

**2019**  
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CONFERENCE**  
Solo, 24 - 25 July 2019



# Internal Audit and Disruptive Technology

**Larry Harrington, CIA, QIAL, CRMA**  
IIA 2015-2016 Chairman of the Board

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**EMPOWERING INTERNAL AUDITORS : EMBRACING THE 4IR**

## Change is Accelerating

The world is changing at exponential speed; as are risks that affect ourselves, organization, and profession.

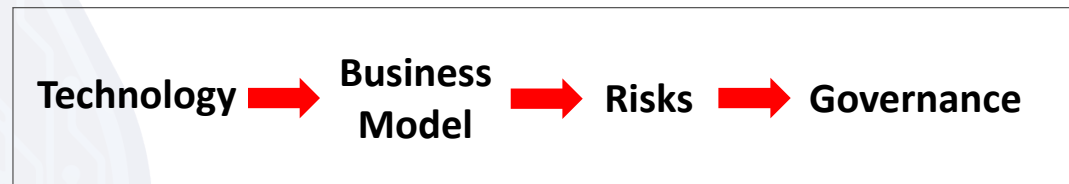


What has made our organizations, Internal Audit, and you successful is **NOT** going to ensure continued success.



## Change is Accelerating for Organizations

Technology disruption will be a major force for change within organizations.



“Our data shows that when it comes to technology innovation, many companies struggle to balance the need for speed and agility with the need for control.”

Excerpted from KPMG’s 2018 Tech Risk Management Survey Report “Disruption is the New Norm”

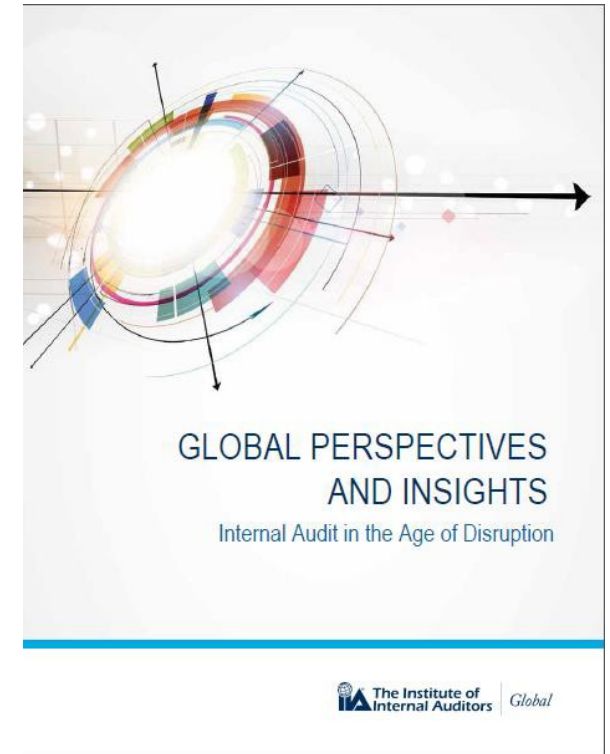


## Change is Accelerating for our Profession

Whether now, soon, or later, changes will impact our profession and ourselves:

- What we audit (implementations, technologies)
- Who we hire (innovators, IT skills, change agents)
- How we audit (leveraging technology, embedding controls)

The speed of change requires a more “agile” approach to everything we do. Our profession (and ourselves) must be more agile to avoid being seen as “inhibitors”.



## Change is Accelerating for Each of Us

If our organizations and departments are being impacted, then...

- The skills we need will change - continuously
- Our knowledge of technology (current and future) must increase
- How we lead and influence others will change

The doomsday (or optimist) scenario – automation replaces us all.

**Vivienne Ming: ‘The professional class is about to be blindsided by AI’**

- Rana Foroohar, July 27, 2018; Lunch with the FT Artificial Intelligence

**Twin Trends of Aging and Automation: Risks to Anticipate**

- Patty Sung, July 19, 2018; NACD BoardTalk



## What are “Technology Disruptors”?

### Per Investopedia:

Disruptive technologies are those that significantly alter the way businesses or entire industries operate.

