AIGC-5004

Project Management in AI

ADDRESSING AI BIAS

WEEK 11

HUMBER

WE ARE HUMBER

AGENDA

- **Addressing AI Bias**
  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
  - Assignment Prep

Week 4

Our Weekly Plan

-	READING WEEK || --> || TRANSITION TO Artificial Intelligence Ethics in Projects					
	Intro & Course Overview	1	Introductions Defining Artificial Intelligence, Machine Learning, Deep Lear The Business Executive view of Artificial Intelligence Big Data's failure and AI bias Key Stakeholders for successful AI project implementation		In-Class Lecture	
	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	-
	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	
	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	ASSIGNMENT-1 (BETA)
	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	
	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	Quiz
	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 Bus		Lecture & Lab	ASSIGNMENT-1 (DUE)

Again, Most AI Initiatives 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)

Building a Group of Stakeholders

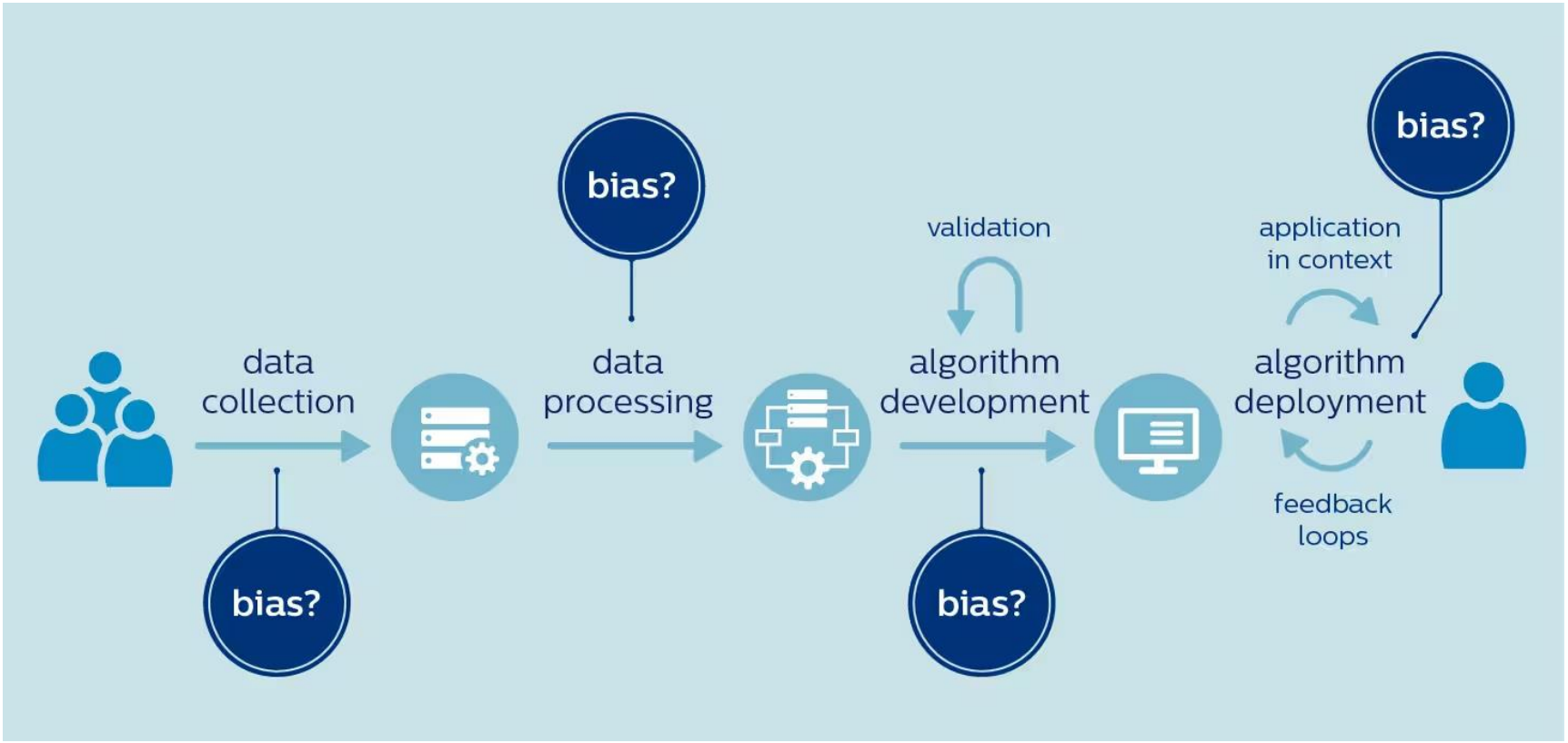
Building a Group of Stakeholders

1. Understand who the stakeholders are
2. Pinpoint stakeholders with high levels of power and influence
3. Engage in a one-to-one conversation
4. Seek to understand their world
5. Communicate with clarity and honesty
6. Continuously demonstrate your competence

