

# The Future of IT Compliance

...

## And How to Plan for IT

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{ the slides, views, and opinions are solely my own }

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## Welcome!

- More Discussion; Fewer Slides
- Compliance and Ethics Programs are Foundational
- Crystal Balls are Always a Bit Cloudy

“Technology is Neither Good, nor Bad . . . nor Neutral”

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“The short-term impact of Artificial  
Intelligence  
depends on who controls it;  
  
the long-term impact  
depends on whether it can be controlled  
at all.”

-- Stephen Hawking

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## Bottom Line Up Front

1. The Future of IT Compliance . . . is going to look remarkably familiar and less scary than you might originally think.
2. If you treat computers and algorithms as additional people in your organization.
3. Then apply the compliance and ethics program framework to the computers and algorithms themselves.
4. This is more powerful than it initially seems, but it requires your organization to “double down” on its compliance and ethics program.
5. That’s the challenging part, not the IT...

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# What we might talk about, but won't focus on

Use of Artificial Intelligence / Machine Learning directly in your compliance and ethics program

Lots of effort here already

Trend spotting, prediction, big data, etc.

Think evolution, not revolution...

Whether AI is going to “take over and/or ultimately destroy

Figuratively or literally?

Like robots and stuff...

(Hint: a good conversation starter during the break...)



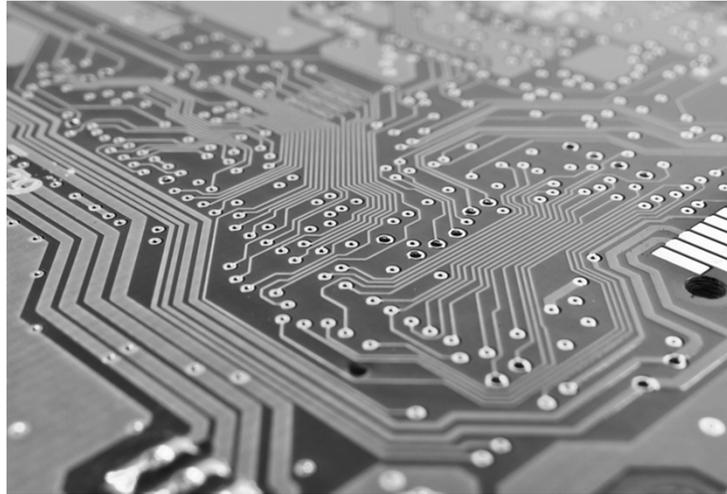
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Is this our future?

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**In the Future,  
Information  
Technology will  
be...**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



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# Artificial Intelligence & Machine Learning

“Weak AI” / “Machine Learning” /  
Algorithms

Focused on one specific task  
Narrow operating context  
Focused training and patterns  
Some emergent behavior

Examples:

- Customer support lines, automated voice
- Siri
- Self-driving cars
- Roomba

“Strong AI”

General abilities (like humans?)

Broader or all contexts

Close to limitless input and output

Examples:

??? (Watson in the future)

Lots of lively discussion about risks and benefits!

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# A Few Case Studies

Watson (IBM)

Tay (Microsoft)

News Articles (e.g., earnings reports)

Music

Customer service

“It’s not a human move...”



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**88%**  
**and growing...**

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# Algorithms for Speeding Tickets

In groups, review the one page spreadsheet of cars, times, and speeds.

The speed limit is 55 miles per hour; written penalties are:

0-10 miles over	Warning (only one) and then \$60
11-20 miles over	\$120 and 1 point
21-30 miles over	\$240 and 3 points
31+ miles over	Suspension of license and other fines...

When finished computing the total fines (dollars and points), please let me know.

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## The Human Element

From an Old IBM Advertisement

{ perhaps the most important part of the discussion today }

**Two men were watching a mechanical excavator on a building site.**

**"If it wasn't for that machine," said one,**

**"twelve men with shovels could be doing that job."**

**"Yes," replied the other, "and if it wasn't for your twelve shovels, two hundred men with teaspoons could be doing that job!"**

There are two ways to regard technological development. As a threat. Or as a promise. Every invention from the wheel to the steam engine created the same dilemma.

