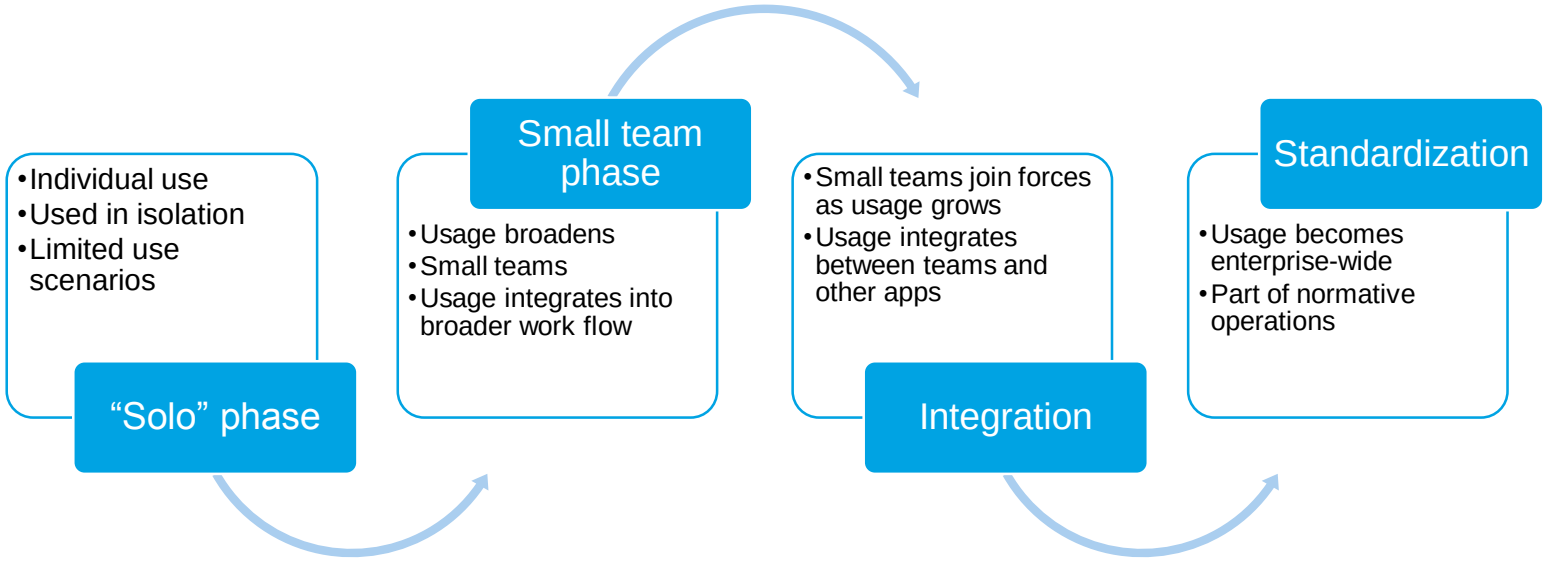
THE RISE OF SHADOW IT

Shadow IT and "Consumerization" of technology impacts the role of CIO

No longer about finding and deploying solutions

A strategic partnership that incorporates new technology coming in and aligns it with solutions already in place

Shadow IT Adoption Lifecycle



PACE OF CHANGES

Rapid technology and footprint expansion

Cloud

Mobile

IoT

Increasing agility/velocity

DevOps

…but audit planning has stayed stagnant(ish)

1 year audit planning cycle

6 month (or longer) risk review

Source: *2017 ISACA/Protiviti Study: A Global Look at IT Audit Best Practices*

ON THE HORIZON?