Project Management Institute.

https://www.liquidplanner.com/blog/build-good-relationships-project-stakeholders/ and;
https://www.pmi.org/learning/library/stakeholder-management-task-project-success-7736

Stakeholders within Development

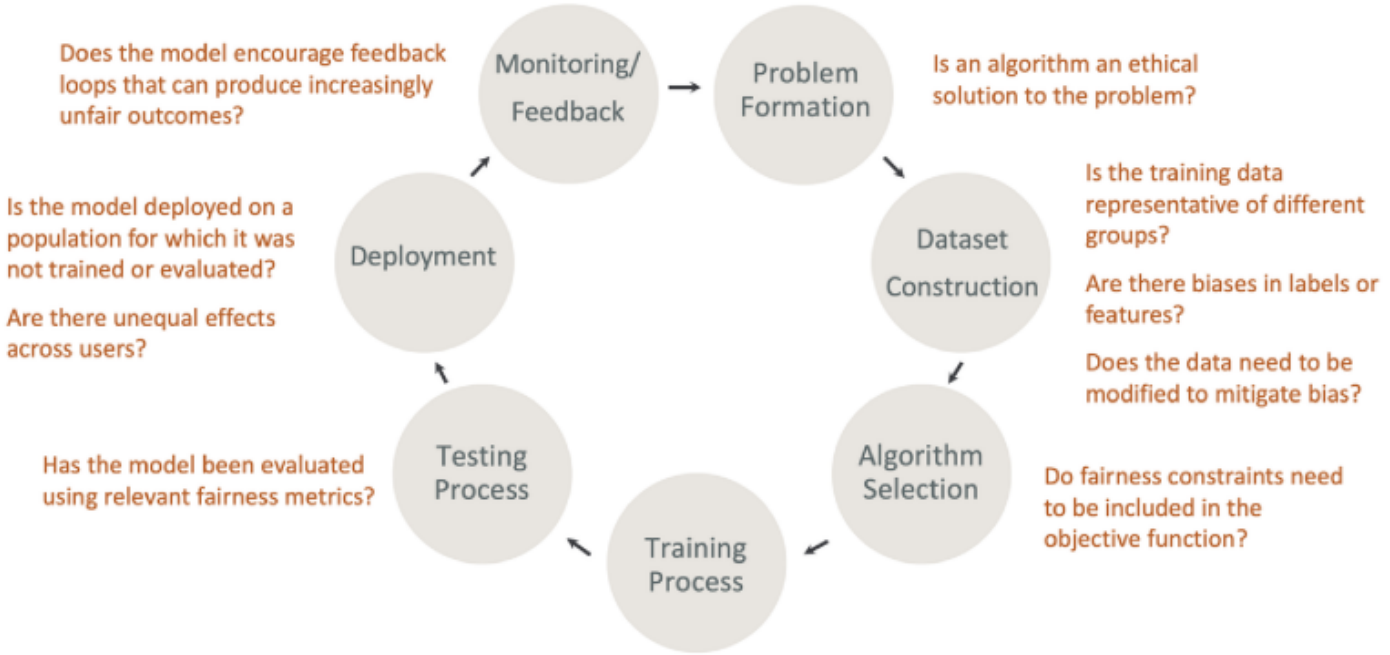


Addressing AI Bias w/SageMaker

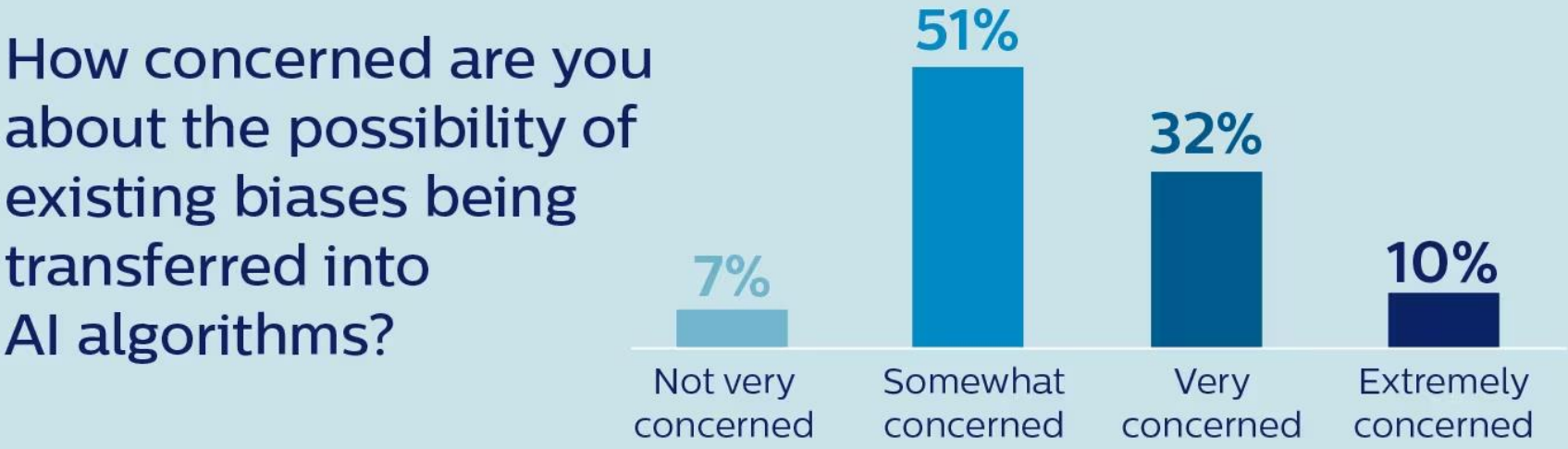
Amazon SageMaker Clarify is a new functionality in Amazon SageMaker that helps detect bias in data and models and helps explain predictions made by ML models. It is important to realize that this is an ongoing effort that is part of a larger process. We have focused on providing tools for bias and explainability in the context of an ML lifecycle. It cannot be overemphasized that developing AI solutions needs to be thought of more broadly as a process involving iterated inputs from and discussions with key stakeholders such as product, policy, legal, engineering, and AI/ML teams as well as end users and communities, and asking relevant questions during all stages of the ML lifecycle.

Addressing AI Bias

Fairness and Explainability by Design in the ML Lifecycle: Fairness and explainability should be taken into account during each stage of the ML lifecycle, for example, Problem Formation, Dataset Construction, Algorithm Selection, Model Training Process, Testing Process, Deployment, and Monitoring/Feedback. It is important to have the right tools to do this analysis. To encourage engaging with these considerations, here are a few example questions worth asking during each of these stages.