### Examples:

- Mobile Devices/Apps:
  - Uber
  - Mobile Banking
  - Netflix
- Digitization:
  - Apple (music)
  - Kodak (photography)
  - Bookstores

**What is a disruptor for one organization is not a disruptor for all**

## Which Are A Concern – For Now

Technologies companies are rapidly adopting without assessing the associated risks



47%

Mobile applications and devices



46%

Internet of Things



44%

Cloud computing



34%

Artificial intelligence



32%

Robotics process automation



25%

Cognitive computing



14%

Blockchain



11%

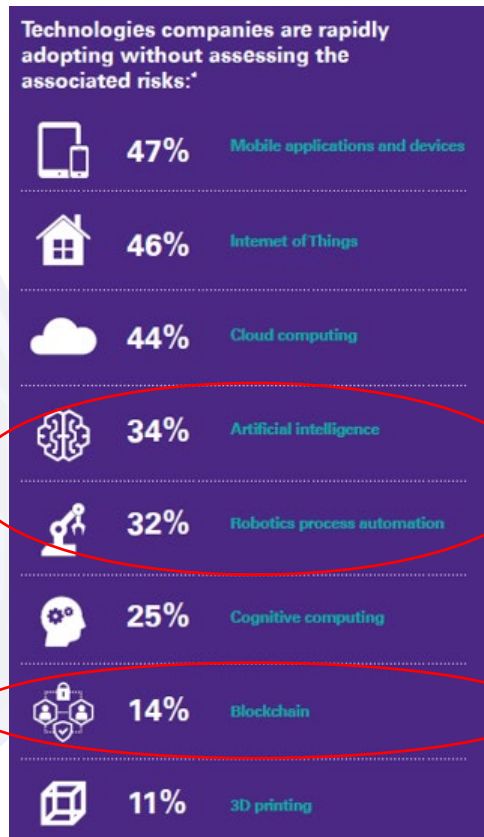
3D printing

**These risks and their importance to our stakeholders are growing**

Excerpted from KPMG's 2018 "Disruption is the new norm - Tech risk management survey report"



## Which Are A Concern – For Now (cont'd)



### Internal Audit Mission:

To enhance and protect organizational value by providing risk-based and objective assurance, advice, and insight.

For these 3 newer technologies, let's discuss:

- The technology
- Potential impact on an organization (e.g., business model)
- Risks and Governance

Excerpted from KPMG's 2018 "Disruption is the new norm - Tech risk management survey report"





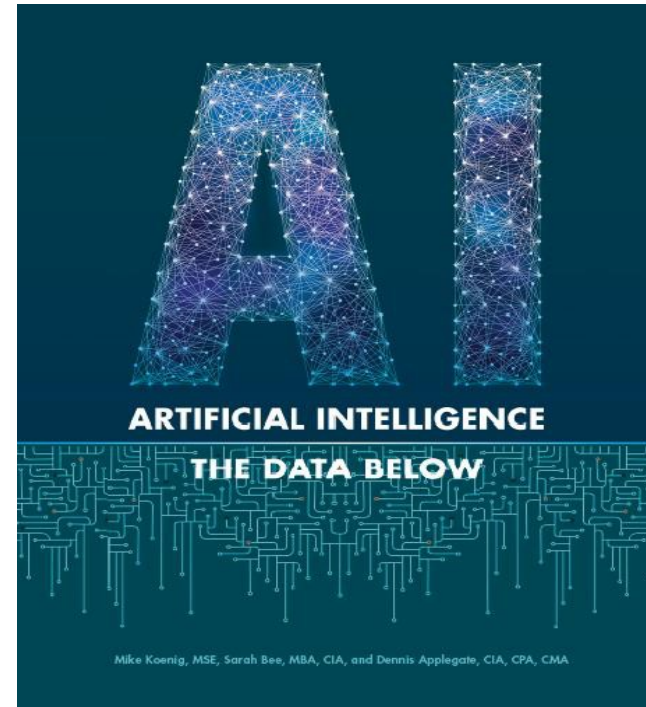
## Artificial Intelligence - Impact

- Tata Consultancy polled <sup>(1)</sup>:
  - 835 executives
  - 13 global industries
  - 4 world regions
- 84% of companies see AI as “essential” to competitiveness
- 50% see the technology as “transformative.”
- Biggest adopters of AI are IT departments:
  - 67% use to detect security intrusions, user issues and deliver automation.
- By 2020:
  - 32% believe greatest impact will be in sales, marketing or customer service
  - 20% see impact being in non-customer facing corporate functions (e.g., finance, strategic planning, corporate development, and HR.)

(1) March 17, 2017; Help Net Security; What impact will artificial intelligence have on business?

## Artificial Intelligence - Risks

- Algorithm development
- Data
- Security
- Privacy
- Regulation
- Overreliance
- Ethics



AI's major limiting feature – the complexity of software algorithm development – is being replaced by the complexity of data preparation.

