INSIDE TALK
WEBINAR SERIES

Reducing Digital Data Bias Risk through Diversity and Inclusion

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February 4, 2021

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The Association of Accountants and Financial Professionals in Business

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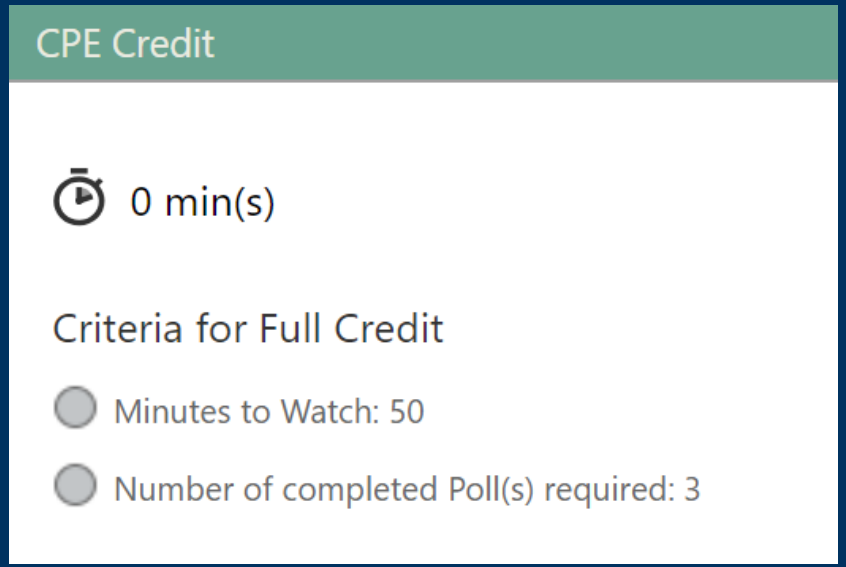

Moderator

Derek A. Fuzzell, CMA, CSCA, CPA

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Featured Presenter

Roopa Venkatesh, Ph.D., CMA

Associate Professor of Accounting

University of Nebraska at Omaha

College of Business Administration

Member

IMA Diversity & Inclusion Committee

Roopa Venkatesh's Biography

- Roopa Venkatesh is an associate professor of accounting at the University of Nebraska at Omaha (UNO) and is a founding board member of the IMA Platte Valley Chapter, Nebraska. She is the recipient of the 2020 IMA R. Lee Brummet Award, the 2020 IMA Champion Award and the IMA Faculty leadership Award in 2017. She serves on the IMA Global Board, in addition to two of IMA's Standing Advisory Committees: Diversity and Inclusion Committee and the Committee on Academic Relations.
- Dr. Venkatesh has presented on Diversity and Inclusion for the IMA Leadership Academy, IMA Europe and at the IMA Annual conference. Her teaching and research interests are in the area of managerial accounting. Her research has been published in reputed journals such as The Journal of Management Accounting Research, Journal of Emerging Technologies in Accounting, Journal of Theoretical Accounting Research, IMA Educational Case Journal, Strategic Finance, and Ethics & Behavior.

Featured Presenter

Bernice Jenkins, CMA, CPA

Senior Accountant

Blue Cross and Blue Shield of Alabama

Member

IMA Diversity & Inclusion Committee

Bernice Jenkins' Biography

- Bernice Jenkins has spent the last 10 years in multiple roles as a senior accountant and finance analyst for Blue Cross Blue Shield of Alabama. She has worked as a management accountant for close to 20 years across multiple industries and geographical regions. Bernice began her career with the General Electric Company (GE) as a graduate of two of GE's financial leadership development programs: Financial Management Program and Corporate Audit Staff.
- Jenkins serves on the IMA Global Board, in addition to two of IMA's standing advisory committees: Diversity and Inclusion Advisory Committee and the ICMA Exam Review Committee. As part of the IMA Global Board, she serves on the Volunteer Leadership Standing Board Committee.
- Bernice graduated from Tuskegee University with a bachelor's degree in accounting and has also earned an MBA and MAcc from Samford University.