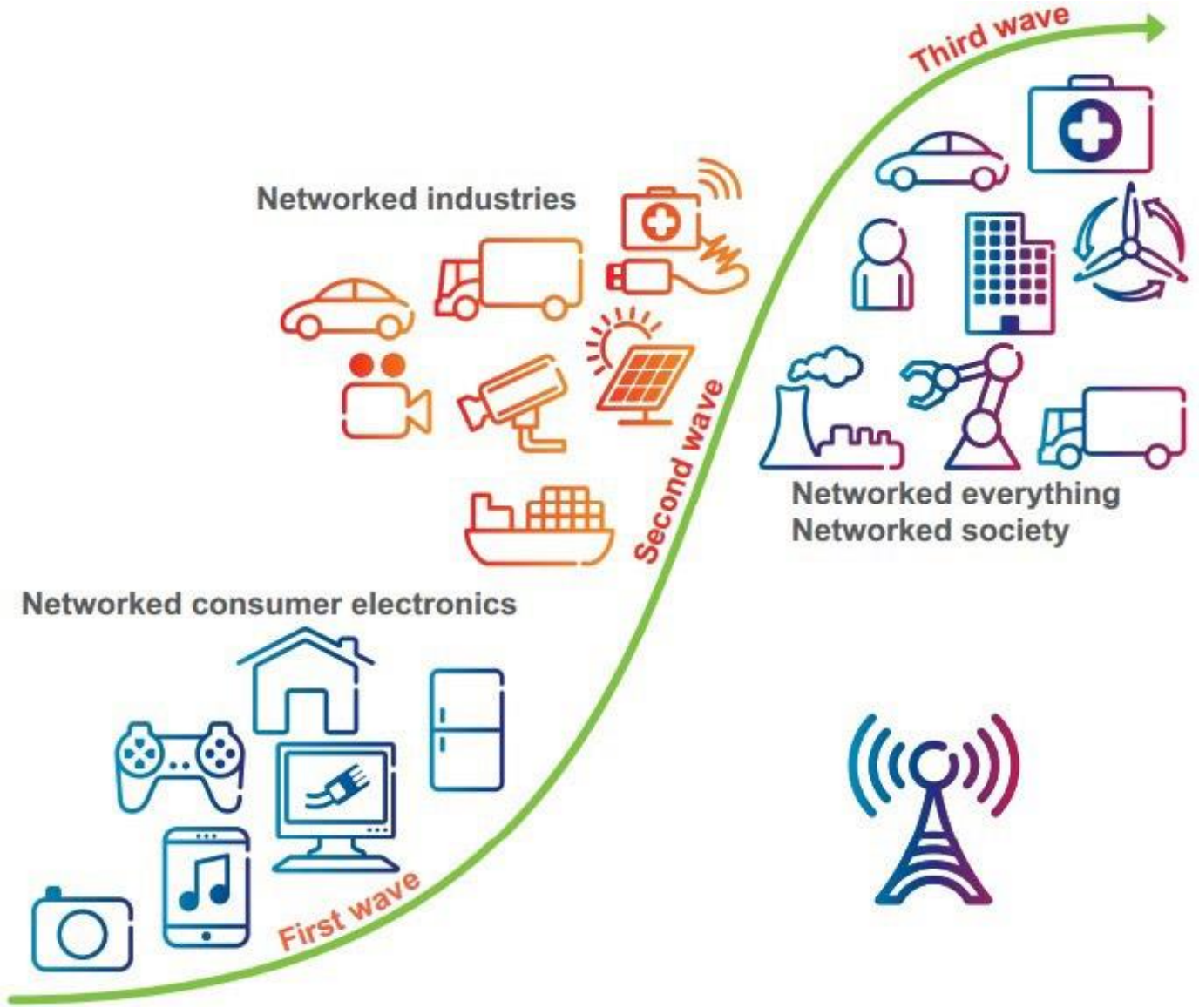


Image source: Erikson

LOOKING FORWARD

THE AUDIT OF THE FUTURE

What's required?

