

AIGC-5004

Project Management in AI

PART 2 – AI ETHICS AND

CYBER SECURITY

WEEK 10

AGENDA

- **Content**
 - AI Bias in Health, Finance, Public Sector, Supply Chain
 - AI Bias in Human Resources, IT, Finance, Marketing
- Lab
 - Announcement of Assignment



Week 3

Our Weekly Plan

40	-	READING WEEK -> TRANSITION TO <u>Artificial Intelligence Ethics in Projects</u>				
41						
42						
43						
44						
45		Intro & Course Overview	1	Introductions Defining Artificial Intelligence, Machine Learning, Deep Learning The Business Executive view of Artificial Intelligence Big Data's failure and AI bias Key Stakeholders for successful AI project implementation	In-Class Lecture	
46						
47						
48						
49		The Social impact of AI/Machine Biases	1,3	Discuss examples of AI Bias AI and Gender Inequality AI and Cultural Discrimination Socio-Economic impact of AI Bias	Separate into groups	Lecture & Lab
50						-
51						
52						
53		Industry & Business areas impacted by AI biases	1,2,3	AI biases and their impacts in the following sectors: Public Sector, Finance, Technology, Legal, Supply Chain AI Biases and their impacts in the following business areas: Human Resources, IT, Finance, Marketing, Operations	Separate into groups	Lecture & Lab
54						
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58		Approaches to addressing AI Discrimination	1,2	Reviewing your initial Project Plan for Gaps Building a group of stakeholders Obtaining Executive Buy-in Review Software packages and tools Vendor Management and the PMO Effective Measurement	Share Assignment Details & review possible deliverables	Lecture & Lab
59						ASSIGNMENT-1 (BETA)
60						
61						
62						
63						
64		The Challenges of AI in the era of Cyber Security	1,2,3,5	Who should care within your Project Team Most common AI based cyber security attacks The role of AI discrimination in cybersecurity Cyber security and Deep Fakes AI and Cybersecurity - the new battlefield		Lecture & Lab
65						
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67						
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70		Approaches to addressing AI Security	1,2,3,5	Review Software and Programs How leading cloud providers address AI Security Why a diverse helps address AI Security How the PMO can account for AI Security Risks The role of managing legacy systems in AI Security The importance of a BCP, DRM plan	Evaluation of Software and Cloud Tool. Develop other approaches.	Lecture & Lab
71						Quiz
72						
73						
74						
75						
76		AI Biases and Security Use Case	3,4	Review modern day use cases: One use case focused on Industry Another use case focused on Business Function How technology leaders should communicate to Lines of Business		Lecture & Lab
77						ASSIGNMENT-1 (DUE)
78						
79						
80						


In the News this week


AI is showing potential in transforming financial sector, but it's not 'ready for prime time': RBC CEO

THE CANADIAN PRESS
PUBLISHED NOVEMBER 8, 2023

 COMMENTS

 SHARE

 BOOKMARK

 LISTEN TO ARTICLE



Artificial intelligence is already showing its potential in transforming the financial sector, even though it's still early days, said RBC RY-T +1.93% ▲ chief executive Dave McKay on Wednesday.

McKay, who got his start at RBC as a computer programmer 40 years ago, said AI still has too many errors and "hallucinations" or nonsense answers to be relied on in banking services.

<https://www.theglobeandmail.com/business/article-ai-is-showing-potential-in-transforming-financial-sector-but-its-not>

In the News this week

≡ WIRED

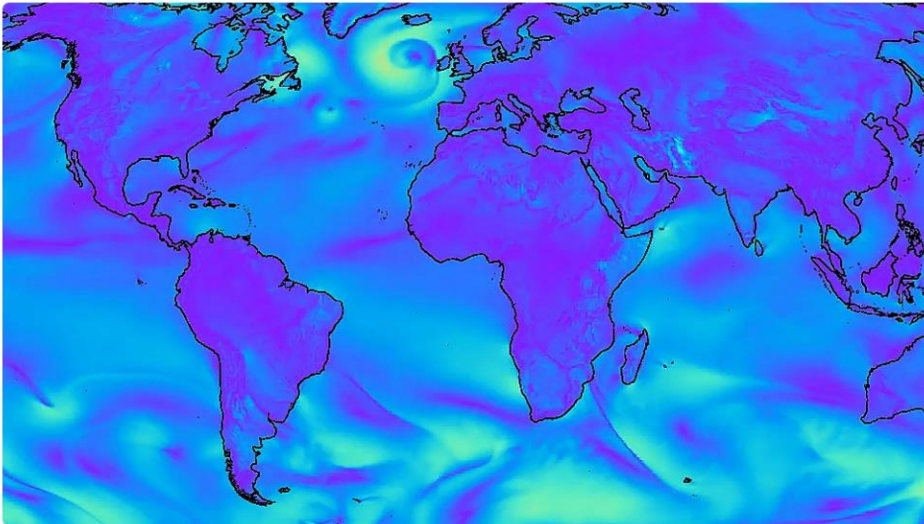
BACKCHANNEL BUSINESS CULTURE GEAR IDEAS SCIENCE SECURITY MERCH

GREGORY BARBER

BUSINESS NOV 14, 2023 10:00 AM

Google DeepMind's AI Weather Forecaster Handily Beats a Global Standard

Machine learning algorithms that digested decades of weather data were able to forecast 90 percent of atmospheric measures more accurately than Europe's top weather center.