## Robotic Process Automation - Risks

- Central or distributed management
- Return on Investment
- HR risks
- Change management
- Access controls
- Increased/Rapid error multiples
- Monitoring and shutdown
- Reengineered processes
  - Automating inefficiency
  - Dropping controls
  - Up/Downstream process impacts
- Business continuity



## Blockchain

Blockchain introduces changes to the age-old “general ledger”:

- 1) New way to track and store data – distributed and decentralized
- 2) Creates trust in the data through cryptography
- 3) No more intermediaries

Will raise new questions about:

- 1) Governance
- 2) International Law
- 3) Security
- 4) Economics

Good reference videos:

<https://www.youtube.com/watch?v=I4CZjTyLYG4>

[https://www.youtube.com/watch?v=93E\\_GzvpMA0](https://www.youtube.com/watch?v=93E_GzvpMA0)

<https://www.youtube.com/watch?v=k53LUZxUF50>

<https://www.youtube.com/watch?v=G3psxs3gyf8>



## Blockchain - Impact

- Financial Services
- Voting
- Real Estate
- Supply Chain Management
- Agriculture
- Healthcare
- Charitable Giving



**Blockchain technology is disrupting business as we know it.**

15 Industries That Will Be Impacted by Blockchain

- Garrett Baldwin, May 3, 2018



## Blockchain - Risk

- Security
  - Endpoint vulnerabilities
  - Vendor risks
  - Untested code
- Regulations
- Integration with systems, customers and partners
- Insurability



The Financial Stability Oversight Council suggested that risks associated with Blockchain may not emerge until solutions are deployed at scale, because of participants' limited experience with the technology.



## How Do We Audit These Risks?



The good news is there are lots of thought leadership from leading firms about risks and controls.

## 4th Industrial Revolution

Throughout history, there have always been technology disruptors.

So what is different about this revolution?

- Speed
- Interconnectivity
  - IoT and Mobile Devices
  - RPA and Cognitive Computing
  - AI and Drones
  - RPA and IoT
  - Cognitive Computing and IoT
  - Blockchain and IoT





## Disruptive Technologies - Governance

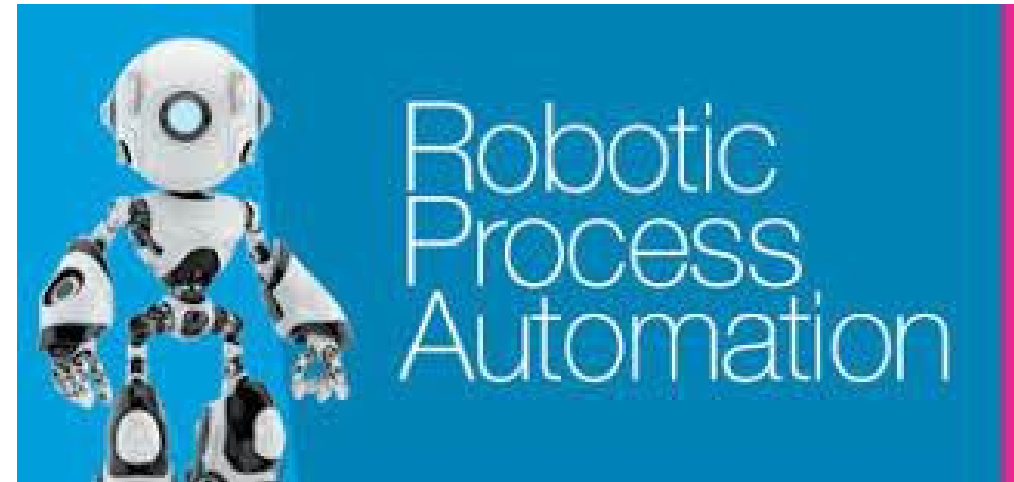
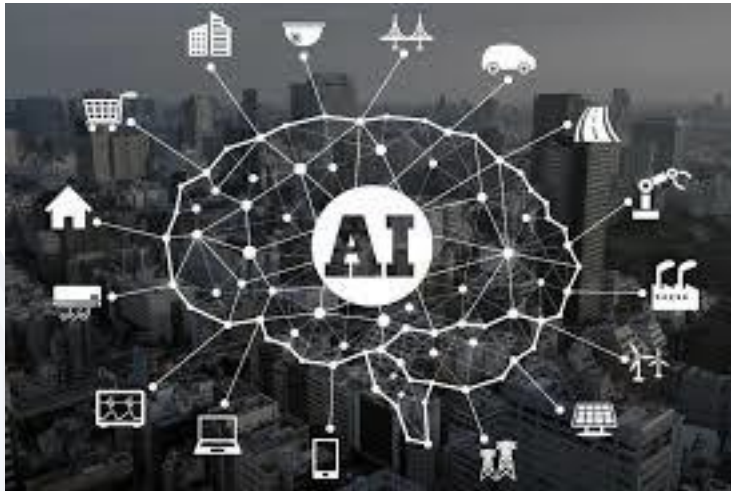
- Who/How In your organizations:
  - Identifies
  - Approves
  - Tests
  - Assesses regulations
  - Designs controls
  - Creates policies
  - Implements and communicates
  - Monitors
- What is the Board's role?
- What is your role?