But it's only by exploiting the promise of each that man has managed to improve his lot. Computer technology has given man more time to create, and released him from the day-to-day tasks that limit his self-fulfillment.

We ourselves are very heavy users of this technology ranging from golf ball typewriters to ink-jet printers to small and large computers, so we're more aware than most of that age-old dilemma threat or promise.

Yet during 27 years in the UK our workforce has increased from six to 15,000. And during those 27 years not a single person has been laid off, not a single day has been lost through strikes.

Throughout Britain, electronic technology has shortened queues. Streamlined efficiency. Boosted exports. And kept British products competitive in an international market.

To treat technology as a threat would halt progress. As a promise it makes tomorrow look a lot brighter.

**IBM**

IBM United Kingdom Limited, PO Box 41, North Harbour, Portsmouth, Hampshire PO6 3AU

# The Human Element of Algorithms and Automation

Company X is cutting [insert big number] jobs due to automation...”

“You have been flagged for 18,297 speeding tickets . . . and that was just yesterday...”

“We don’t know why the algorithm did that, the IT department works magic...”

What if a machine learning algorithm was better than the HR department at picking good employees? Who’s running the show really?

<http://www.inc.com/empact/the-future-belongs-to-leaders-who-get-artificial-intelligence.html>

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# Language Biases in Machine Learning

## Semantics derived automatically from language corpora necessarily contain human biases

Aylin Caliskan-Islam<sup>1</sup>, Joanna J. Bryson<sup>1,2</sup>, and Arvind Narayanan<sup>1</sup>

characterizes many human institutions. Here we show for the first time that human-like semantic biases result from the application of standard machine learning to ordinary language—the same sort of language humans are exposed to every day. We replicate a spectrum of standard human biases as exposed by the Implicit Association Test and other well-known

<https://freedom-to-tinker.com/blog/randomwalker/language-necessarily-contains-human-biases-and-so-will-machines-trained-on-language-corpora/>

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# AI, Tweets, and Spam

<https://www.technologyreview.com/s/602109/this-ai-will-craft-tweets-that-youll-never-know-are-spam/>

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Computing

## This AI Will Craft Tweets That You'll Never Know Are Spam

Machine-learning software could be used as effective cybercriminal sidekicks.

by Tom Simonite August 4, 2016

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**Last month, some people tweeting about Pokémon Go became unwitting** subjects in an experiment that could presage a worrying new kind of online attack.

Industry researchers trained machine-learning software to write tweets like a human to reply to some people using the hashtag #Pokemon, in a demonstration of how advances in software that understands language could be used to trick people online. Roughly a third of people targeted by the software clicked on a benign link sent along by the software to test how convincing it was.

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# AI and Inventions: Sound Human?

<http://www.limegreenipnews.com/2016/07/artificial-intelligence-drives-new-thinking-on-patent-rights/>

“Company A develops an AI program or machine, which it sells to Company B. Company B operates that AI on resources owned by Company C, such as servers in a cloud computing environment. Company B also obtains data from Company D that is used to train the AI. After training, the AI produces an invention – so who is the inventor?”

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# A New Standard for Ethics and Compliance

By Adam Turteltaub  
Ethikos  
March/April 2014

The law in many ways is a proxy for public expectations. We expect companies and individuals to act in a certain way, and we legislate many of those expectations. But the law doesn't address all of the behaviors. And when it comes to many areas, such as technology, the law will always lag behind the latest technical innovations. You can't have a law on the books regulating X until some time after X has been invented.

It begs us to ask, not just "can we do this" but "what will people think when they find out we do this?"

Part of that discussion is, obviously, an ethical one: Is what we are doing the right thing to do? Is it something that's technically okay, but we know is wrong?