<https://www.wired.com/story/google-deepmind-ai-weather-forecast/>

Most AI & Data Projects FAIL

85% of big data projects fail ([Gartner](#), 2017)

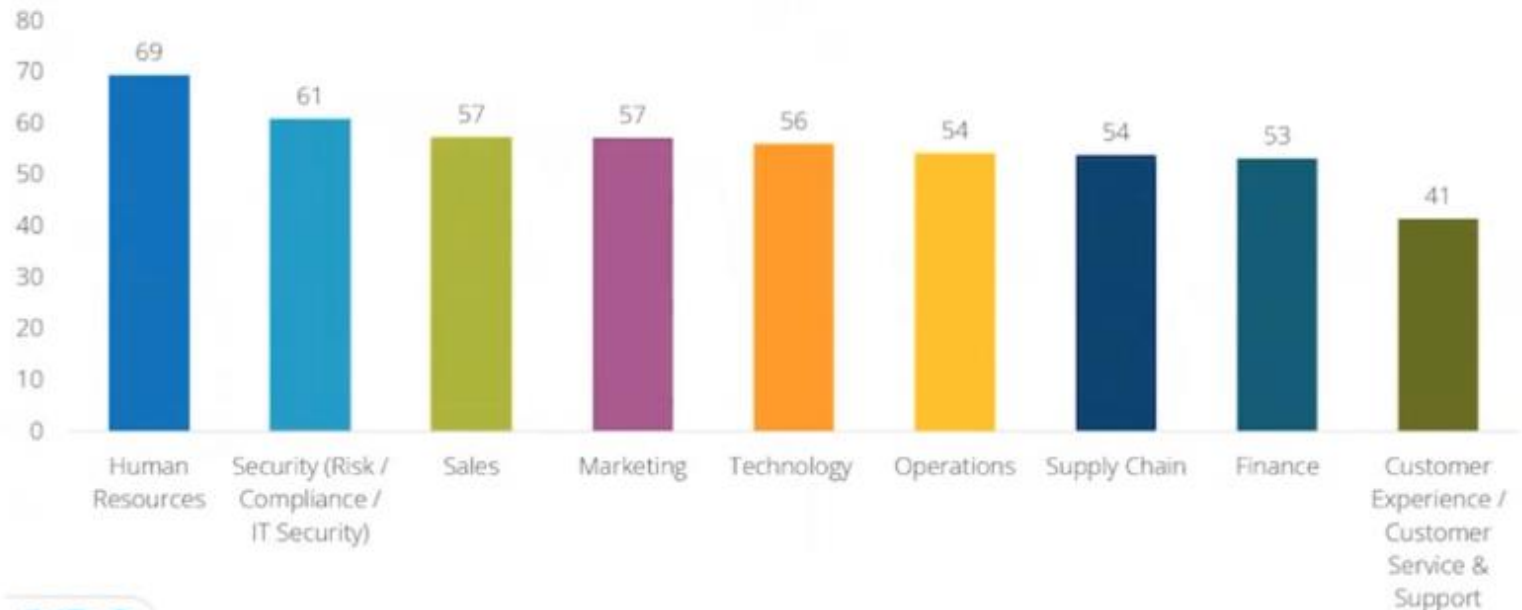
87% of data science projects never make it to production ([VentureBeat](#), 2019)

“Through 2022, only 20% of analytic insights will deliver business outcomes”
([Gartner](#), 2019)

AI interest by Business Function

What is the Appetite for Gen AI across functional areas?

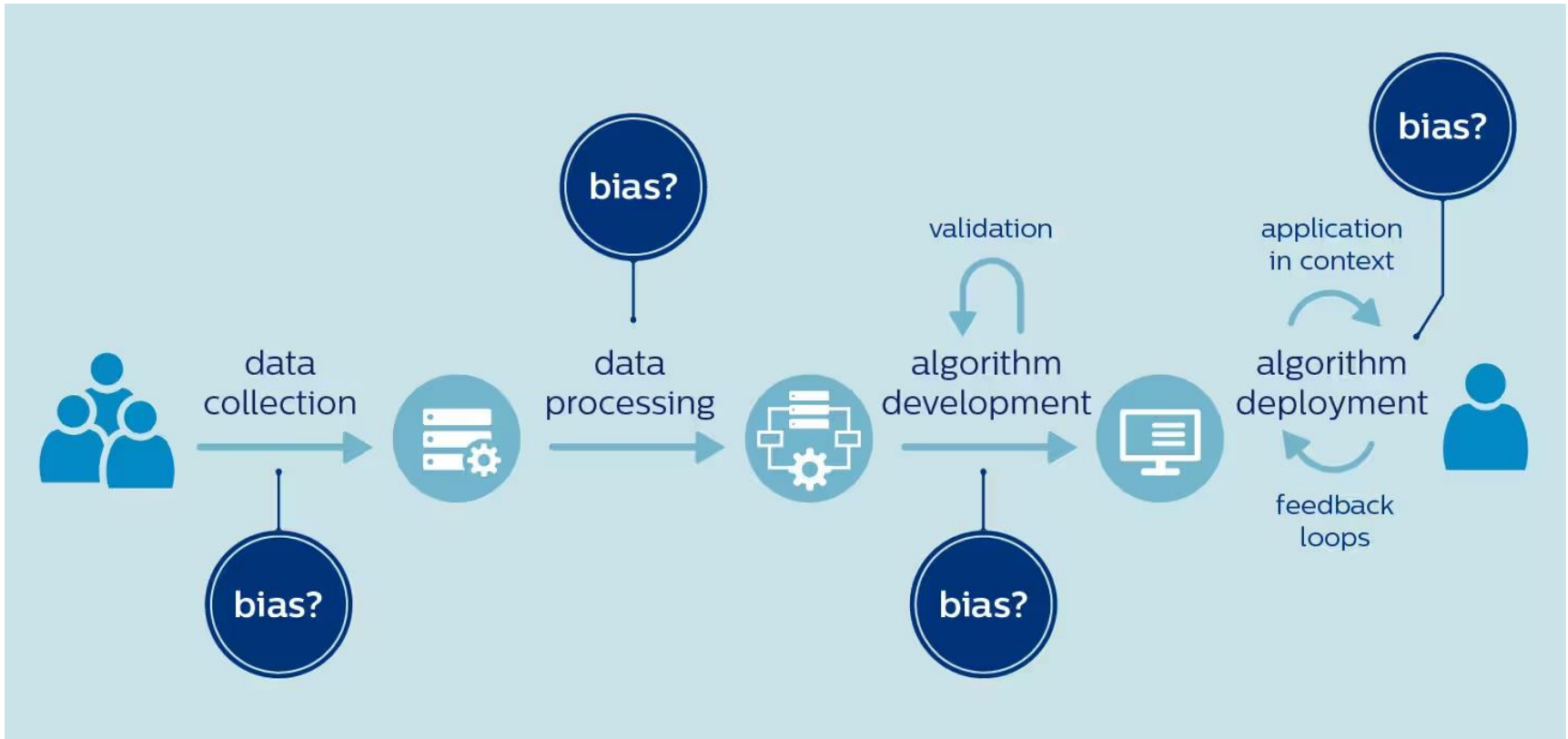
Q. Which of the following technology areas is top of mind for the C-Suite in terms of new investments for the next 12 months?
(Only Gen AI percentages shown)