Featured Presenter

Paul Myers, CMA, CSCA, CPA

Director of Finance

State of the Heart Hospice

Member

IMA Diversity & Inclusion Committee

Paul Myers' Biography

- Paul Myers has held a number of accounting and finance leadership roles with State of the Heart Hospice, Datwyler Sealing Solutions, State of Ohio, ITW Food Equipment and Standard Register and is currently director of finance.
- Paul has been a member of IMA for over 25 years and has held various volunteer positions with the Dayton Chapter and the Ohio Regional Council and has been a member of the IMA Global Board of Directors. He has been serving on the Diversity and Inclusion Committee for the last several years and has helped present sessions on Diversity and Inclusion to various groups within the IMA organization. Paul received the IMA Champion Award in 2018.
- He has also authored an article for IMA's Strategic Finance publication on the power of Diversity and Inclusion to create value. Paul has also served on his local library board for over ten years.

Learning Objectives

Upon completing this webinar, you will be able to:

1. Identify the potential origins of data bias at different stages of the data life cycle.
2. Discuss the risks associated with data biases in a Digital Age.
3. Recognize the benefits of a diverse and inclusive environment to reduce data biases.

Why is this important?

- Management accountants are responsible for problem solving and decision-making; they are strategic partners in the decision-making process at different levels in an organization.
- Data, *enabled by professional judgement,* is the most essential and valuable asset in the decision-making process.
- Management accountants are thus very interested in the data life cycle right from the data capture (raw data) stage to the data purge stage.

Polling Question 1

Have you heard about Data Bias?

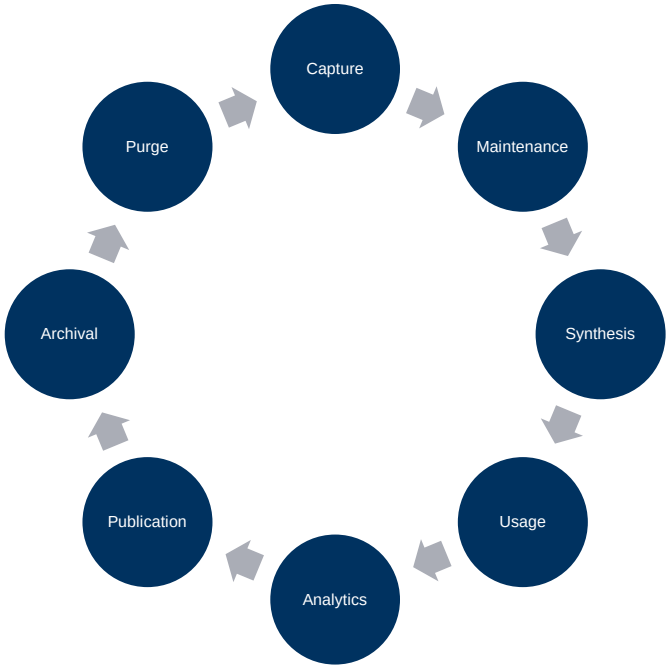
a) Yes
b) No

Polling Question 1 Results (Placeholder)