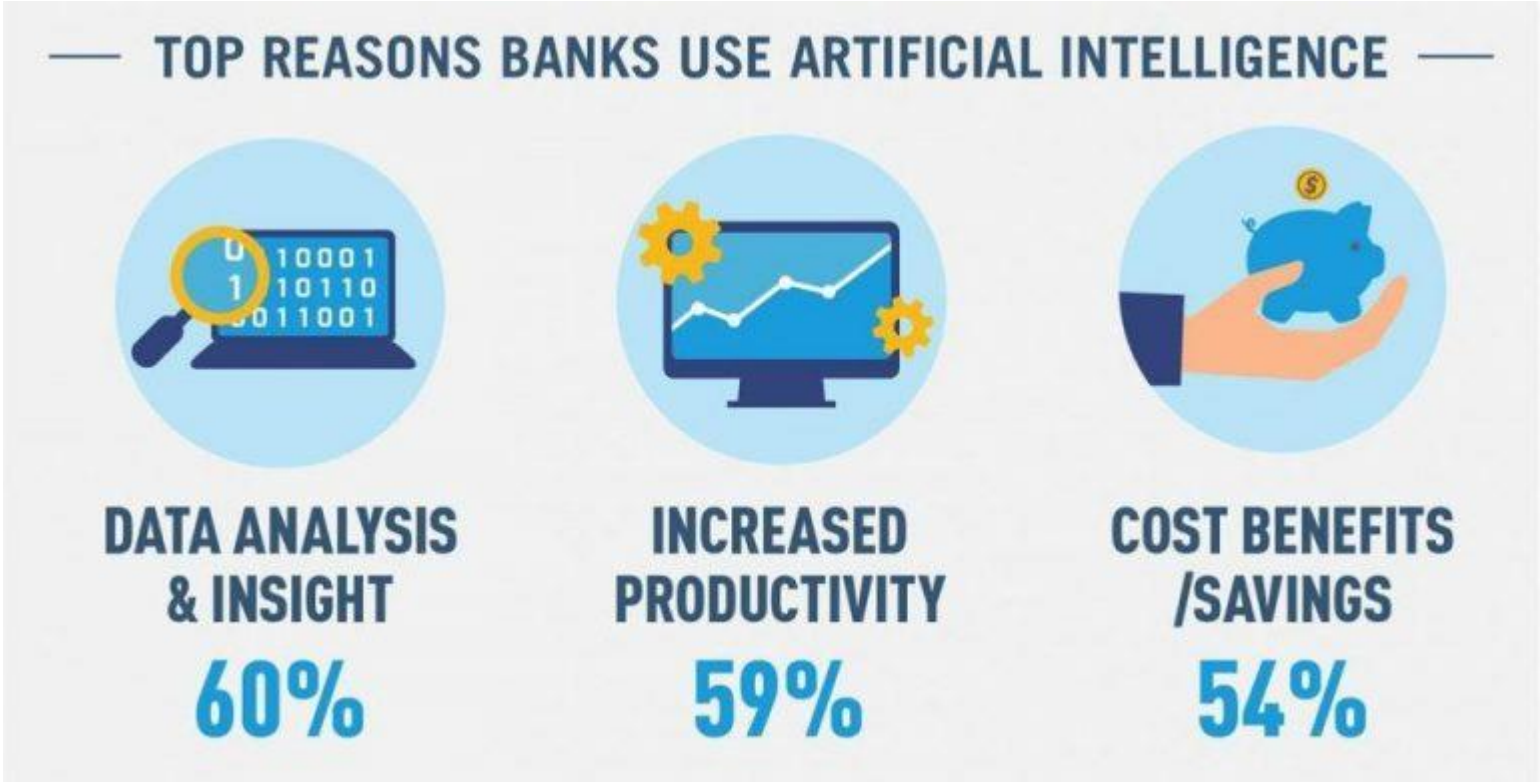


Stakeholders within Healthcare



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

Addressing AI Bias in Banking



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

AI Stakeholders in Finance/Banking

Technology Teams: refers to the ability of bank customers to easily access the financial products and services they need.

Operations Team: 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.

Finance Team: 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.

"