Source: IDC's WW C-Suite Technology Survey, August 2023 N=895

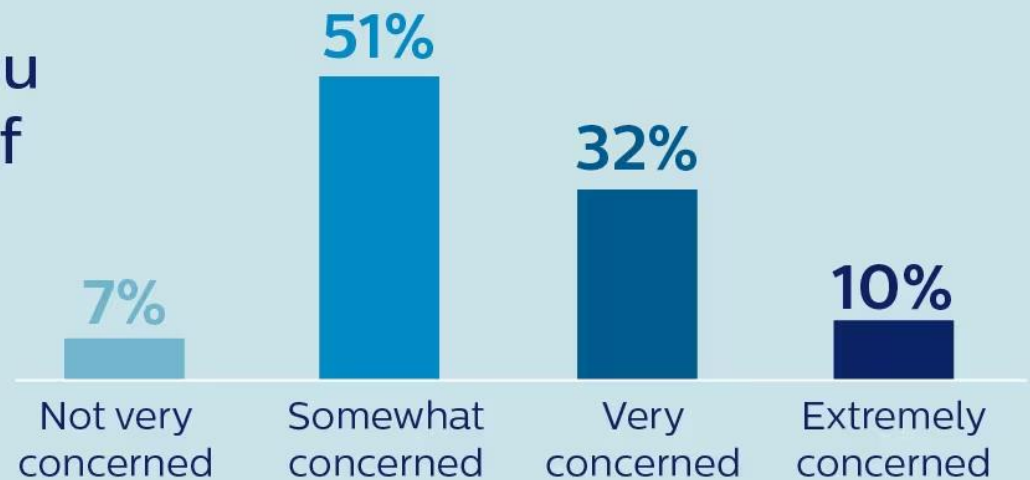
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AI Bias



AI Bias in Health Care

How concerned are you about the possibility of existing biases being transferred into AI algorithms?



Source: Artificial intelligence and machine learning in healthcare. HIMSS survey conducted among 234 healthcare and healthcare IT professionals in 2019. Commissioned by Philips.

AI Bias in Health Care

..a group of researchers at the University of California revealed that an algorithm used by US hospitals to flag high-risk patients for enhanced medical attention exhibited significant racial bias. **Black patients were less likely to be flagged for additional care than white patients, even when they were equally sick ...**

The problem with the algorithm was that it predicted future healthcare costs, rather than future illness, to identify high-risk patients in need of extra care.

Because Black patients in the US on average tend to have more limited access to high-quality healthcare, they typically incur lower costs than white patients with the same conditions. Relying on healthcare costs as a proxy for health risk and healthcare needs therefore put Black patients at a considerable disadvantage...

[Dissecting racial bias in an algorithm used to manage the health of populations](#)

AI Bias in Health Care

Detecting early Alzheimer's using speech data

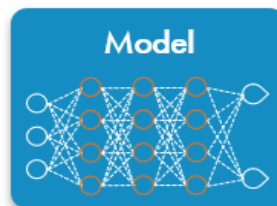
Some time ago, a Canadian company called Winterlight Labs developed auditory tests for neurological diseases. Their software registers the way you speak, analyzes the data, and tells you whether you might have early-stage Alzheimer's disease

However, the developers used a training dataset containing speech samples only from native English speakers. ***As a result, the algorithm may interpret pauses and differences in pronunciations among non-native English speakers as markers of a disease.***

<https://www.quantib.com/blog/understanding-the-role-of-ai-bias-in-healthcare>

COVERAGE BIAS

A selection bias example



The training data contains a very limited range of different types of patients

Algorithm training



The patient population to which the algorithm eventually gets applied to contains a wider variety of patients than the training dataset consisted of, this will cause the algorithm to classify many people with an unfamiliar profile erroneously.