**Future governance will require a flexible framework that allows for transparency and rapid communication**



## What Can We Use in our Audit Process



Maybe not today – but remember:  
All technologies become cheaper over time



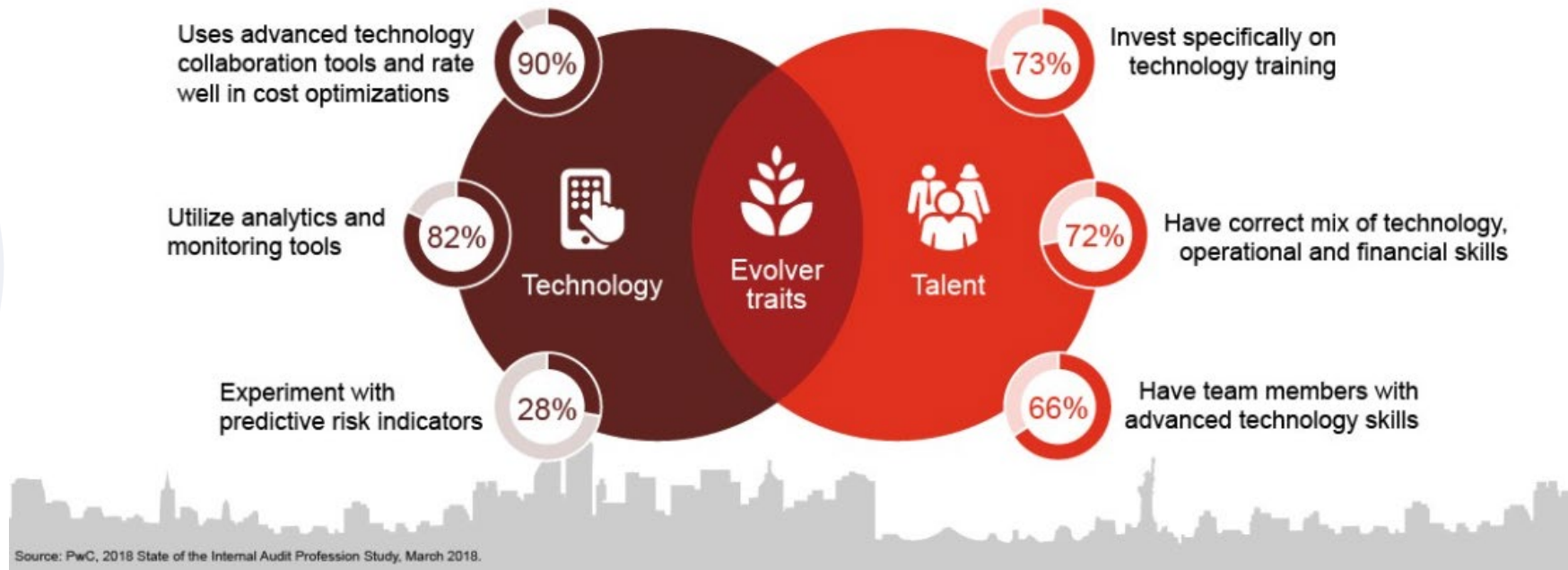
## Using AI

- AI has excellent predictive analytic capacities. (e.g., Amazon)
- Commercial AI solutions (e.g., feedzai) to combat fraud exist now.
- Reduces number false positives and increases the speed and accuracy of fraud detection.
- Financial services use these techniques to investigate fraud. AI helps focus on the right behaviors to find fraud faster.



## Transformation of Internal Audit

- ONLY 14% of respondents to the PwC 2018 State of the Internal Audit Profession Study are categorized as "Evolvers;" advancing in technology adoption.
- 75% of the Evolvers are considered to be providing significant value to their organization.
- Evolvers are also successfully fusing technology and talent.



## Skills – Now & Future

### Existing Required Skills

- Change Agent
- Strategic Thinker
- Relationship Builder
- Learner

### New Skills To Enhance Brand

- Innovator
- Risk Taker
- Technologist
- Agile Expert



“The real pitfall for Internal Audit is if they don’t stay current on new technologies then they won’t have a seat at the table and be perceived to be adding value; they need to stay current (not be experts) to stay relevant.”

- Alvin Bledsoe *Audit Committee Chair, SunCoke Energy*



## Seven Things To Remember

- The world is changing at exponential speed and so are the risks that affect our organizations and our profession.
- Technology disruption is a major force for change within organizations. What has made them, our profession and you successful WON'T ensure continued success.
- The speed of change requires a more “agile” approach to everything we do. Our profession (and ourselves) must be more agile to avoid being “inhibitors.”
- There is lots of thought leadership from leading firms about risks and controls for these new disruptors; take advantage of these tools.
- 14% of respondents to the PWC 2018 State of the Profession categorized as “Evolvers” and 75% of them are viewed as providers of significant value to their organization by fusing technology and talent (14% x 75% = 10%).
- Are you be 1 of the 10?
- The future is not something we enter; it is something we create.



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