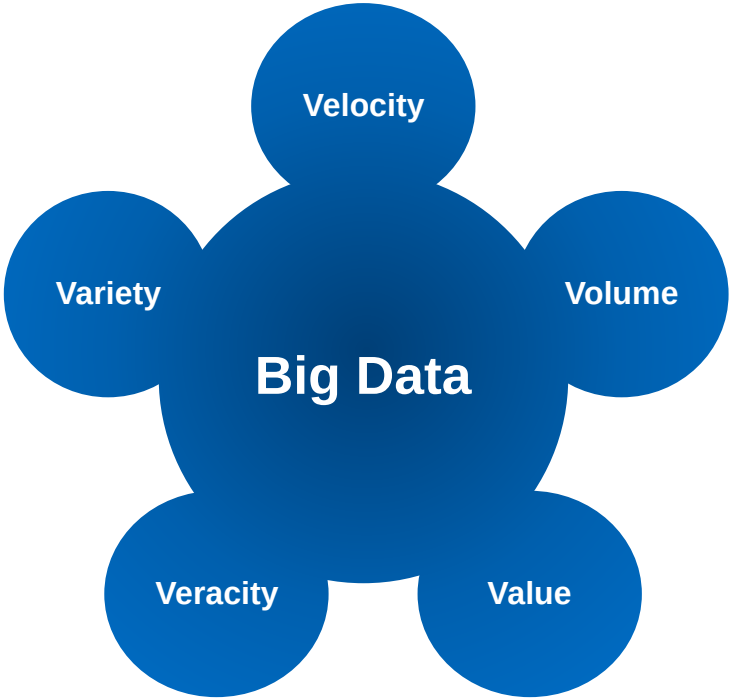
Data Life Cycle

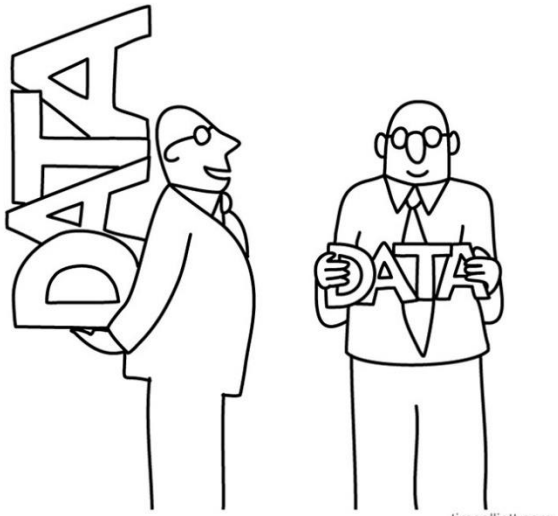
The data life cycle involves the following stages:

1. Data Capture
2. Data Maintenance
3. Data Synthesis
4. Data Usage
5. Data Analytics
6. Data Publication
7. Data Archival
8. Data Purge



What is Big Data? (Slide 1 of 2)





"I think you'll find that mine is bigger..."

What is Big Data? (Slide 2 of 2)

Structured

- Relational databases
- Spreadsheets
- Hierarchical databases
- …

Semi-structured

- XML Documents
- EDI Documents
- …

Unstructured

- Social Media
- Email
- Videos
- Images
- Webpages
- …

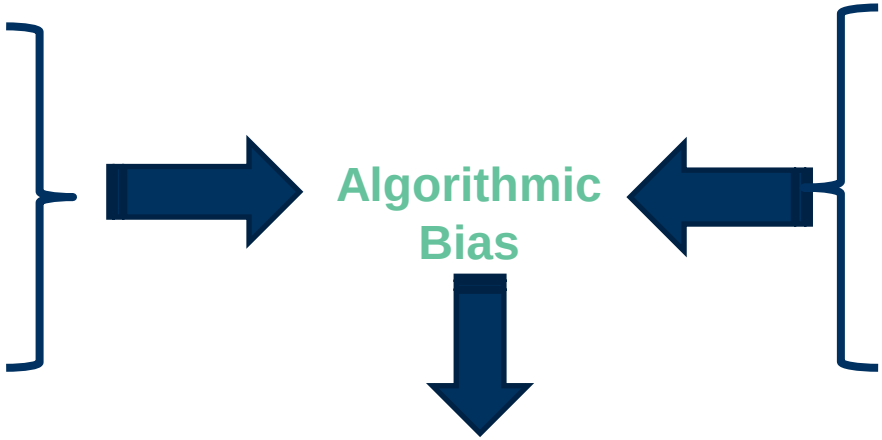
What is Data Bias? (Slide 1 of 2)

- "Bias" has several definitions, and its common usage is decidedly negative. We typically use it to mean systematic favoritism (conscious or unconscious) of a group.
- There are inherent risks in both conscious and unconscious bias as it relates to systematic favoritism. Specifically, implicit stereotypes and prejudices can lead to unwanted outcomes in interpretation and application of data.