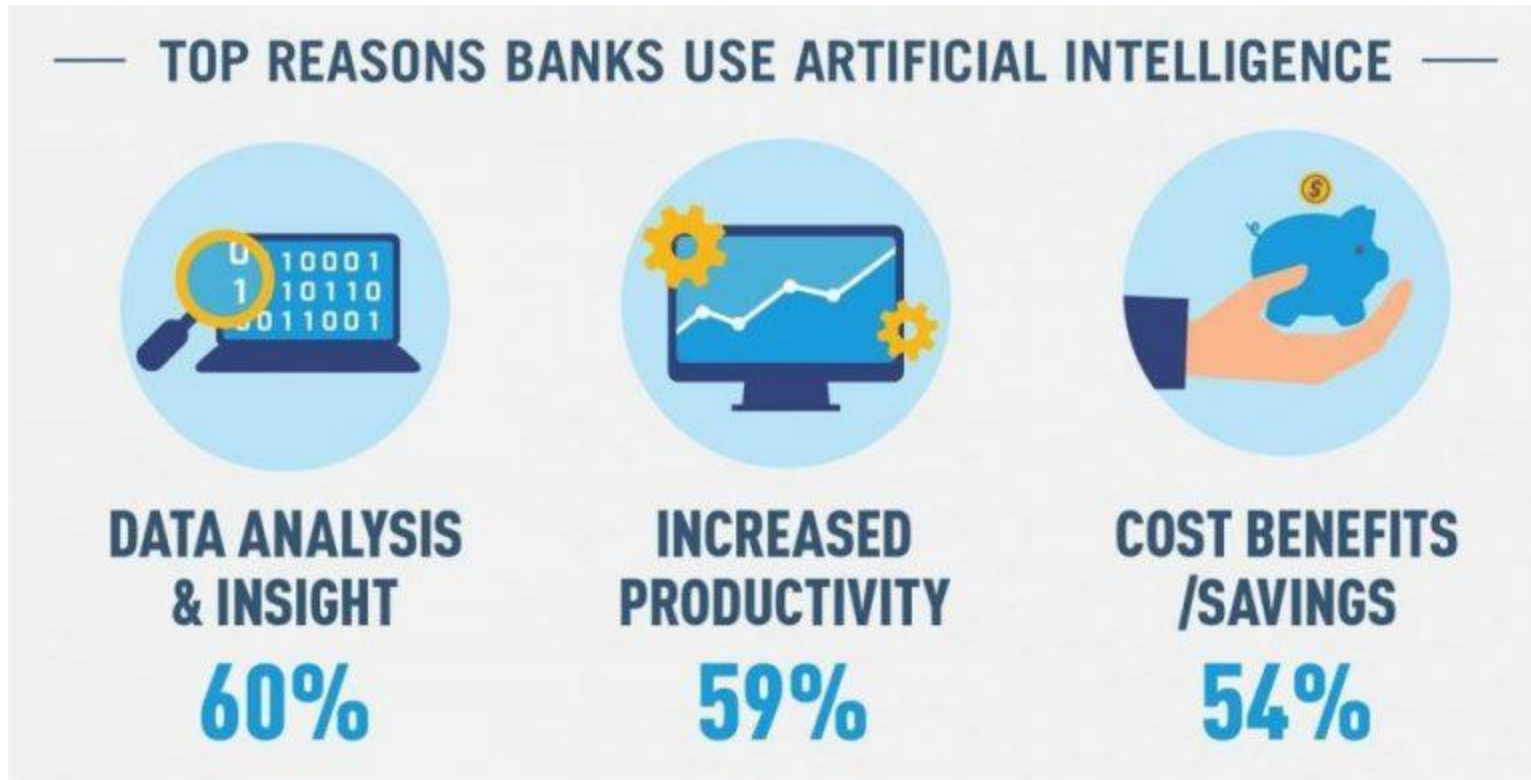
Algorithm application



Early
Alzheimer

No early
Alzheimer

AI Bias in Banking/Finance



https://payments.ca/sites/default/files/2022-11/PaymentsPerspective_TopReasonsBanksUseAI.jpg

AI Bias in Finance/Banking

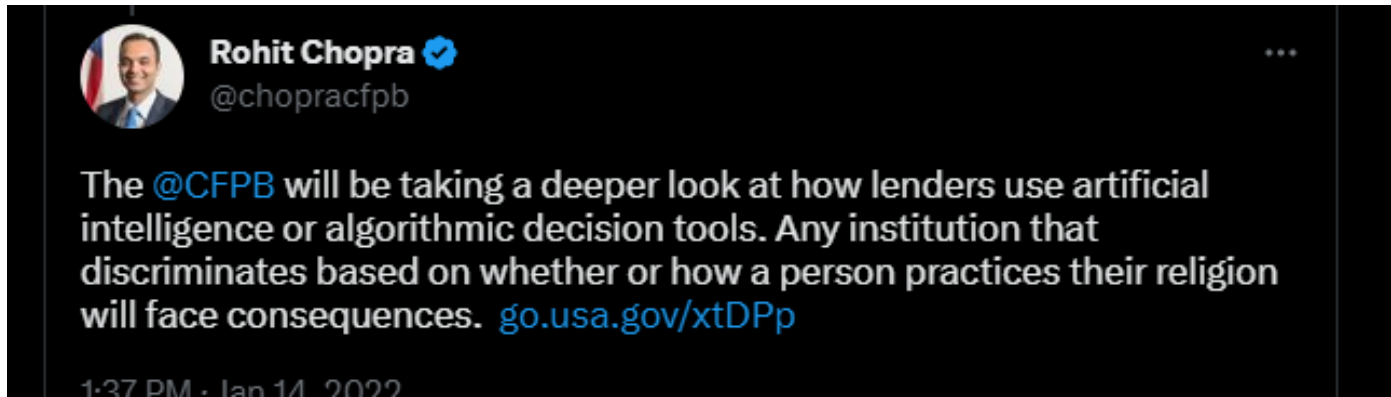
Allocation Harm (sometimes called the Harm of Allocation) refers to the ability of bank customers to easily access the financial products and services they need.

