



Ethical Challenges when Leveraging Predictive Workforce Analytics

Mark J. Richardson, CTO, Rich Analytics

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About the Speakers



Speaker Name

- Mark J. Richardson
CTO – Rich Analytics
- 20+ Years in Reporting & Analytics
- 15+ Years in Workforce Reporting from various HCM applications.
- ASUG Volunteer

Session Summary

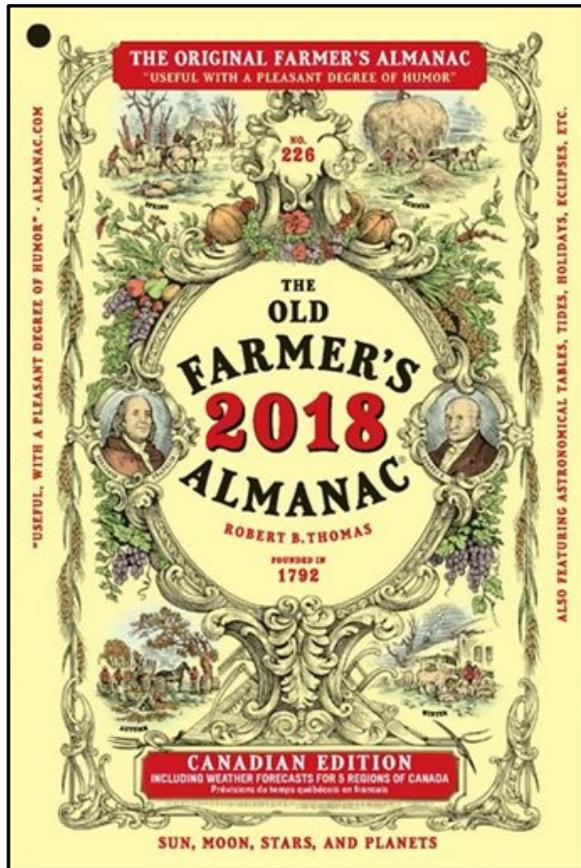
When a company begins to leverage predictive workforce analytics, it can expose itself to a number of ethical challenges around acceptable use of Human Resources data.

Learn from real-world examples, and how to ensure "appropriate use" models when using artificial intelligence tools to predict on people-data.

Agenda

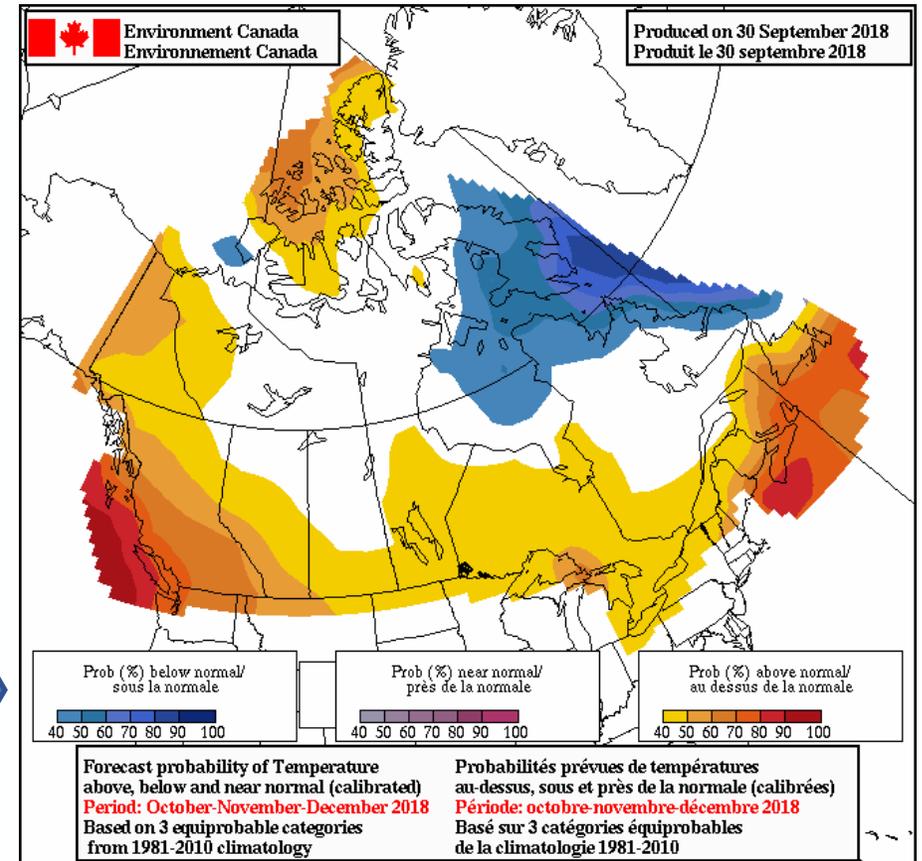
- Background Information on Predictive Analytics
- Unique Challenges when using Predictive Analytics for Workforce Data
 - Predictive Analytics Terminology & Links
 - Human Capital Questions that Predictive Analytics can help Answer
 - Legal and Ethical Risks of Predictive Analytics for Human Capital
 - Other Concerns

What is Predictive Analytics..?