Public Sector - Stakeholders

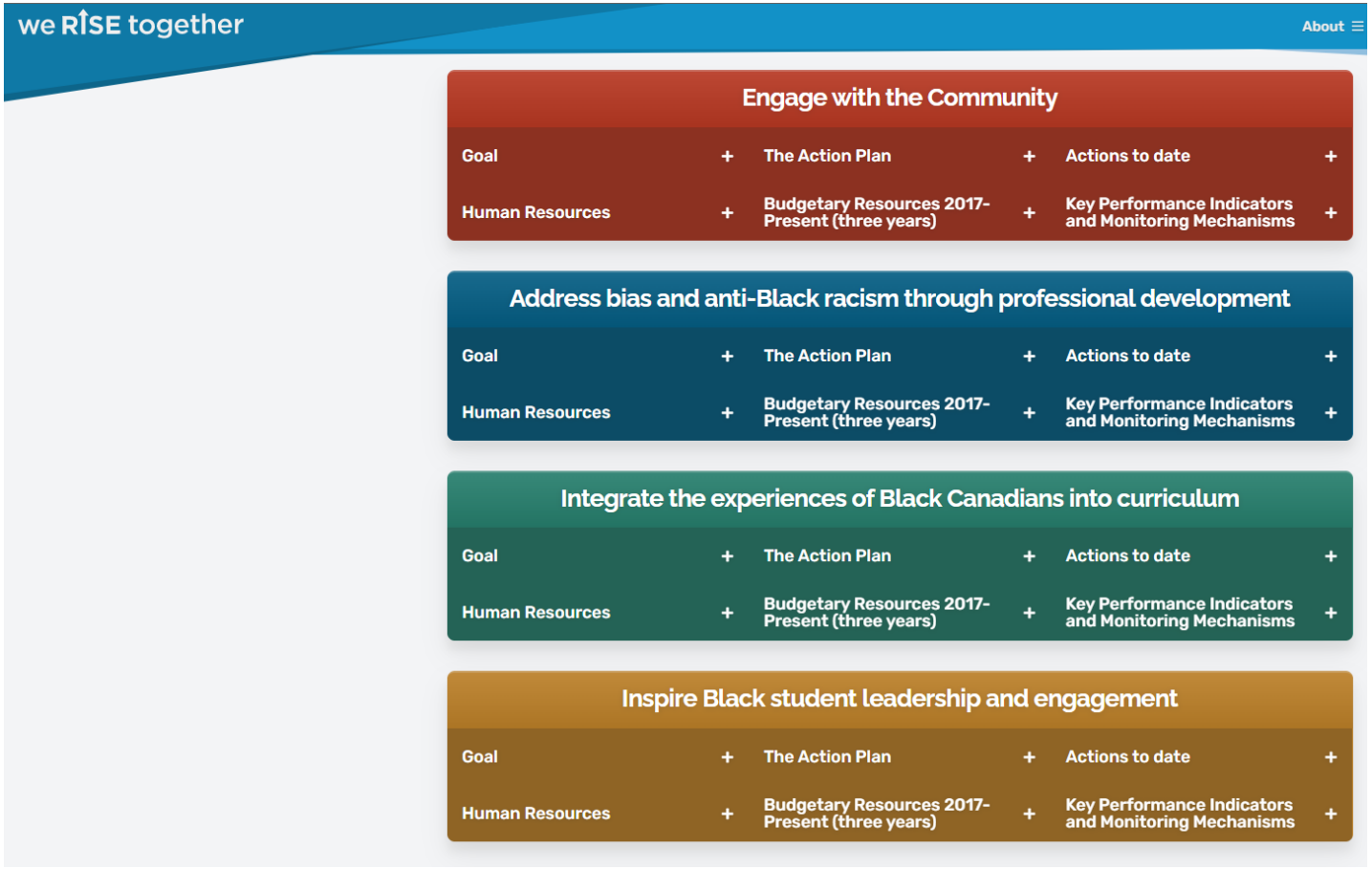
Government has to serve the entire population

Massive changes in demographics means that government has to balance historical data with current trends.

Government policy has to be forward thinking, open yet secure and accurate when it comes to AI

AI Bias in Government – Lets Discuss

Example of Education Stakeholders



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.
Cultural Stakeholders

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

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

Addressing AI Bias with Vendors

There are a small yet growing amount of start ups building AI tools that tackle AI Bias.

When choosing vendors, ensure that they meet you and your organizations values.

Question incumbent vendors, as many of them carry biases.