What is Data Bias? (Slide 2 of 2)

Based on our initial readings of this literature, there are different types of data bias.

1. Sample bias
2. Exclusion bias
3. Observer bias
4. Prejudice bias
5. Measurement bias



6. Response bias
7. Selection bias
8. Drift bias
9. Omitted variable bias
10. Societal bias

Systematic and repeatable errors in a computer system that create unfair outcomes, such as privileging one arbitrary group of users over others.

Examples of Data Bias

Example of Data Bias (Dirty Data) and harmful results:

Societal bias – occurs in utilizing AI and data analytics in making decisions

- Amazon failed to implement an AI tool as its internal recruitment tool after the company realized that it showed bias against women

Prejudice bias – occurs as a result of cultural influences or stereotypes

- COMPAS[a] mislabeled African-American defendants as “high risk” at nearly twice the rate it mislabeled white defendants
- Mortgage lenders charge higher interest, or up to half a billion dollars more, to black and Latino borrowers than white borrowers with comparable credit scores

[a]COMPAS (Correctional Offender Management Profiling for Alternative Sanctions) is an algorithm used to assess potential recidivism risk by the judicial system in various jurisdictions.

Polling Question 2

Have you witnessed any instances where data used in decision making may have been biased?

a) Yes
b) No
c) Maybe
d) I don’t know

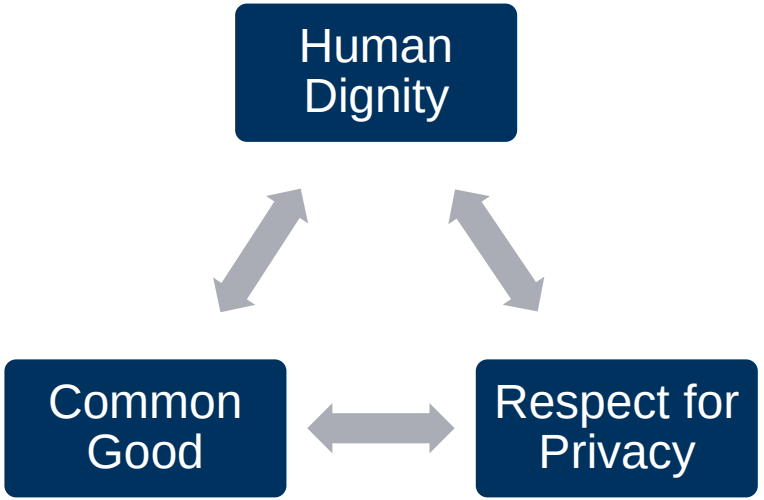
Polling Question 2 Results (Placeholder)

Where Does Bias Occur?

- Biases occur at different stages in the data life cycle. For example, it can occur if the designer/developer has a conscious or unconscious bias.
- It can also occur if the data sets used are inherently biased.
- There are also examples in which the data sets are not recognizably biased but are skewed in their selection or in their emphasis.

Operating Within an Ethical Framework

Digital technologies have challenged and changed professional norms. But operating with a clear foundation of values can help achieve positive outcomes.



Source: World Economic Forum, “The law can't keep up with new tech. Here's how to close the gap,” https://www.weforum.org/agenda/2018/06/law-too-slow-for-new-tech-how-keep-up/ and “Ethics for a Digital Age,” Vanacker & Heider

Bias and Ethics in a Digital Age

“Technology is not neutral – it has values embedded in its design and implementation. Seemingly innocuous design choices can have resounding impacts on people’s lives.”*

*Source: “The Blockchain Ethical Design Framework,” Dr. Cara LaPointe, Senior Fellow
Georgetown University, Beeck Center for Social Impact + Innovation, September 18, 2019
https://blockchain.ieee.org/images/files/pdf/20180919-ethical-blockchain-design-and-implementation_-_c-lapointe.pdf