Quality of Service Harm: Suppose a minority customer needs to call their bank and encounters an automated call system that doesn't understand their accent or chatbots that don't offer their preferred language.

Representation Harm: if People of Colour experience declines in card transactions the algorithm may paint others in this same group as high risk. As this unfair representation continues, the algorithm labels similar customers this way.

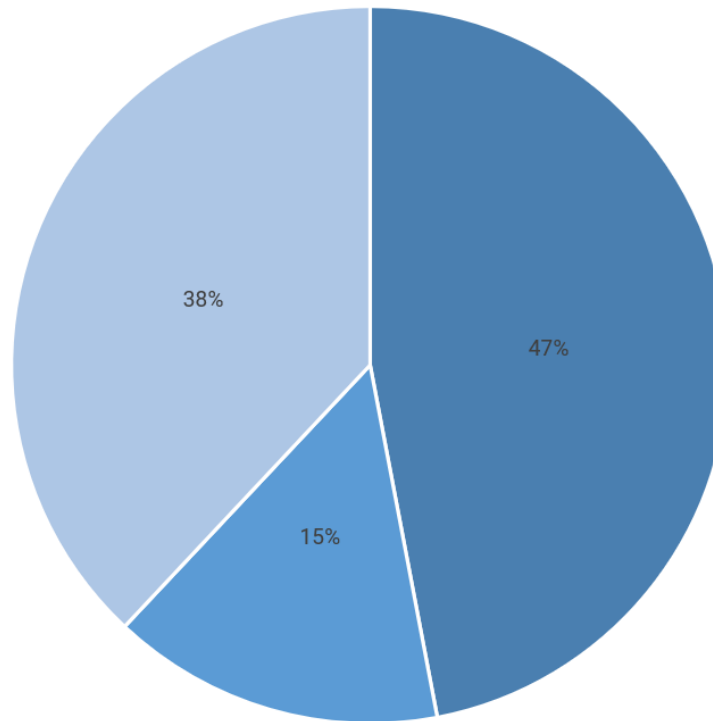
“

More in AI Bias in Finance/Banking



More in AI Bias in Finance/Banking

What Impact Will AI Have on Bias in Credit Decision-Making?



- Bias does currently exist and AI-supported decision-making will exacerbate that bias
- Bias does not currently exist but AI-supported decision-making will create new bias
- Bias does currently exist but AI-supported decision-making will not exacerbate that bias

AI Bias in the Public Sector

Perhaps no other entity has more data than the Government, at all levels.

Government data resides in an array of systems, files and data structures dating back decades.

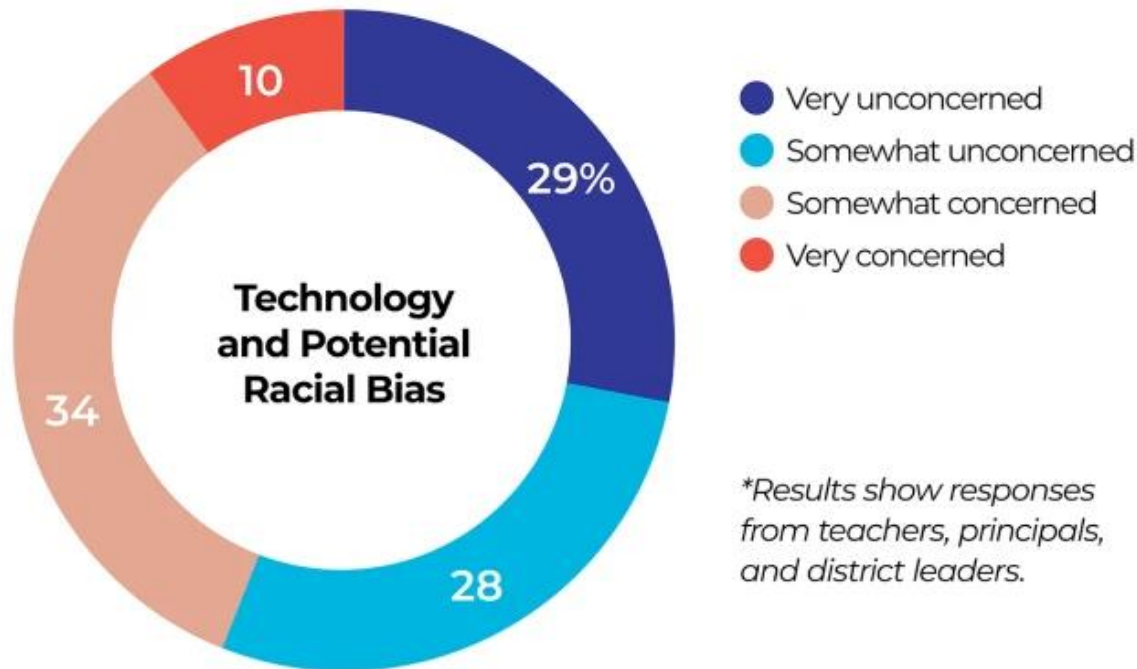
Everyday public servants make an array of decisions based on incomplete and bias data.