People

Process

Technology

People

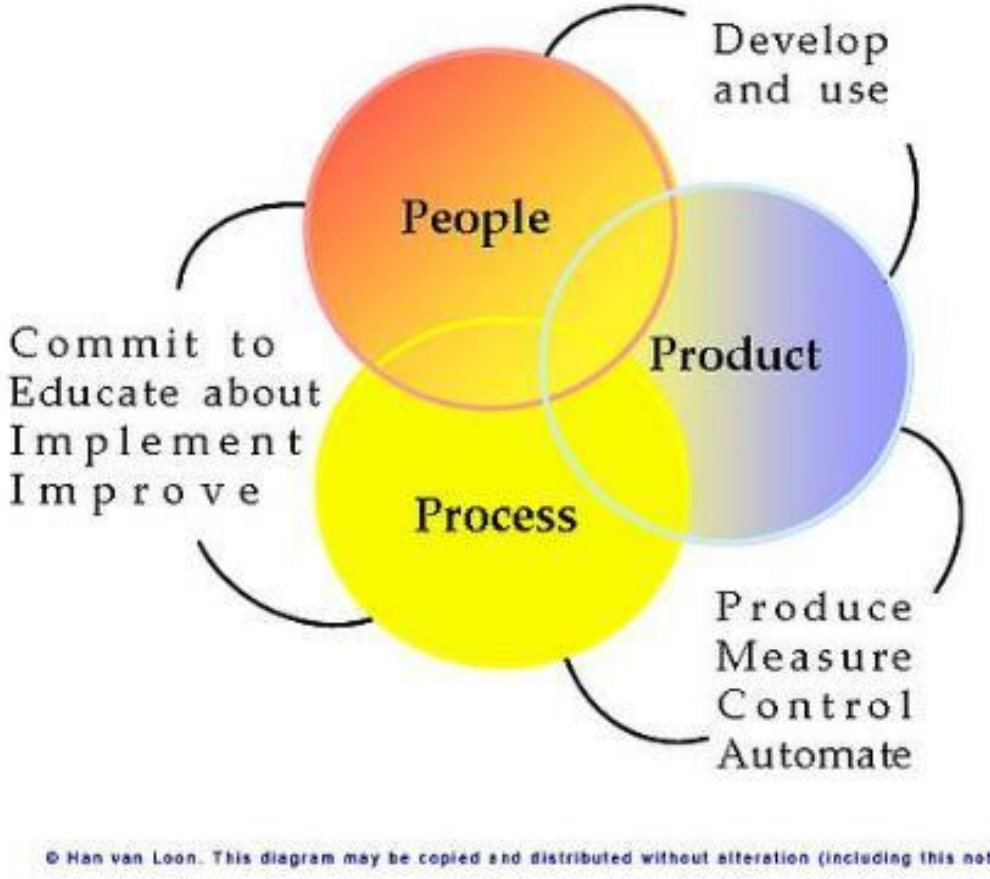
Require different, more finely-honed skills

Process

Better audit planning

Technology

Advanced toolset, hands-on approaches



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HOW RISK GETS EVALUATED

To operate an auto, you need to learn/understand :

- Automobile operation (steering, braking, etc.)
- Rules of the road
- Traffic laws

To evaluate an auto's safety, you need to learn/understand:

- Automobile operation (steering, braking, etc.)
- Rules of the road
- Traffic laws
- Road conditions/weather
- Safety features (seatbelts/airbags)
- Tire conditions/pressure
- Engineering of braking/steering systems
- Service/maintenance history
- Traffic laws
- Etc. (too many other things to list)

The implication: Assessing risk takes longer and requires more data compared to understanding usage. Requires evaluation of people/process/technology.

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PEOPLE (SKILL DEVELOPMENT)

Increased technical understanding

Required given complexity expansion in environments

Better business understanding

Understand what the business does and how it does it

Integration and crossover with:

Security (physical and logical)

Compliance (legal, HR, privacy)

Risk (risk operations, risk planning, ERM)

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ISACAS CYBER TRAINING PLATFORM

CSX™
CYBERSECURITY NEXUS

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PROCESS

Faster audit planning

Will a 1 year planning cycle be enough, going forward?

Consider: Some companies in the digital economy are making production code changes every minute of every day, throughout the year.

Will an audit plan hold up, some 525,600 code changes later?