Traditional
Forecasting
Method

Data-Modelling
Forecasting
Method



Human Resources Data Is Useless – Unless You Use It



THE BEST RUN 

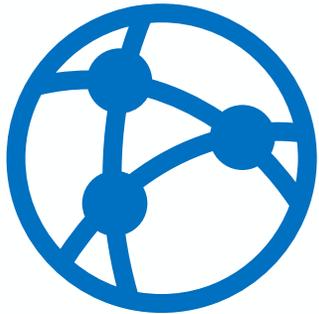
“If we want business leaders to invest the time and resources needed to make data-based HR decisions, we must make them aware of what they are losing by over-relying on their intuitions and failing to leverage HR data.”

<https://www.sap.com/canada/docs/download/2018/09/a2a4eee6-1a7d-0010-87a3-c30de2ffd8ff.pdf>

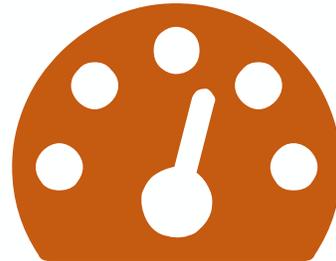
Common Predictive Analytics Use Cases



GPS Data



Sensor Data



Behavior Data



Predictive Analytics Traditional Use Cases



Fleet Management

- Vehicle Maintenance
- Driver Safety
- Reduced Vehicle Down-Time



Preventive Maintenance

- Real-Time Monitoring of Equipment
- Ensure Availability of Parts, Tools & Facilities
- Prevent Operational Breakdowns



Customer Churn

- Target Service Offerings
- Score & Profile Customers
- Improve Customer Retention

Using Predictive Analytics On Workforce



GPS Data



Sensor Data



Behavior Data



Workforce Data

The Top 5 Predictive Models For People Analytics



- Improving Employee Retention
- Recruiting Long-Term Employees
- Effects Of Absenteeism
- Management And Promotions
- People Spend

<https://www.forbes.com/sites/forbestechcouncil/2018/08/27/the-top-five-predictive-models-for-people-analytics/#4af032494573>

Predictive Analytics Will Be The Silent Game-Changer In Employee Benefits

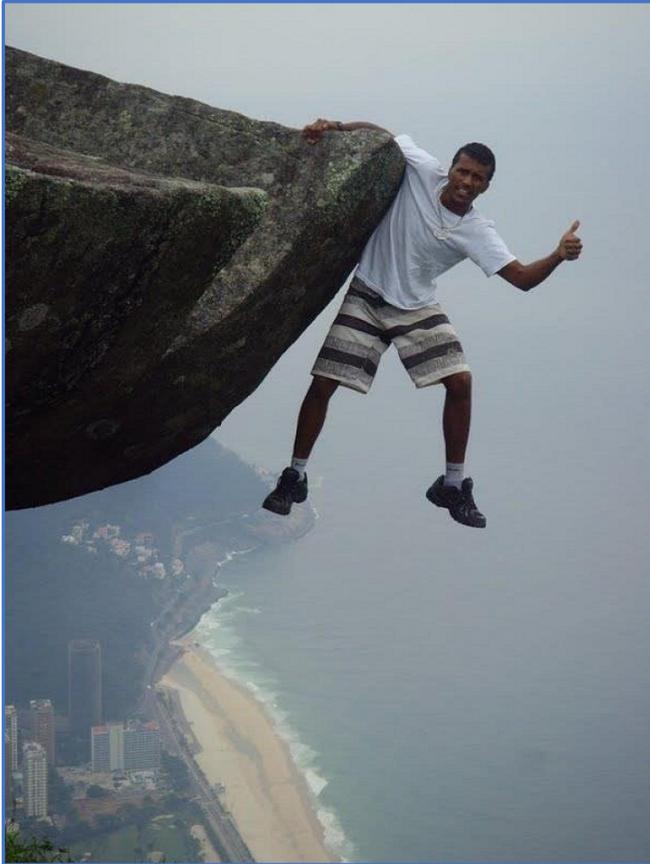


“HR should utilize past and current data to better predict future patterns of need for a true strategic approach to benefit choice.

With this insight, they can make better choices and serve their workforce more effectively.”