AI Bias in government can directly impact social services, infrastructure, justice, education, foreign affairs and regulations



AI Bias in Education

How concerned are you about the potential for racial bias in the educational technology used in schools?



**Results show responses from teachers, principals, and district leaders.*

SOURCE: EdWeek Research Center survey, February 2022

<https://www.edweek.org/leadership/why-schools-need-to-talk-about-racial-bias-in-ai-powered-technologies/2022/04>

AI Bias in Infrastructure/Transit



AI Bias in Supply Chain/Transportation

Local Supermarket Chain was unaware of a major cultural event that happens every summer.

During this time, the favourite dish among people of this cultural background is normally consumed.

Stores in the geographic areas where cultural communities live were unable to order enough product resulting in loss sales.

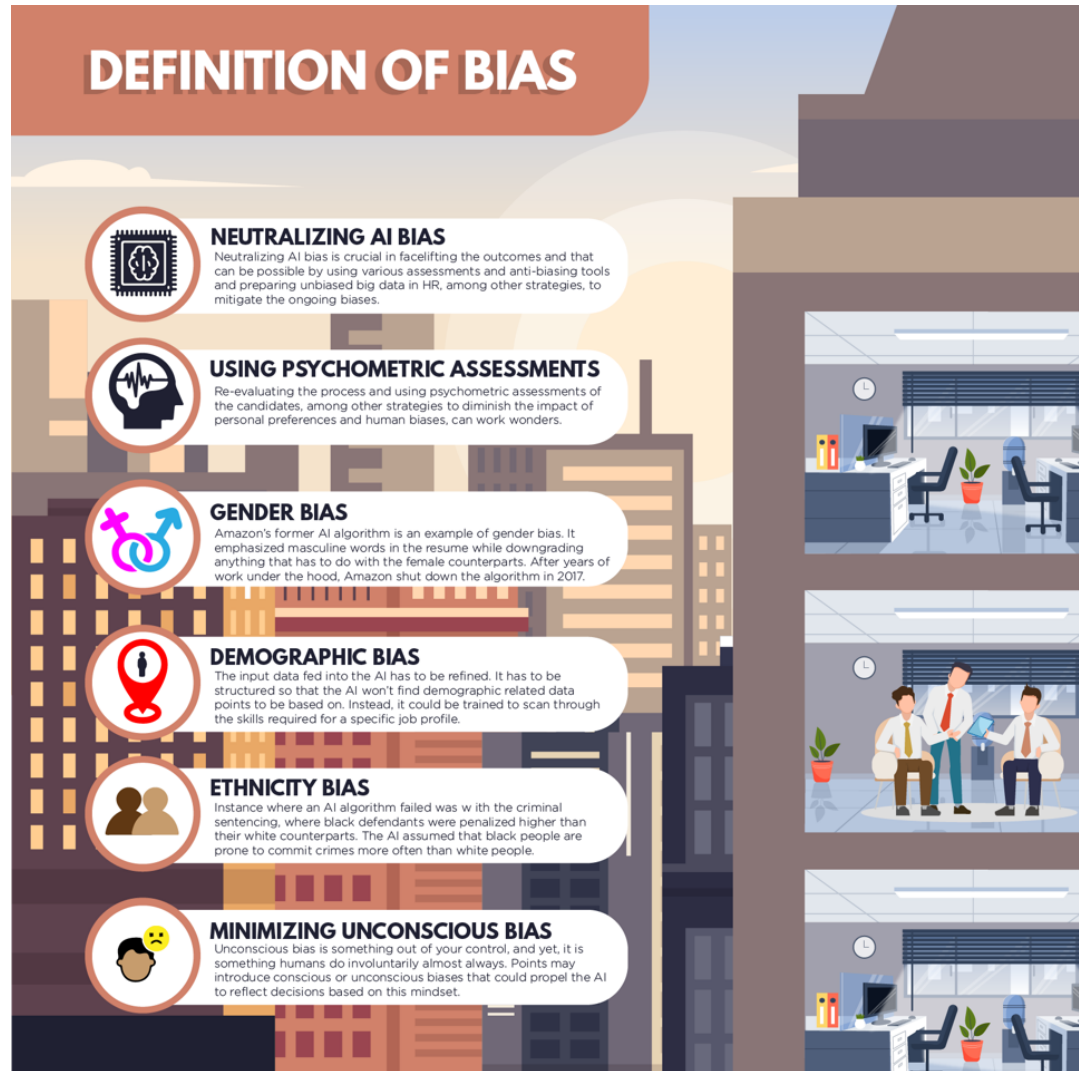
In faster growing areas where immigrants are moving into – many stores are still struggling to address this.



AI Bias in Human Resources/Hiring

An average job opening on LinkedIn receives over 250 applicants.

AI can be used as a tool to sort through a large amount of resumes.



AI in Retail/HR



How will organizations recognize benefits?