Moves to continuous audit

Increased automation

Integration with automation happening in other areas (e.g. DevOps)

TECHNOLOGY

New, better ways of:

Analyzing evidence

Collecting artifacts

Understanding risks

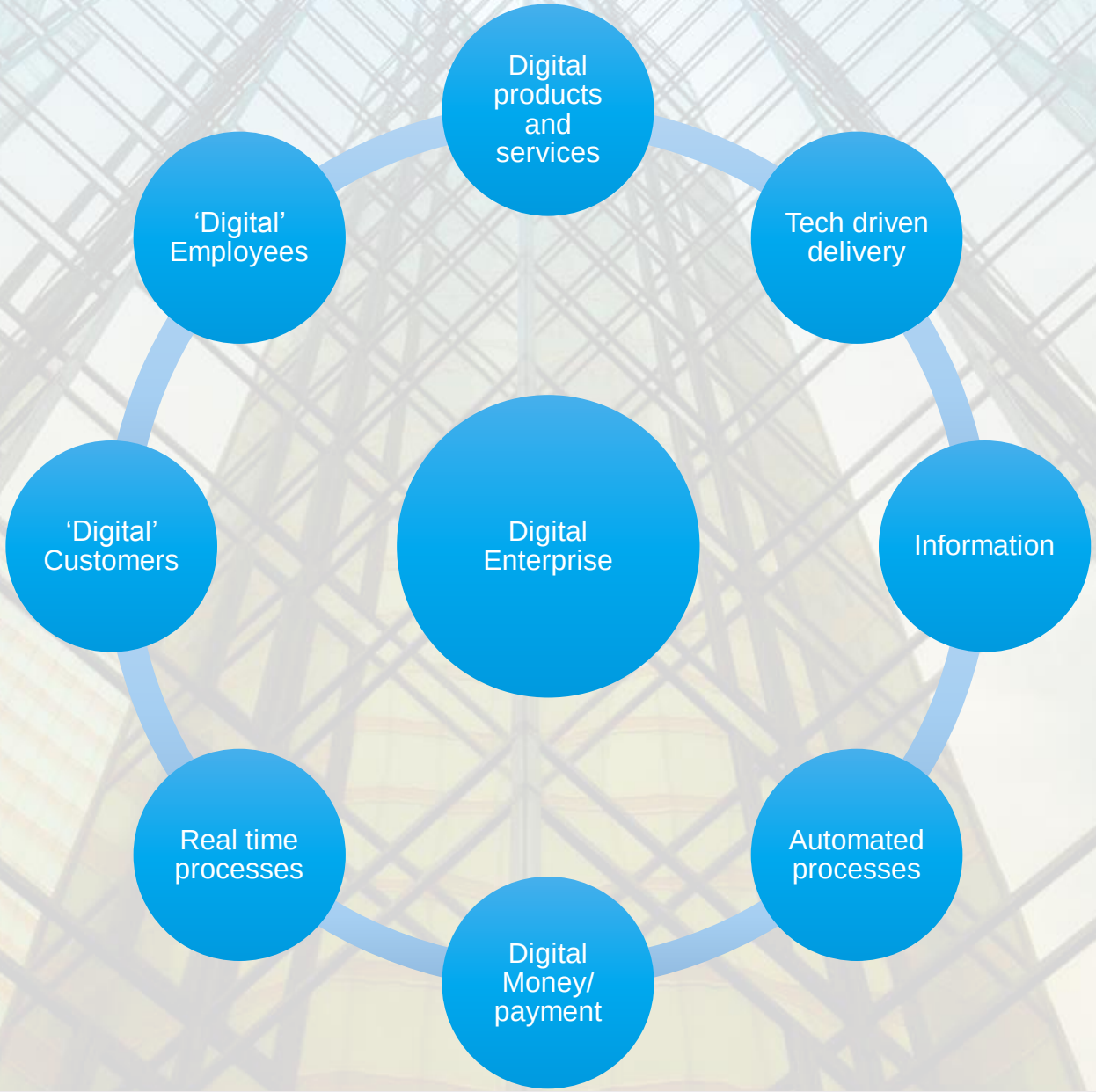
Examples:

Data visualization

Determining “safe” AI

Automating assessment to minimize resource consumption

THE ENTERPRISE OF TOMORROW



Source: *Auditing the Digital Enterprise; (*Presentation of RV Raghu at 2017 ISACA Asia Pacific CACS)

DIGITAL ENTERPRISE

Source: *Auditing the Digital Enterprise; (*Presentation of RV Raghu at 2017 ISACA Asia Pacific CACS)