AI Stakeholders often forgotten

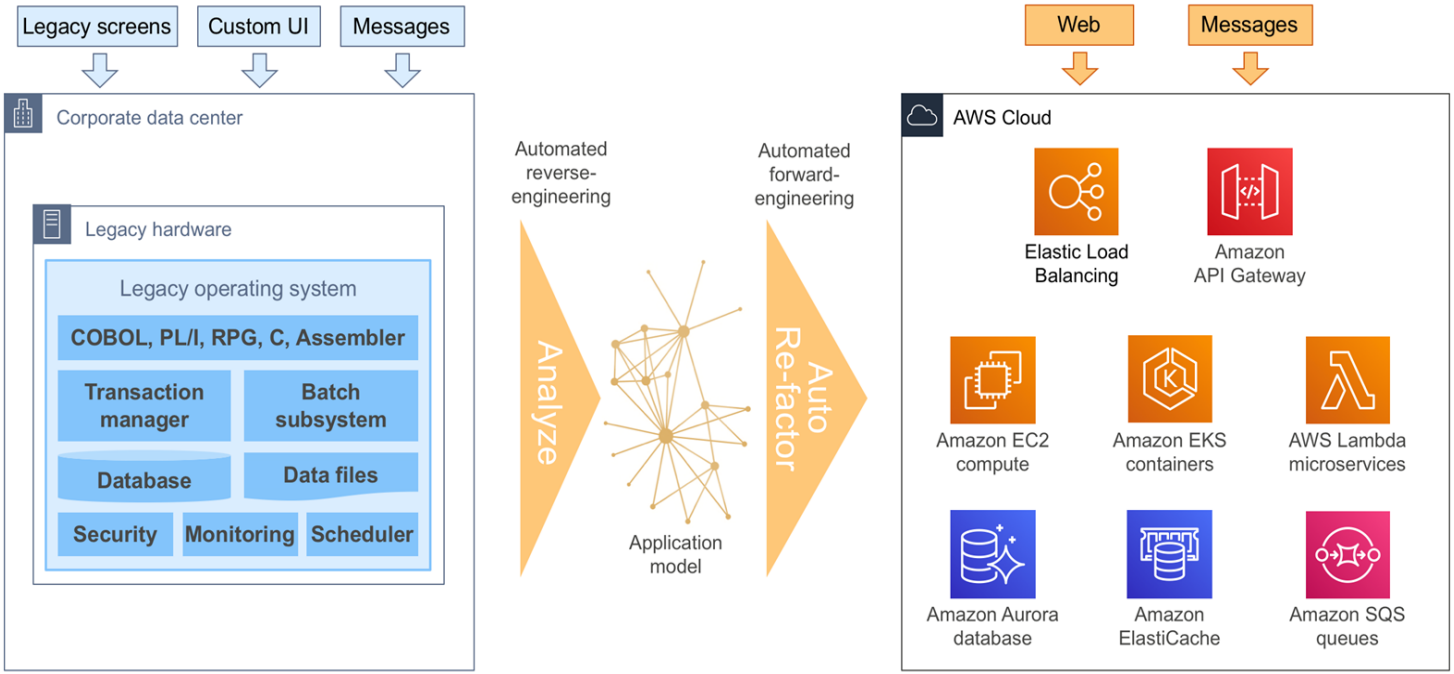
Customer Service

Advocacy Groups

External Stakeholders Example

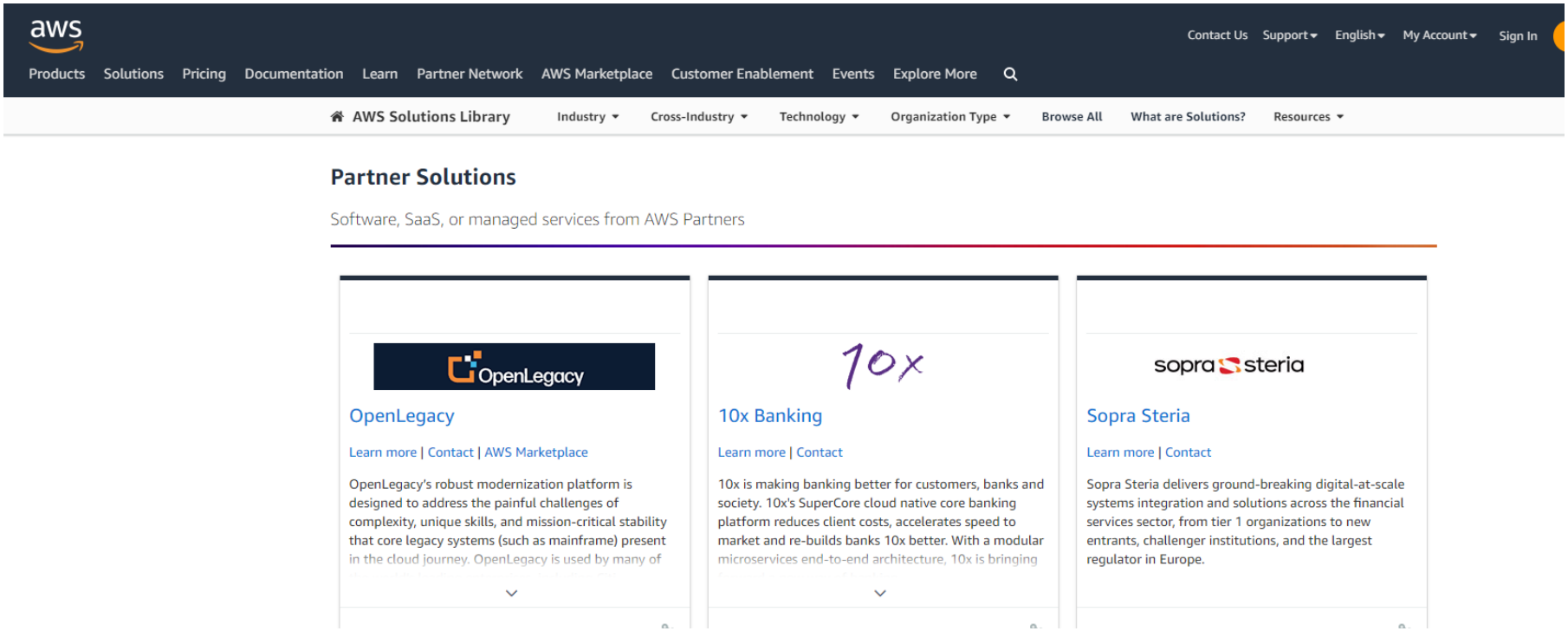
https://www.pepsico.com/docs/default-source/diversity-equity-inclusion/pepsico-diversity-equity-inclusion-annual-report-2021.pdf?sfvrsn=26c6cb18_9