<https://www.forbes.com/sites/forbestechcouncil/2018/10/02/predictive-analytics-will-be-the-silent-game-changer-in-employee-benefits/#7b8bb6f6e182>

Predictive Workforce Analytics (Project Risk)

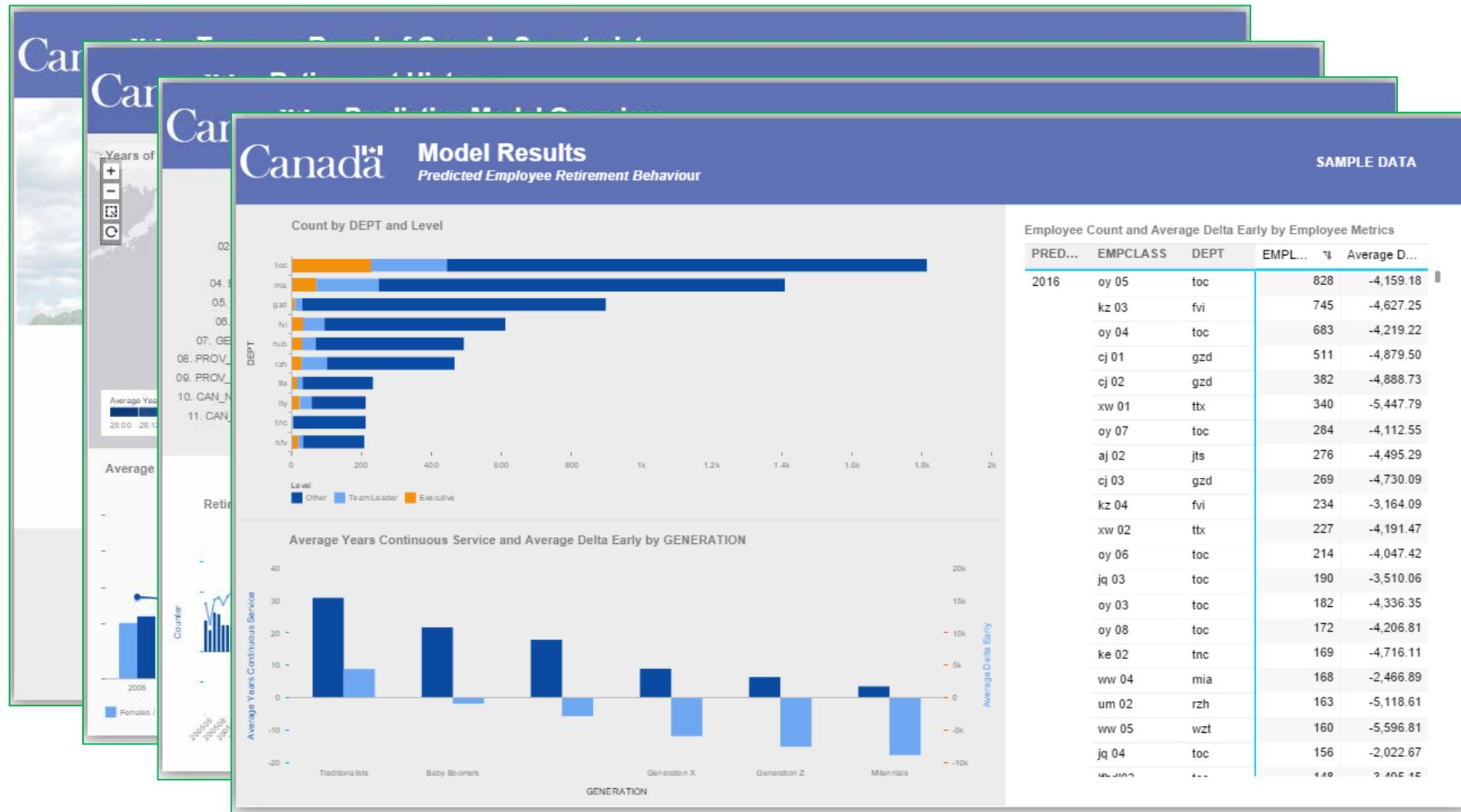


Quick-Results



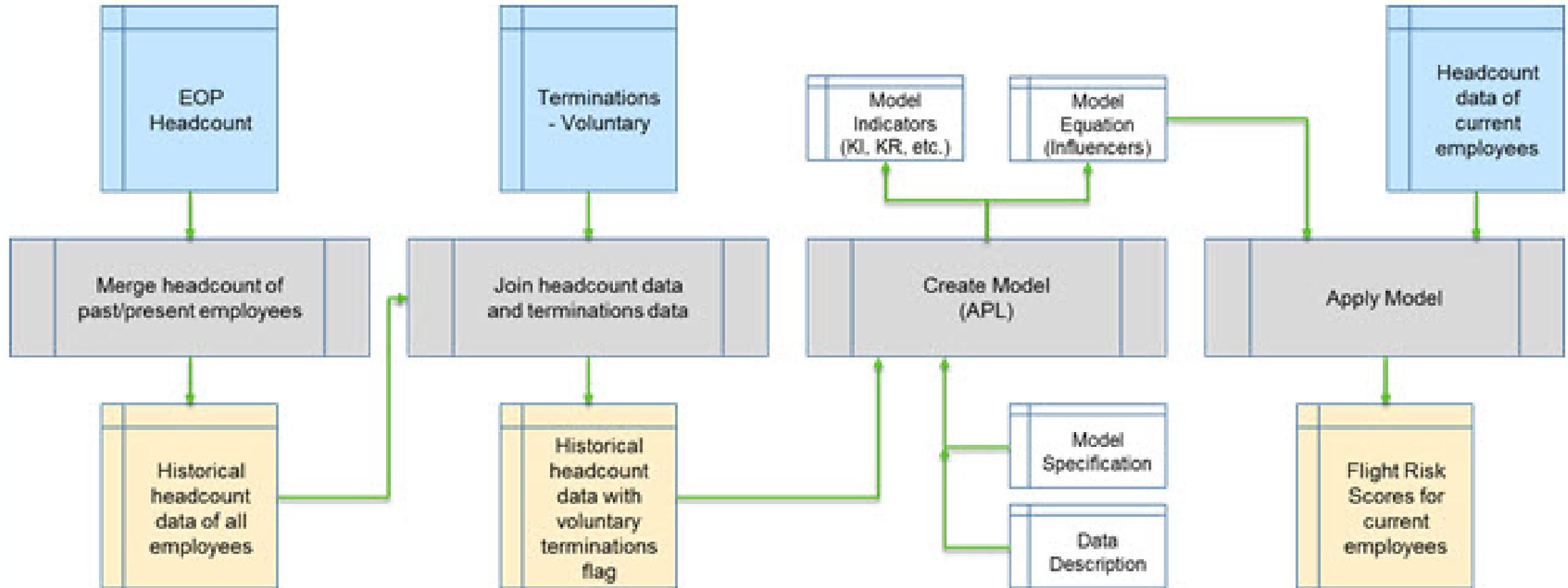
Balanced Program with Oversight

Predictive Analytics – Proof of Concept #1



Predictive Analytics – Proof of Concept #2

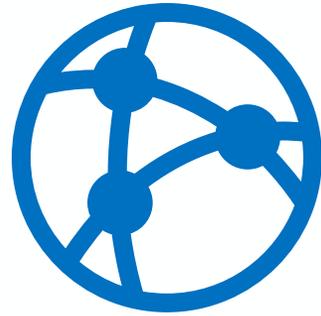
Scoring for voluntary terminations (or employee ‘flight risk’), when employees decide to leave the company on their own.



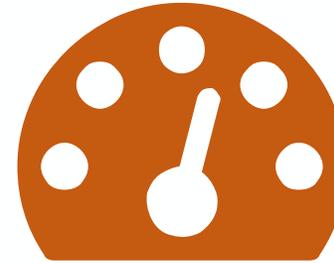
https://www.successfactors.com/en_us/lp/research/sap-research/how-predictive-analytics-helps-improve-human-capital-management.html

Ethical Challenges – GPS / Sensor Data

GPS Data



Sensor Data



- Informed Consent from your Workforce
- Minimizing Individual Identifications
- Understanding Legal & Privacy Impacts per Region

Why Bosses Can Track Their Employees 24/7



“The legal landscape around tracking employees is murky. There’s no federal privacy law to keep businesses from tracking their employees with GPS, and only a handful of states impose restrictions on it.”

<https://www.theatlantic.com/technology/archive/2017/01/employer-gps-tracking/512294/>

Office Desk Sensors Can Cause Employee Anxiety



“Companies worldwide have attached special sensors beneath their employees' desks to monitor office space usage and reduce real estate costs.

But mistrustful employees have balked at OccupEye, the small black monitoring devices under their workstations. Some have claimed invasion of privacy; others have wondered why their employers are watching them.”

<https://www.shrm.org/resourcesandtools/hr-topics/technology/pages/monitors-attached-to-employees-desks-cause-consternation.aspx>

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Predictive HR analytics raise “Big Brother” Ethical and Legal Fears



Global financial institution issued ID cards to staff enabling them to use non-work facilities, including the canteen and gym.

So detailed was the data collected, that the organization was able to model the ideal profile of meals, lunchtime exercise patterns and even specific gym equipment associated with high performance by call-centre staff in the afternoon.