AUDITS IN DIGITAL ENTERPRISE

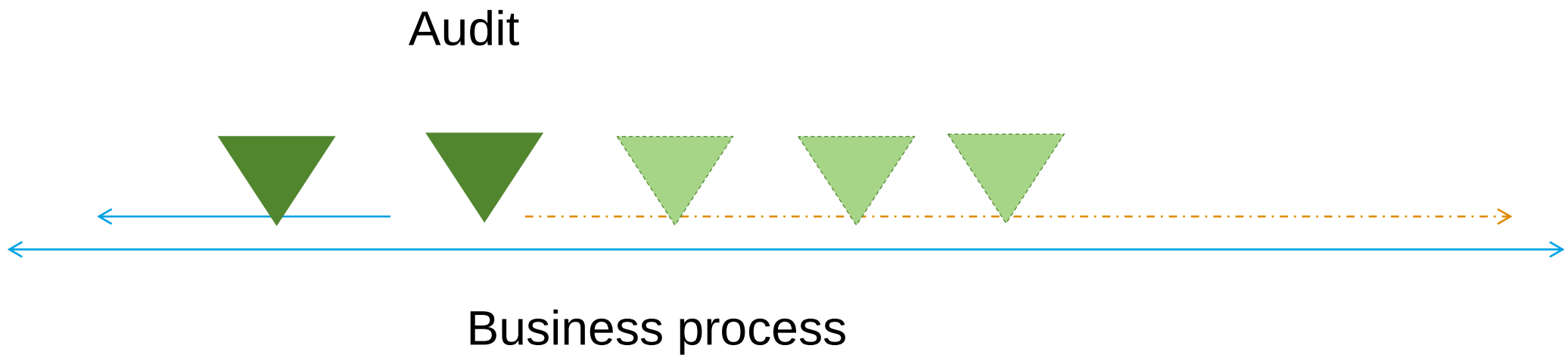
Audit of the future

Concurrent to business process

Multi temporal PoV

Limited lag between reporting and action on findings

Need for real-time or near-real-time actions



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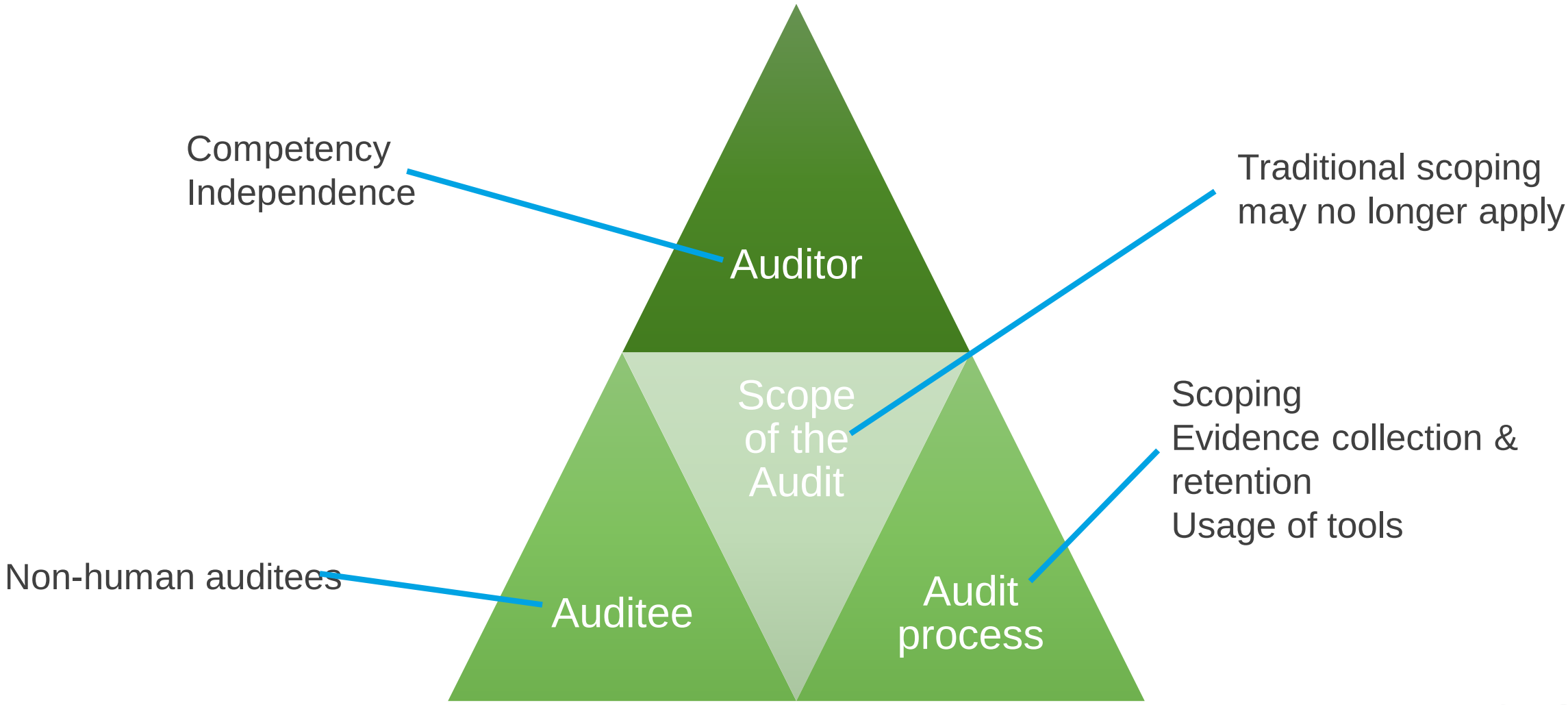
Source: *Auditing the Digital Enterprise; (*Presentation of RV Raghu at 2017 ISACA Asia Pacific CACS)

