The 4ᵗʰ Industrial Revolution

One Definition

"...the fusing of the physical, digital, and biological worlds that can impact all disciplines, economies, and industries. From ending the world's dependence on fossil fuels to the melding of humans and machines, 4IR promises not just inspirational innovation and digital disruption, but a paradigm shift in business, socioeconomic norms, government, and the human experience. This seismic transformation will rewrite the unspoken contract between business and customers."

Excerpted from "Internal Auditing and the Fourth Industrial Revolution"
Richard Chambers July 31, 2017

What Are Some Of These Technologies?

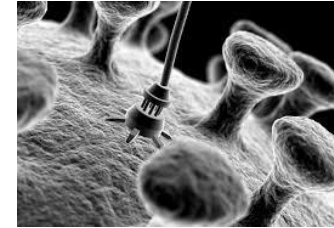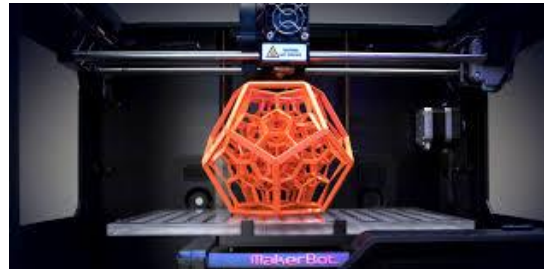# 4IR (cont'd)

Drones

Autonomous Cars

Nanotechnology

Automation

3D Printing
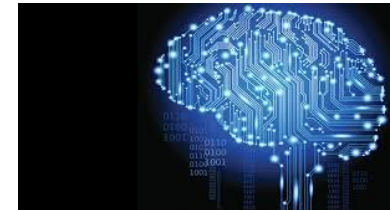
Artificial Intelligence

Blockchain

Let's Discuss Some Of These Technologies

Different Adoption Rates

2.5% Innovators
Early Adopters 13.5%
Early Majority 34%
Late Majority 34%
Laggards 16%
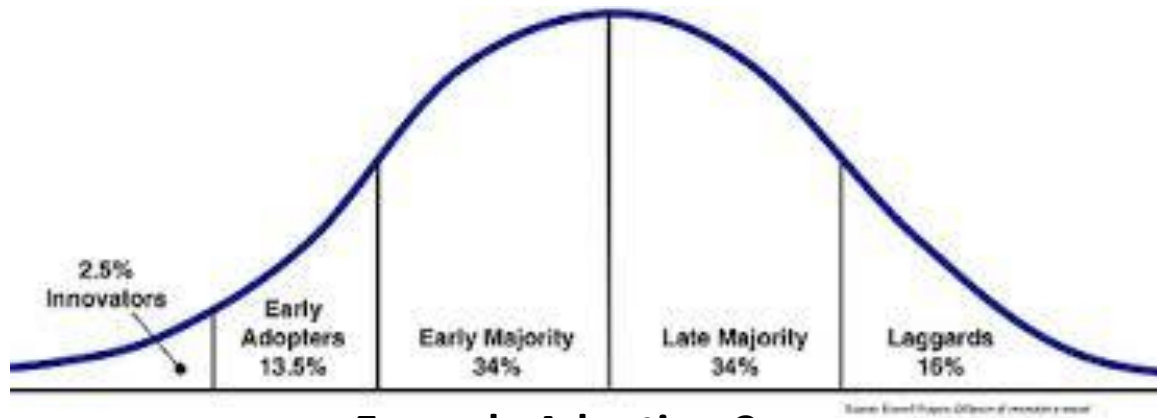
Example Adoption Curve

- Some are implementing faster. No surprise.

- Important to realize that these changes will likely have high impact, significance and velocity.

- This will impact each of us, personally and professionally.

Let's Look At Some Examples

Drones

- Early warning systems (tornados, tsunamis, fires).

- Emergency services (missing child/pet, avalanche rescue).

- News reporting (photos, interviews, traffic).

- Delivery (groceries, packages, prescriptions).

- Business monitoring (subway lines, construction, pipelines).

- Gaming (obstacle courses, jousting, treasure hunts).

- Marketing (spot advertising, food/product sampling).

- Agriculture (seeding/pollination, pest control).

- Ranching (herding, monitoring).

- Police (drug sniffing, high-speed chases, neighborhood watch).

Multiple Uses Across Many Industries

Robotic Process Automation

Robotic process automation describes logic driven robots that execute pre-programmed rules on mostly structured and some unstructured data.