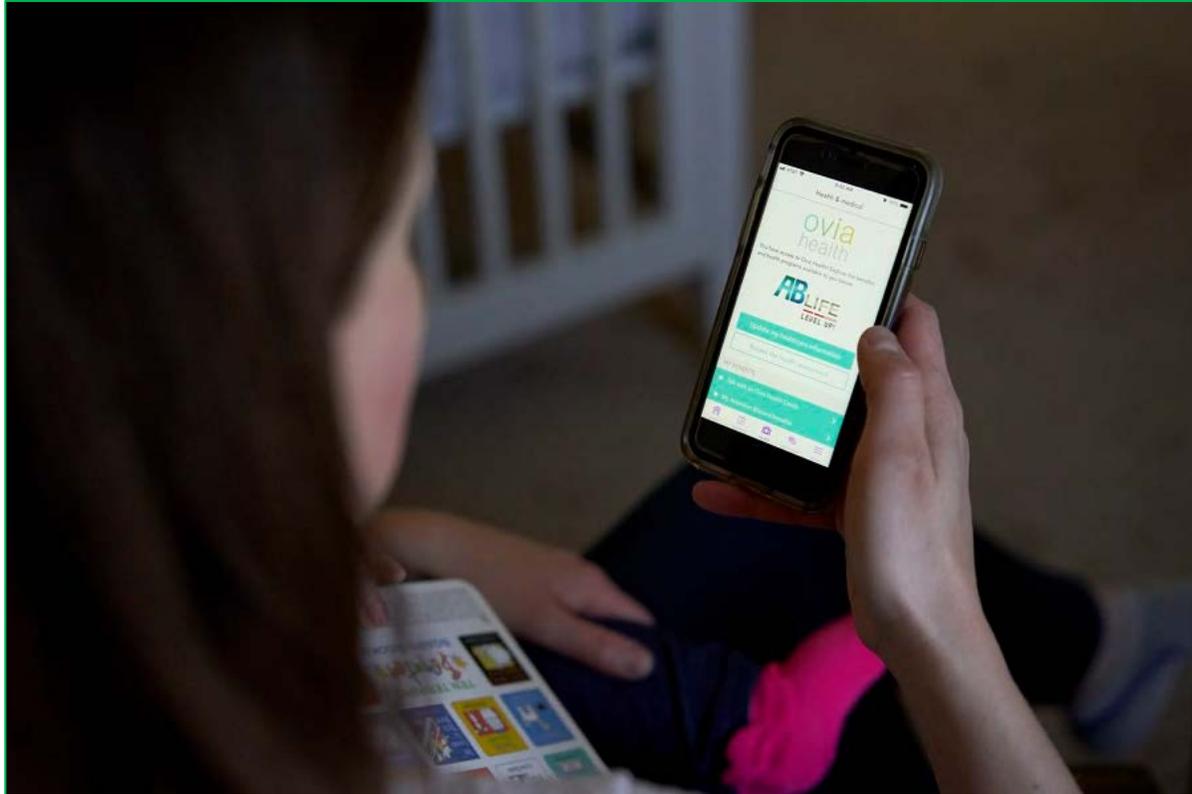
With fitness trackers in the workplace, bosses can monitor your every step — and possibly more



“On his 21st day back at work after a heart attack and triple bypass surgery, Chris Zubko received a call from the main office.

Through an app on his phone, his boss was literally monitoring every step of Zubko’s recovery.”

Is your pregnancy app sharing your intimate data with your boss?



“Diller’s bosses could look up aggregate data on how many workers using Ovia’s fertility, pregnancy and parenting apps had faced high-risk pregnancies or gave birth prematurely; the top medical questions they had researched; and how soon the new moms planned to return to work.”