EVOLVING ASPECTS OF AUDITS



Source: *Auditing the Digital Enterprise; (*Presentation of RV Raghu at 2017 ISACA Asia Pacific CACS)

AUDIT IMPLICATIONS FROM THE DIGITAL ENTERPRISE

Audit is concurrent/"real-time"

Evidence management

Approaches to obtaining evidence will change

Evidence analysis, retention will change

Corrective action time frames change radically

Actions required "real-time" or "near-real-time"

Blurring of audits/reviews/monitoring

Increased integration between business and 'audit'

Need for increased audit skepticism

Need for high quality audits /increased reliability

Contextual reporting v/s binary reporting

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Source: *Auditing the Digital Enterprise; (*Presentation of RV Raghu at 2017 ISACA Asia Pacific CACS)

AUDIT OF THE DIGITAL ENTERPRISE: FUTURE FOCUS

Business process risk management

‘Strength’ of controls

Change management

Configuration control

Increasing need to use analytics

Coalesced insights drawn from multiple sources

Ability to analyze larger sets of data rather than sampling

Audit ‘intelligence’

Source: *Auditing the Digital Enterprise; (*Presentation of RV Raghu at 2017 ISACA Asia Pacific CACS)

IMPLICATIONS FOR THE AUDIT PROFESSIONAL

Outsider to trusted, valued insider

Collaborate more /Share knowledge

Keeps abreast of changing technology

Possess high domain knowledge.

Uses tools extensively.

Be closely attached to the business process..without impinging on independence

Engage before and during the course of business rather than only post facto.

Increasing need to involve in post audit actions

Source: *Auditing the Digital Enterprise; (*Presentation of RV Raghu at 2017 ISACA Asia Pacific CACS)