"We believe the key to unlocking transformation lies in the **creativity and innovation of our associates**. Ideally, this technology will free them from monotonous, repetitive tasks, allowing **more time** and focus for **improving the customer/member experience**".

Donna Morris, EVP, Chief People Officer, Walmart Inc.



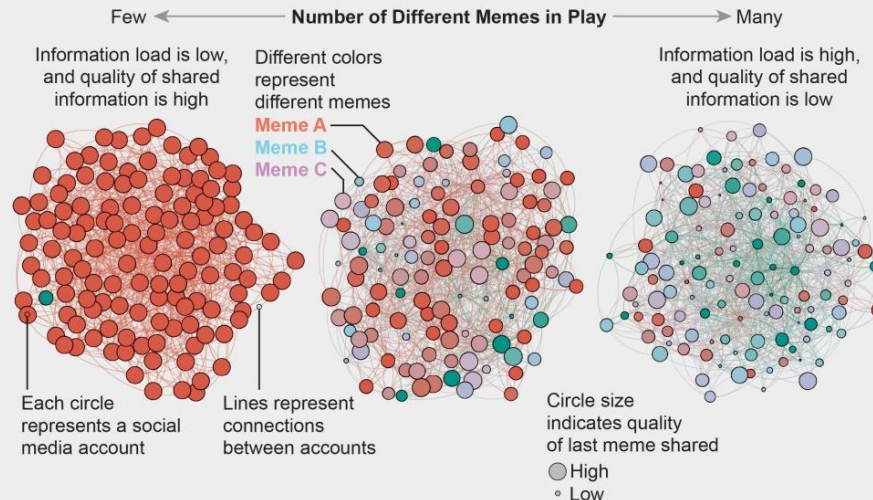
Source: <https://www.linkedin.com/pulse/empowering-associates-creating-better-work-through-new-donna-morris/?trackingId=1fsiGnlmQTq3nMhZpUp65g%3D%3D>

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AI Bias in Social Media Marketing

Information Overload

Our social media newsfeeds are often so full that many of us can view only the top few items, from which we choose to reshare or retweet. Researchers at the Observatory on Social Media (OSoMe) at Indiana University Bloomington simulated this limited capacity to pay attention. Each node in the model network represents a user, linked by lines to friends or followers who receive the items they share or reshare. Investigators found that as the number of memes in the network rises (*toward the right*), the quality of those that propagate widely falls (*circles become smaller*). So information overload can alone explain why fake news can become viral.



AI Bias and Influencers

Under the Influence: New Study Shows Black Influencers Make 35 Percent Less Than White Counterparts

At TikTok we deeply value the diverse voices among our users, creators, artists, partners, and employees.

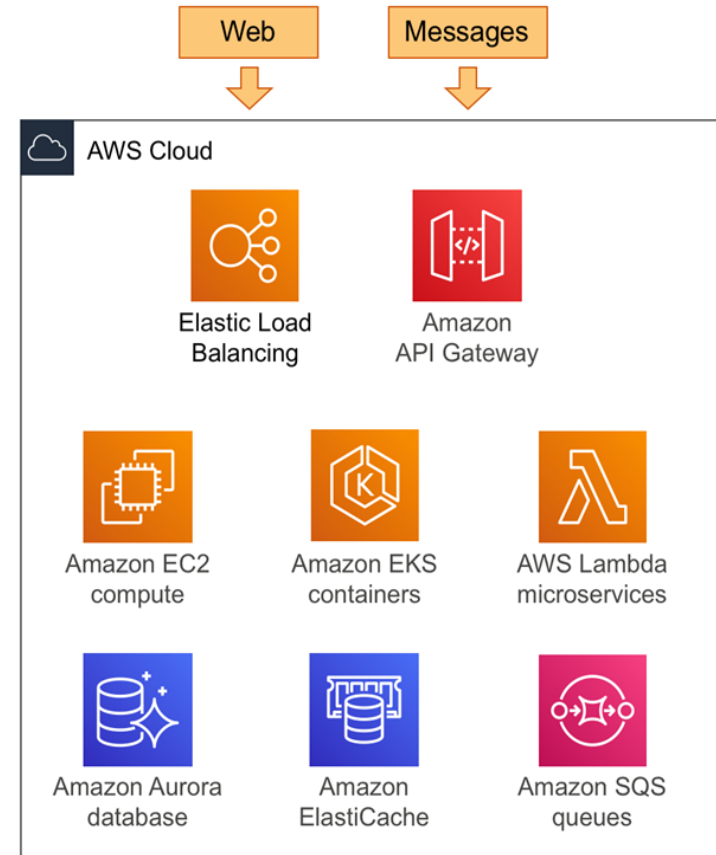
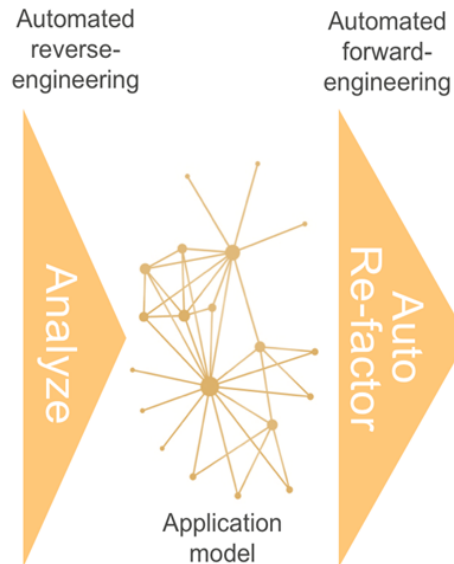
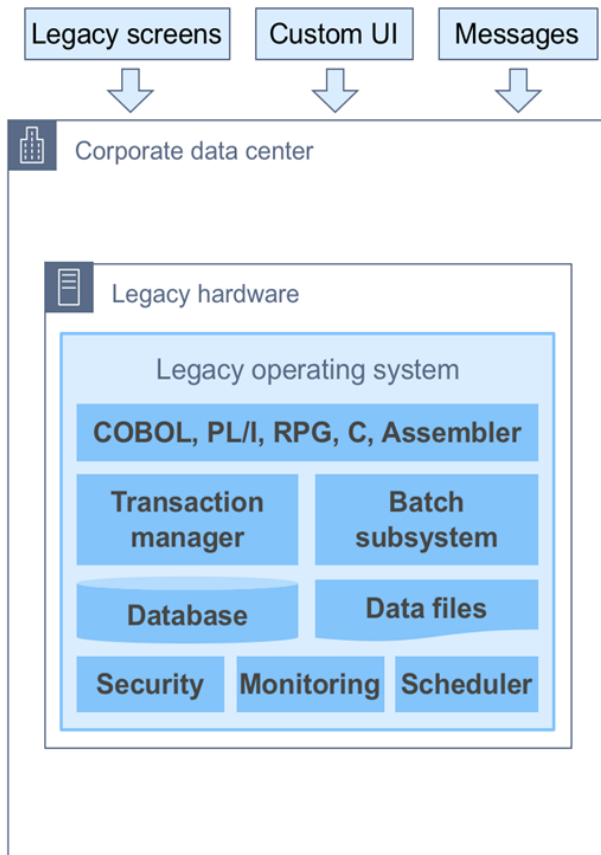
We stand with the Black community and are proud to provide a platform where [#blacklivesmatter](#) and [#georgefloyd](#) generate powerful and important content with over 1 billion views.