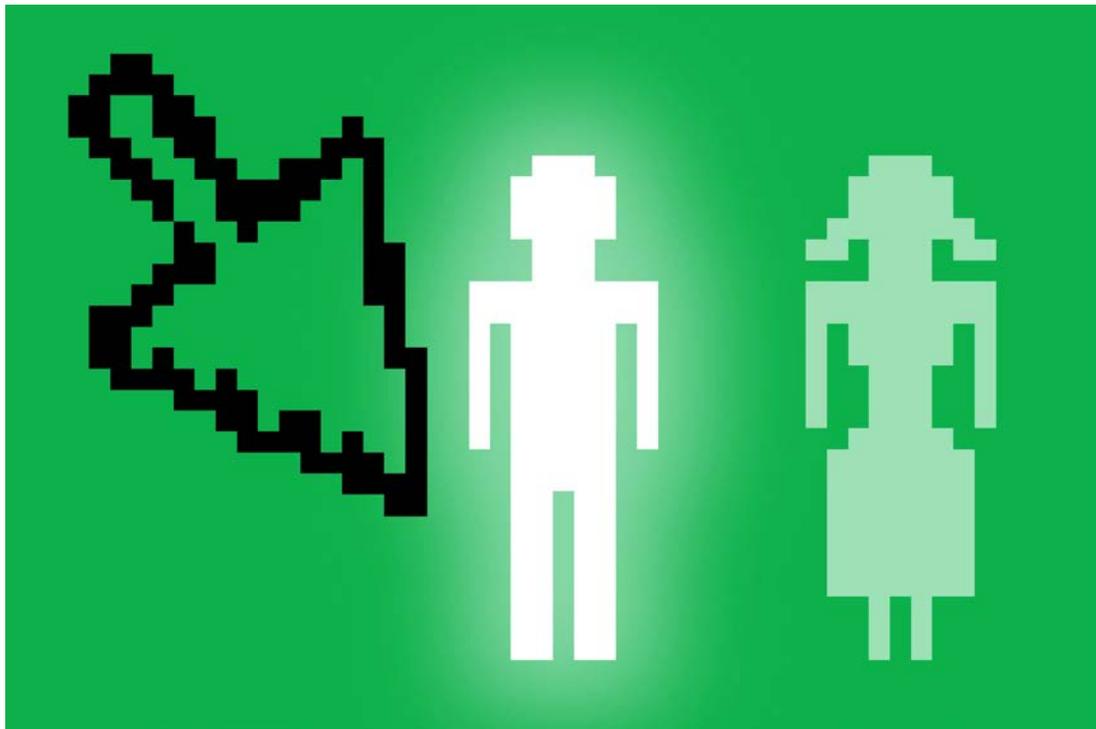
Ethical Challenges – Behavior Data

Behavior Data



- Informed Consent from your Workforce
- Controlling for Data-Bias
- Having Clear Questions that you are trying to Answer

When Algorithms Discriminate



“There is a widespread belief that software and algorithms that rely on data are objective. But software is not free of human influence. Algorithms are written and maintained by people, and machine learning algorithms adjust what they do based on people’s behavior.

As a result, say researchers in computer science, ethics and law, algorithms can reinforce human prejudices.”

Framework for Understanding Unintended Consequences of Machine Learning

1. Historical Bias

- *Data from the world - as it is - produce forecasts that reinforce negative outcomes.*

2. Representation Bias

- *Data sampling methods only includes a limited portion of the overall population.*

3. Measurement Bias

- *Quality & Granularity of Data varies across groups.*
- *Classification models are over-simplified.*

Framework for Understanding Unintended Consequences of Machine Learning

4. Evaluation Bias

- *Using a one-size-fit-all model for groups with different conditions*

5. Aggregation Bias

- *Aggregate measures can hide unique subgroups*

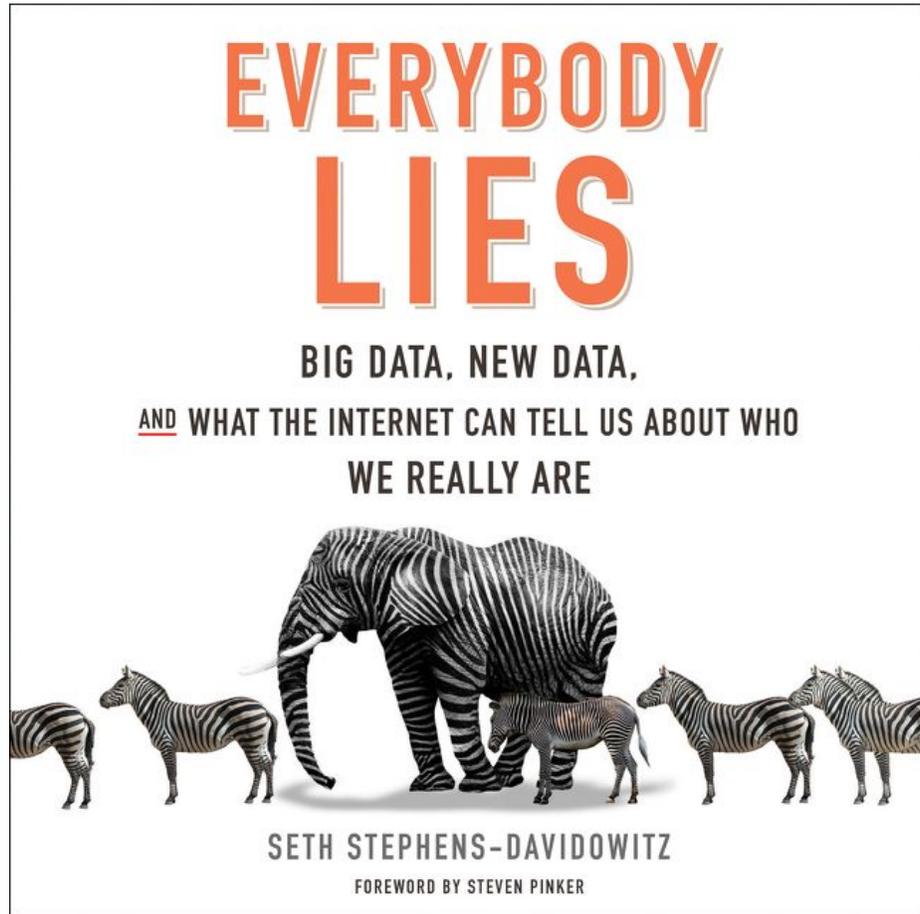
How Amazon Accidentally Invented a Sexist Hiring Algorithm