IMPLICATIONS FOR THE AUDIT PROCESS

Increasing reliance on rules/parameterization

Embedding of audit routines into the business process

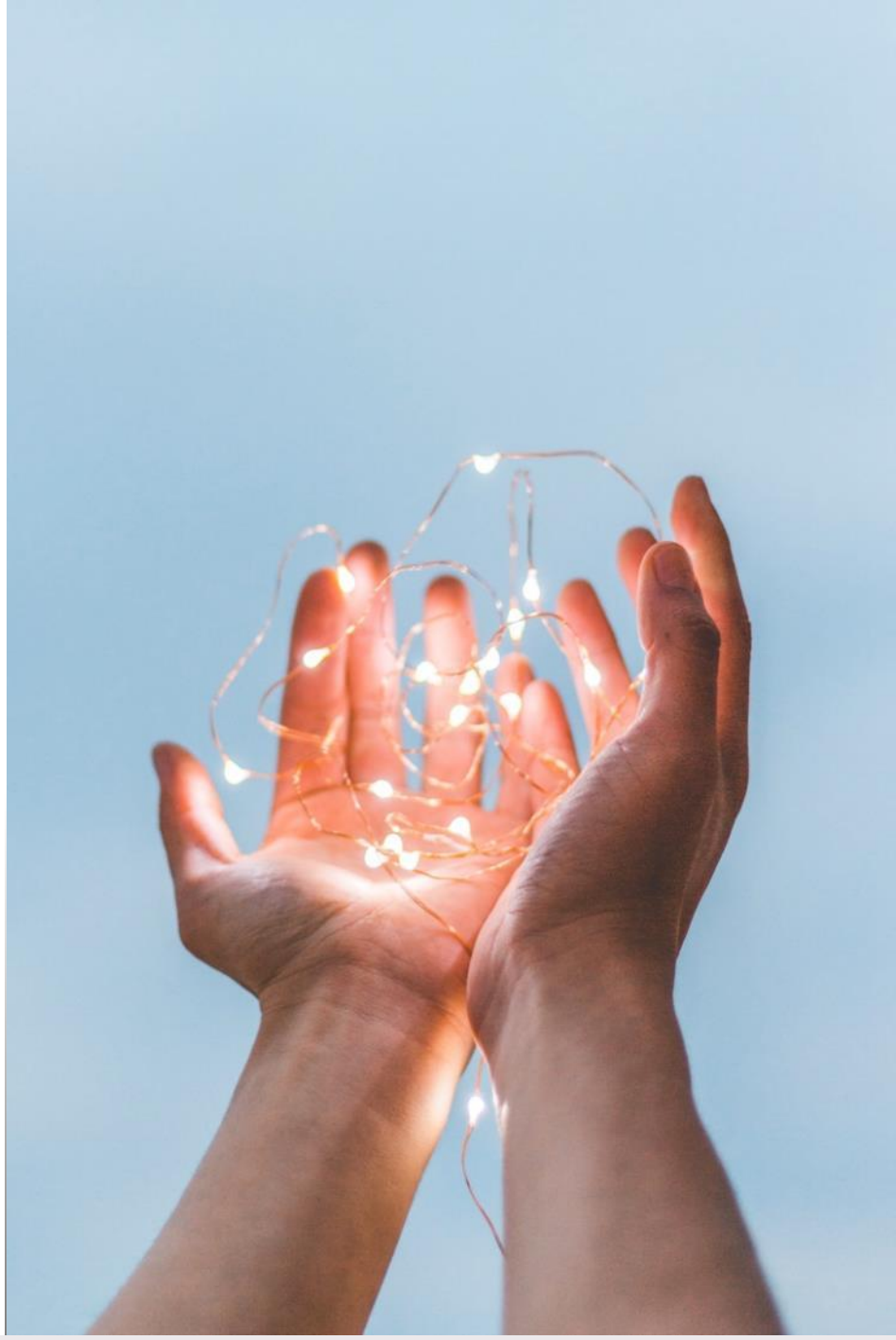
On-going collection of evidence & analysis

Emphasis on evidence collection/analysis /retention

End-to- end audit life cycle management tools

Go with the flow of business process rather than against the grain

Deep, wide and technical- all need to be ticked



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MODELED OUTCOMES

Audit strategy aligned with business strategy

Move from a line of defense to a strategic value adding role

Improved audit productivity

Increased automation

Consistency across teams, businesses, geographies

Enhanced audit management ability

Analytics leveraged to identify trends

Predict areas of higher risk

Become force multipliers

Metrics to drive, deliver and demonstrate value

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Source: *Auditing the Digital Enterprise; (*Presentation of RV Raghu at 2017 ISACA Asia Pacific CACS)

THANK YOU…

QUESTIONS?