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# At the highest levels of government...

<https://www.whitehouse.gov/blog/2016/05/03/preparing-future-artificial-intelligence>



the WHITE HOUSE

HOME · BLOG

## Preparing for the Future of Artificial Intelligence

MAY 3, 2016 AT 3:01 PM ET BY ED FELTEN

Summary: Today, we're announcing a new series of workshops and an interagency working group to learn more about the benefits and risks of artificial intelligence.

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# Are we approaching an “In re Caremark” Moment for Algorithms, Machine Learning, and Artificial Intelligence?

Review Facts of the case

What changed?

As applied to emerging algorithms and technology...

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## The basic question...

If we don't always really know:

how or why machine learning / artificial intelligence algorithms perform normally,

how confident are we that their extreme behaviors won't...

be simply far outside the range of appropriate behavior?

Would you hire a person (aka algorithm) who was clearly trained by an expert or group of experts, without knowing much more about that person?

**What would give you and your organization confidence?**

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## First Break



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## Part Two: Compliance and Ethics, Meet IT & Algorithms ... IT & Algorithms, Meet Compliance and Ethics



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# Effective Compliance and Ethics Programs



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## Effective Compliance and Ethics Program

Exercise *due diligence* to prevent and detect criminal conduct.

Promote an *organizational culture* that encourages ethical conduct and a commitment to compliance with the law.

Periodically *assess the risk* of criminal conduct and take appropriate steps to *reduce the risk* of criminal conduct.

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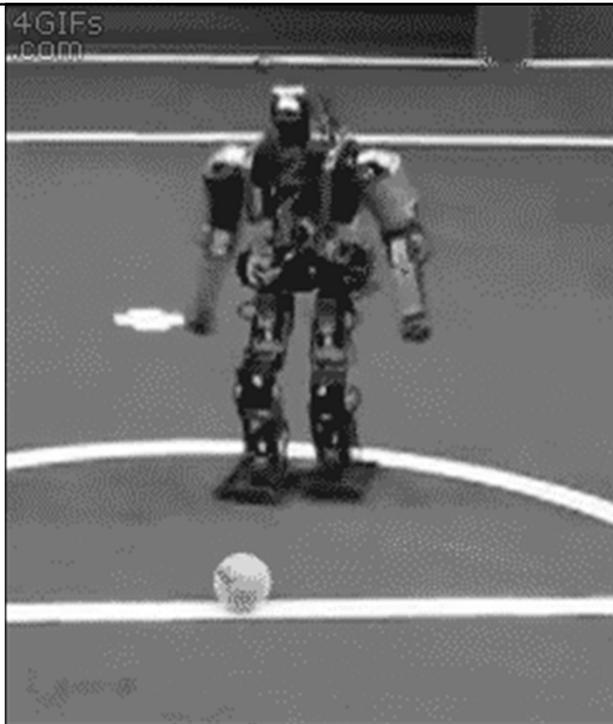
## Effective Compliance and Ethics Program Elements

- (1) Need *standards and procedures* to prevent and detect criminal conduct.
- (2) *Management needs to engage* with overall program and with people who are delegated to actually manage the program.
- (3) Don't hire people lacking *integrity* into management.
- (4) *Communicate*, train, and share information so people are aware.
- (5) *Don't set it and forget it!* Monitor and audit, evaluate the effectiveness of the program, and have a hotline that actually means something.
- (6) Bring your compliance program to life (not on paper!), use *incentives* to guide behavior and carry out appropriate *disciplinary measures* even for non-action.
- (7) *Address* known, non-compliant conduct and *make adjustments* to the program as needed.

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**Maybe some science is still at the fictional stage . . . or . . .**

**Is remarkably human.**



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- Exercise *due diligence* to prevent and detect criminal conduct.

What is due diligence in the computer algorithm context?

\_\_\_\_\_ ?

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- Promote an *organizational culture* that encourages ethical conduct and a commitment to compliance with the law.