- Talent acquisition
- Claims processing
- Vendor set-up
- Comparing medical records

https://www.youtube.com/watch?v=OT5plcRWUzU

Does Your Organization Process Routine Transactions?

The Home of the Future

Smart wallpaper uses printed electronics to transform your home into a 'big iPhone'

By Anthony Cuthbertson

Researchers from Nanyang Technological University in Singapore have developed a new type of printed electronics that can be used to transform walls into digital devices incorporating miniature speakers, microphones, switches and sensors.

The Big Screen TV Of The Future

Diagnostics of the Future

Wearable and implantable devices can deliver rivers of information that can help health-care systems track the health of and proactively treat individuals.

- A smart-toilet that can collect urine for testing several times a day.

- A smart bra designed to continuously image breast tissue.

- A tattoo with biosensors to monitor glucose levels.

What Could This Mean For Our Longevity?

Bottom Line: Unprecedented Change

The world is changing at exponential speed and so are risks that affect our organizations and Internal Audit.

What has made our organizations and Internal Audit successful is not going to ensure continued success.

Future Change Will Be Big And Fast

Ready or Not?

Most organizations aren't ready

"72% of executives responding to an IBM and *Harvard Business Review* (HBR) survey said they are susceptible to digital disruption by competitors in the next three years. What is more disturbing is that a third of the 600 business executives responding to the survey rated their organization as ineffective when it comes to adopting new technologies."

Excerpted from "Internal Auditing and the Fourth Industrial Revolution"
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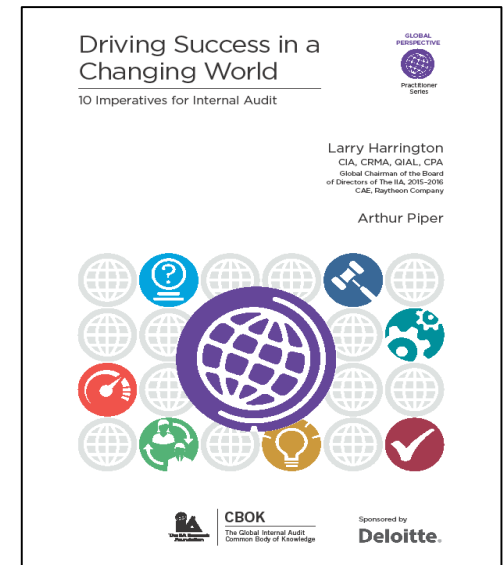### Are You Looking Around The Corner?

Preparing

The 10 imperatives for Internal Audit include:

- Identifying, monitoring and dealing with emerging technology risks, and
- Being proactive and advising management and our boards on these emerging technology risks.

Do you have opportunities?

Some thought leadership indicates that two key partners in these technology changes are:

- Human Resources, and
- **Internal Audit** (Governance, Risk and Control)

How Can You Prepare To Lead?

Driving Success in a Changing World
10 Imperatives for Internal Audit

GLOBAL PERSPECTIVE
Practitioner Series

Larry Harrington
CIA, CRMA, QIAL, CPA
Global Chairman of the Board
of Directors of The IIA, 2015-2016
CAE, Raytheon Company

Arthur Piper

CBOK
The Global Internal Audit
Common Body of Knowledge

Sponsored by
Deloitte.

Get Up To Speed - Now

Have you researched relevant technologies?

- Reading (plenty of material)
- Attending seminars/webcasts

Are others in your industry adopting?

Have you discussed emerging technology plans and/or impacts with your key stakeholders?

Are there initiatives currently underway that you can partner on?

Those auditors who fail to adjust to the speed of change and assume "status quo" may put themselves at career risk.

Don't Wait For The Change To Happen

Don't Be Overwhelmed

No need to be a technology expert.

Instead, put on your "Change Agent" and "GRC" hats.

For example, Drone GRC issues might include:

- Regulatory compliance
- Accountability for usage
- Privacy
- Legal liability
- Maintenance and physical controls

Recognize that the speed of change may require a more "agile" approach to control development. Internal audit will need to also be agile to avoid being seen as an "inhibitor".

Internal Audit Has An Important Role

Change Is Coming For Internal Audit

Whether happening now, soon, or later, these changes will impact internal audit:

- What we audit (implementations, technologies

- How we audit (leveraging technology, embedding controls)

- Who we hire (innovators, IT skills, change agents)

Relationships Will Be Key