Seeing the Benefits and Drawbacks of Technology like AI

Benefits
Reduction of errors previously made by humans/Frees up time for workers to focus on more strategic tasks
Shortened time on decision making
Ability to process large, complex data sets quickly
Savings over time from the replacement of human capital

Drawbacks
Loss of jobs as human capital is replaced by software
Cost of implementation
Subject to learned bias and prejudice
Inability to think creatively, which removes the critical eye of management and auditors

Source: https://sfmagazine.com/post-entry/april-2019-ai-new-risks-and-rewards/

Polling Question 3

Do you think the benefits of technological advancements outweigh the costs or risks associated with data bias?

a) Yes
b) No
c) Maybe
d) I don’t know

Polling Question 3 Results (Placeholder)

What can We Learn?

- “Predictive models only “see” the world through the data used for training. In fact, they “know” of no other reality.” (Goodrum, 2017)
- “When those data are biased, model accuracy and fidelity are compromised.” (Goodrum, 2017)
- “Biased models can **limit credibility with important stakeholders.**” (Goodrum, 2017)
- “At worst, biased models will **actively discriminate against certain groups of people**.” (Goodrum, 2017)
- “Being aware of these risks allows a Data Scientist to better eliminate bias. The resulting higher-quality models improves analytics adoption and enhances value from analytics investment.” (Goodrum, 2017)

How can Bias be Reduced?

- Diversity and inclusion may minimize the bias: **by having a more diverse AI community and having fair and non-skewed data**.
  - First, having a more diverse AI community will be better to anticipate, spot, and review issues of unfair bias and better able to engage communities likely affected by bias.
  - Second, having fair and non-skewed data (in other words, a more inclusive and diverse set of data) will be necessary to generate fair and better decision-making.
- Technology should be used to reduce our human bias but not increase it.
- **As companies refine a database or algorithm utilizing a diverse and inclusive team during stages of the products, it can help mitigate bias**. This can include scenario testing, sensitivity analysis, and testing to look for issues or areas of improvement.

Can Data Governance Reduce Data Bias?

- Data Governance is the framework that helps a business administer and manage the data as it flows through the data cycle of the business.
- It helps the business ensure:
  - Compliance and develop protocols to help with any ongoing rules and regulations.
  - Ensure appropriate use of data and establish data integrity.
  - **A key element here should be the tone at the top,** i.e., **Has the board and management established an organizational culture with clear guidelines on diversity and inclusion? And how can those guidelines be incorporated in the development process?**
  - Facilitate data analytics and powerful decision-making across the organization.

Data Governance at the Different Stages of the Data Lifecycle

- **Capture** – Identify the different points and segments to obtain data within an organization.
- **Qualify** –Acts as a check to ensure that invalid or inaccurate data is identified and then the data is appropriately secured.
- **Transform and Utilize** – Here data is converted for use within the organization and governance ensures compliance and use with regulatory standards.
- **Report** – Lists the steps to take to ensure that the data reported is accurate and what to do when inaccurate data is reported outside the enterprise.
- **Archive** – Sets the protocol for how to store historical data.
- **Purge** – Outlines the protocol for when to delete data within the organization at periodic intervals.

Polling Question 4

Now that you have participated in this webinar, are you more likely to initiate a discussion about any of the methods we discussed today to reduce data bias at your workplace?

a) Yes
b) No
c) I will try

Polling Question 4 Results (Placeholder)

Conclusion

“It’s easy to forget that technology is only as good as it has been designed. Therefore, the awareness of biases is critical for ensuring that decision-making based on data is accurate and reliable.”

Questions & Answers

Use the* Q & A Panel *to send your questions to our panelists.

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Thank You to Our Presenters!

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Final Reminders

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  - On your screen
  - Evaluation Survey icon at the bottom of your console
- **Access to your CPE Certificate** – 2 options
  - Click the “CPE” icon at the bottom of your console

    or
  - Click the link in your post-event e-mail
- Please print a copy of the CPE certificate for your records.
- Your CPE credit will be automatically recorded in your transcript.

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Thank You!




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