We are committed to fostering a space where everyone is seen and heard.



AI Bias in Information Technology

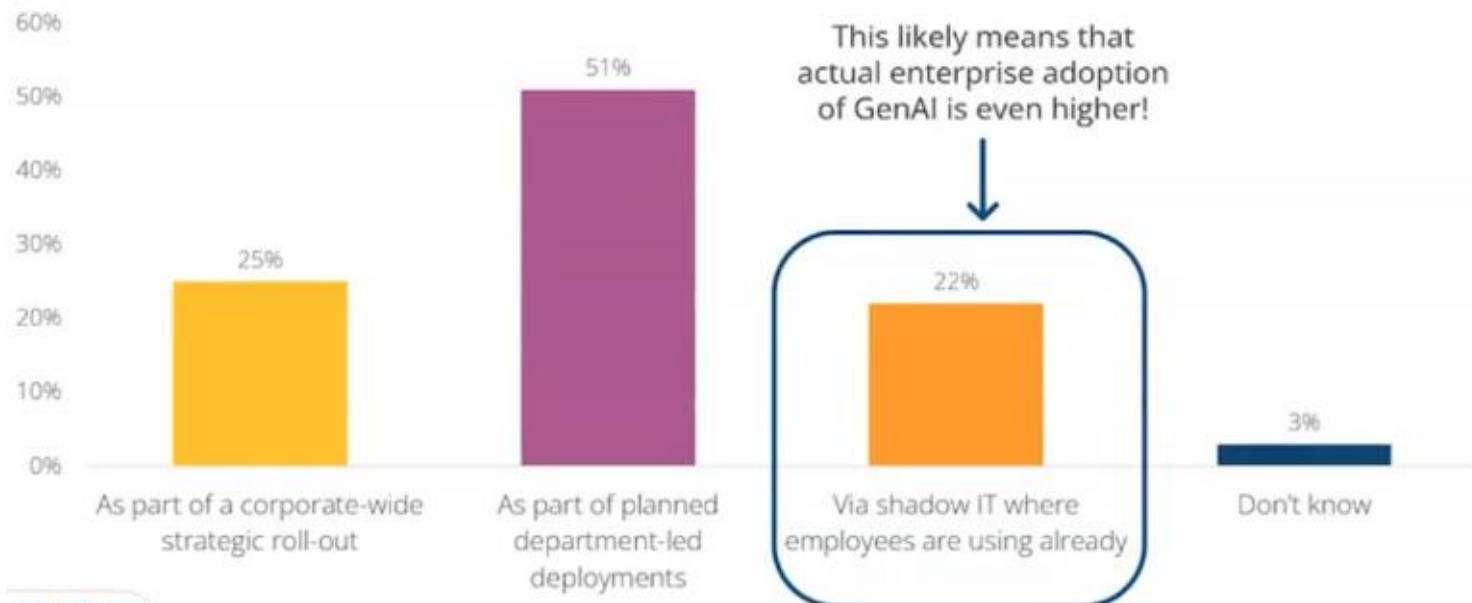
Cognitive Bias



AI Bias & Shadow IT

Past technology evolutions saw tech adoption split between bottom-up (shadow IT and line of business-led) and top-down (corporate-wide strategic roll-out).

Q: How is GenAI being deployed in your organization?



Source: IDC Canada, IT Advisory Panel n4 2023 N = 304

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Next Week

Reviewing your initial Project Plan for Gaps
Building a group of stakeholders
Obtaining Executive Buy-in
Review Software packages and tools
Vendor Management and the PMO

Lab today: Your Assignment