“Employees had programmed the tool in 2014 using resumes submitted to Amazon over a 10-year period, the majority of which came from male candidates.”

Based on that information, the tool assumed male candidates were preferable and downgraded resumes from women.”

Employee Social-Media Data : Handle with Care



“People lie about how many drinks they had on the way home. They lie about how often they go to the gym, how much those new shoes cost, whether they read that book. They call in sick when they’re not. They say they’ll be in touch when they won’t. They say it’s not about you when it is. They say they love you when they don’t. They say they’re happy while in the dumps.”

– Seth Stephens-Davidowitz

<https://www.harpercollins.com/9780062563538/everybody-lies/>

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Lady Gaga, the joy of data and why it pays not to be seduced too easily



“According to Facebook's data, **86%** of Lady Gaga fans are female.

If you accepted that at face value, you would ignore men when trying to sell her albums. But is that correct?

Spotify streaming data tells a different story; according to that, only **56%** of listeners are women.”

Lady Gaga, the joy of data and why it pays not to be seduced too easily

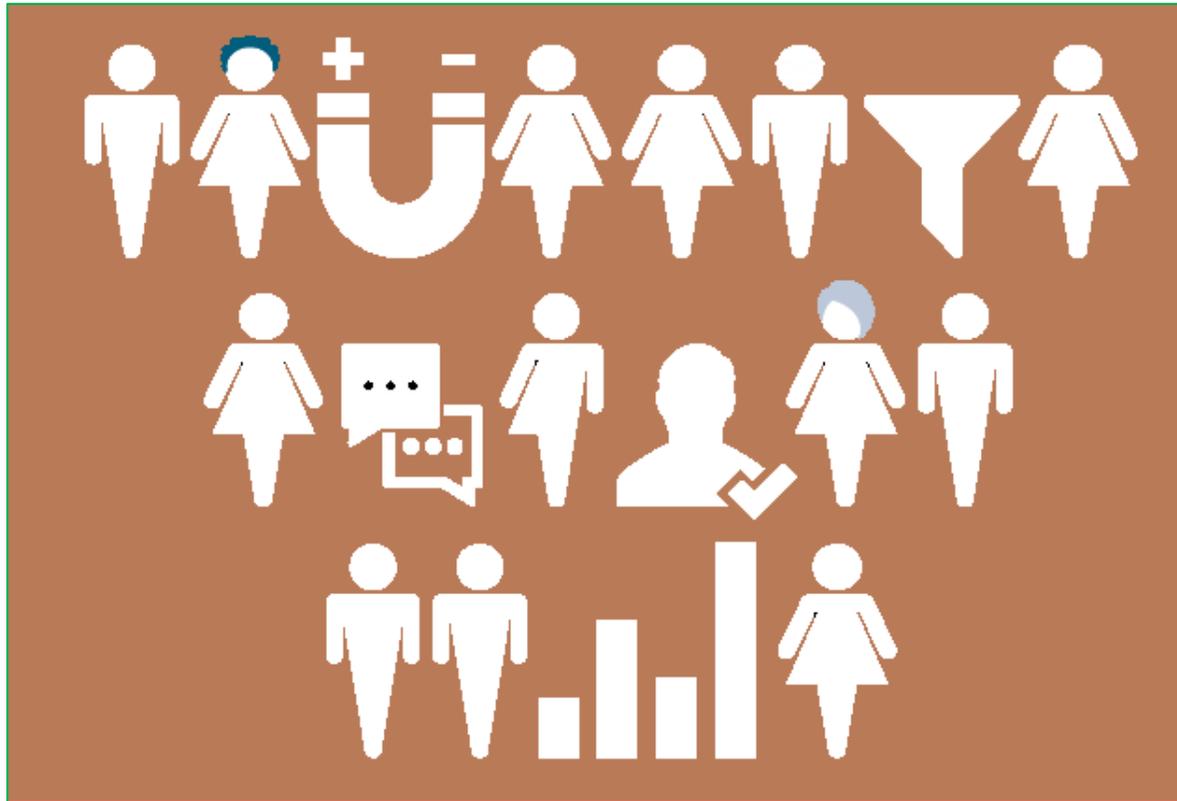


“The Facebook data harbours a bias.