Demographic Bias in IT



https://aws.amazon.com/blogs/apn/demystifying-legacy-migration-options-to-the-aws-cloud/

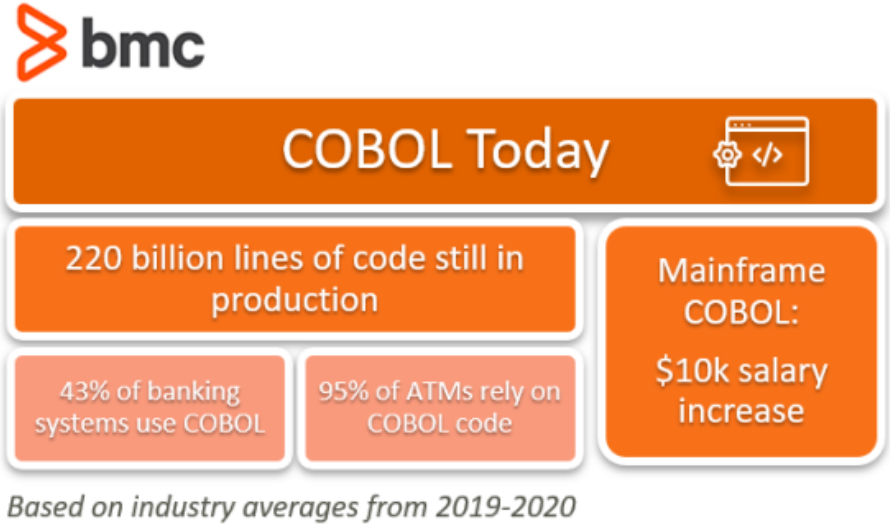
Demographic Bias in IT



https://aws.amazon.com/blogs/apn/demystifying-legacy-migration-options-to-the-aws-cloud/

Age Bias in AI and Why it Matters

Developed in the late 1950s, COBOL is a programming language used primarily in major corporations and government industries. It was created by the Committee on Data Systems Languages, also known as CODASYL, a group of computer scientists and mainframe manufacturers. The Department of Defense had tasked CODASYL with designing a common business language for programming.