Are algorithms part of that culture?

Or are the people who program computers and algorithms the sole part of that culture?

How does culture get into the machines? Can you teach a computer algorithm ethics?

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- Periodically *assess the risk* of criminal conduct and take appropriate steps to *reduce the risk* of criminal conduct.

How to assess the risk that a computer will generate criminal conduct?

Is it just the same as the human programmer, or is there something else to assess? Answer: Almost certainly YES!

\_\_\_\_\_ ?

\_\_\_\_\_

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## Effective Compliance and Ethics Program Elements

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(1) Need standards and procedures to prevent and detect criminal conduct.

Can computers and algorithms read (or understand) standards and procedures?

Is the conduct the programmers' or the computer algorithm's? Or both?

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(2) Management needs to engage with overall program and with people who are delegated to actually manage the program.

Does management understand the information technology parts of the overall program?

Who is delegated responsibility for the information technology compliance and ethics program?

Is there a shared understanding of what is IT-unique and what is universal and just applied, like everything else, to IT as well?

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(3) Don't hire people lacking integrity into management.

When IT starts to make decisions, how do you assess its integrity?

What does integrity mean for IT?

Who makes the determination of

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(4) Communicate, train, and share information so people are aware.

How to communicate to a machine?

Can you train a machine?

Can you test a machine?

Do machines share information?

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(5) *Don't set it and forget it!* Monitor and audit, evaluate the effectiveness of the program, and have a hotline that actually means something.

What does an IT audit really reveal?

Can machines call a hotline? What if they want anonymity?

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(6) Bring your compliance program to life (not on paper!), use incentives to guide behavior and carry out appropriate disciplinary measures even for non-action.

What incentives guide a computer?

What is discipline for a machine?

Does non-action apply to a machine?

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(7) Address known, non-compliant conduct and make adjustments to the program as needed.

Thoughts?

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## **Part Three: How to Plan for the Future of IT Compliance and Ethics**



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# Your Case Studies

(Divide into Groups)

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## Second Break



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# More Case Studies

(Done by different groups)

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## Compliance in the Era of Artificial Intelligence

See Jim Shook's excellent post at:

<http://thecoreblog.emc.com/it-management-it-trends-it-advice-it-news/compliance-era-artificial-intelligence/>

“these technologies often include the ability to learn and improve as more decisions are made, so they can improve over time.

But what happens when the inevitable disputes occur and regulators intervene or lawsuits are filed?”

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# How does your organization hire employees?

1. References

2. Resume

3. Interviews

4. More Interviews

5. As contractor first, then see if you want to hire them

6. Lateral from similar organization

7. Others?

How will your organization develop, use, or “hire” (and fire) algorithms?

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## Keep an Open Mind

“Trends, like horses, are easier to ride in the direction they are going.”

-- John Naspitt

<http://www.inc.com/empact/the-future-belongs-to-leaders-who-get-artificial-intelligence.html>

<http://fortune.com/2015/07/23/humans-are-underrated/>

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## Add Technical and HR Personnel to Your Compliance Team

Start by buying them pizza :)

Ask each of your organization's senior leaders to identify two technical people -- one entry-level and one more seasoned -- from their area to help in compliance and ethics work. Why one of each?

Invite some of your trusted and open-minded HR colleagues too.

Grab your organization's privacy policy and sit down with the technical team and have them review it. Listen first.

Do the same with areas where algorithms are making decisions on behalf of the organization.

Other ideas?

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## Focus on Accountability for Algorithms

Clarify ownership, responsibility, and accountability into a person/role.

Avoid committees or similar, redundant N-person reviews.

Consider starting with a basic inventory of what algorithms are running, in development, etc.

Even the journey will be illuminating...

Involve the IT personnel in ethics discussions

Don't let them off the hook!



Other ideas?

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## Seen in NYC...



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## How “Human” is Your IT Compliance and Ethics Program?

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**Thank You!**