It doesn't capture all of Lady Gaga's fans but merely those willing to publically admit their fandom.

Social media data reflects what people want the world to think about them not their actual behaviours.”

Examination of Hiring Algorithms, Equity, and Bias



“Employers should disclose information about the vendors and predictive features that play a role in their hiring processes.

Vendors should take active steps to detect and remove bias in their tools. They should also provide detailed explanations about these steps, and allow for independent evaluation.”

Mercy: Reducing Labor Costs & FTE Leakage



“Gain oversight into scheduling periods, fill rates, and cancellations.

Use predictive analytics to determine points at risk for leakage of its nurses’ hours and adjust resource assignments accordingly.”

<https://www.sap.com/canada/documents/2018/03/90ad91ef-f57c-0010-82c7-eda71af511fa.html>

Predictive Workforce Analytics (Controls)

- Informed Consent from your Workforce
- Minimizing Individual Identifications
- Having Clear Questions that you are trying to Answer



Balanced Program with Oversight

Predictive Workforce Analytics (Controls)

- Understanding Legal & Privacy Impacts per Region
- Have Program Oversight that includes Stakeholders
- Comparing Anonymized Predictions to Actuals



Balanced Program with Oversight

Predictive Workforce Analytics (Controls)

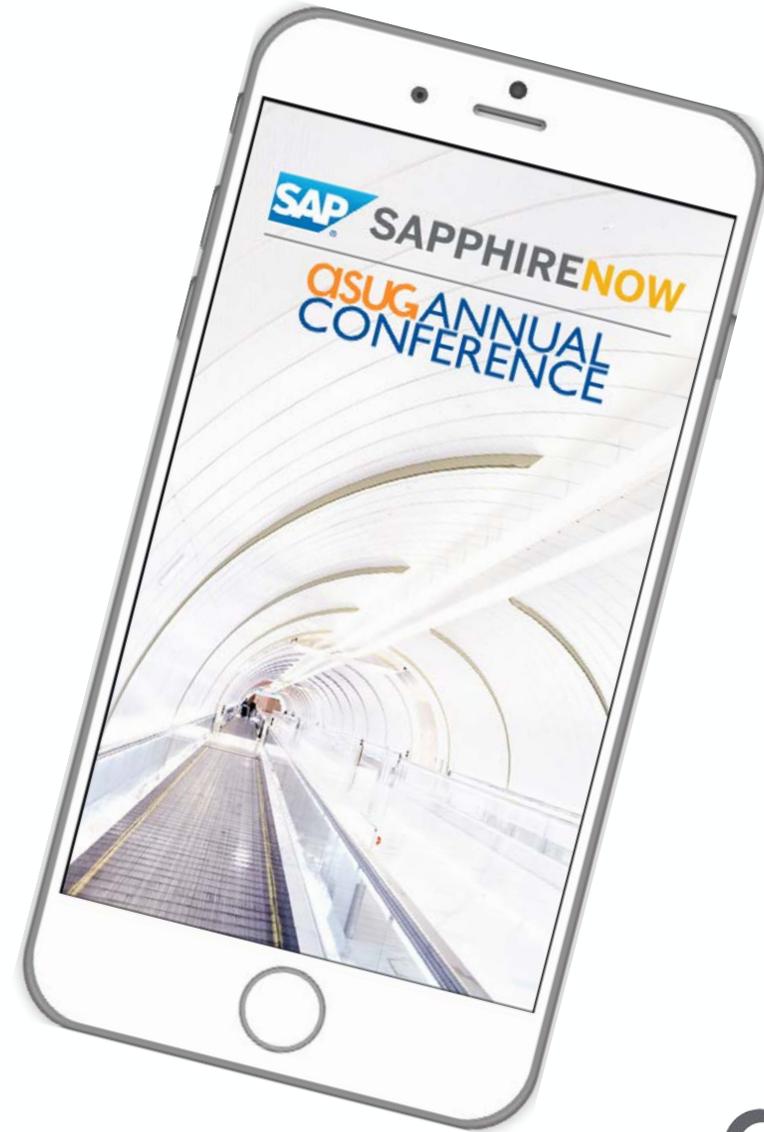
- Controlling for Data-Bias in your sources
- Understanding that Historical Data may not align with your Future-Strategy
- Allow independent oversight your Predictive tools and models



Balanced Program with Oversight

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Presentation Materials

Access the slides from 2019 ASUG Annual Conference here:

<http://info.asug.com/2019-ac-slides>

Q&A

For questions after this session, contact me at

mark@rich-analytics.com

Twitter - [@RichAnalytics](https://twitter.com/RichAnalytics)

LinkedIn - www.linkedin.com/in/mark-richardson-701a6620

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