https://www.bmc.com/blogs/cobol-trends/

Costs and Building a Business Case

Commonwealth Bank of Australia.. replaced its core banking platform in 2012…

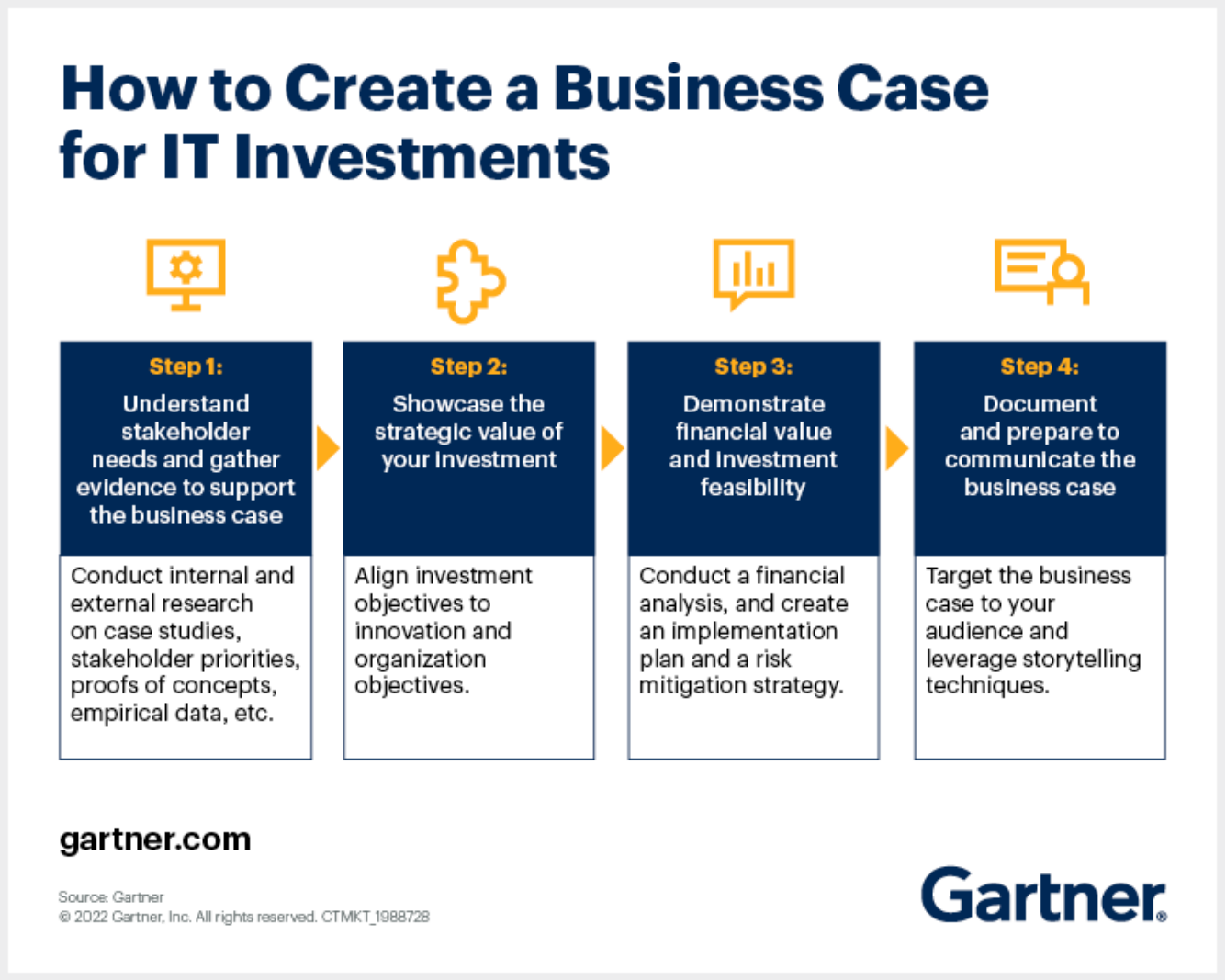
The job ultimately took five years and cost more than **1 billion Australian dollars ($749.9 million).**

Leon Kappelman, a professor of information systems at the University of North Texas, believes that students immediately benefit from studying COBOL.

Kappelman says,
“Undergrads who take the school’s two classes in mainframe COBOL ‘tend to earn about **$10,000 per year** more starting out than those that don’t.’”

https://web.archive.org/web/20200724063833/https://www.reuters.com/article/us-usa-banks-cobol-idUSKBN17C0D8

Fundamentals of a Business Case



Fundamentals of a Business Case

Step No. 1: Align to stakeholder and organizational priorities

The buying team's first job is to verify stakeholder priorities and expectations.

Solicit and capture feedback from budget owners and the broader organization to understand the needs and goals of those who will be directly or indirectly impacted by any change.

Ensure that any tool or solution aligns with and advances enterprise mission-critical priorities and values and can achieve expected outcomes.

Fundamentals of a Business Case

Step No. 2: Measure projected outcomes in business terms

To demonstrate impact, measure projected outcomes in terms of the business value being created or delivered — within a specific timeframe.

Consult with your stakeholders to know which metrics matter most to them so you can evaluate and articulate the value of the proposed investment in terms of their priorities and the organization's mission or strategy.

Clear, business-driven metrics are especially important in gaining support for innovations or emerging technology investments for which the hard-dollar business case is less clear.

Fundamentals of a Business Case

Step No. 3: Balance costs, value and risk

Total cost of ownership (TCO) — including so-called “downstream” technology implications and support requirements, management, maintenance and end-user training costs.

Tight alignment to the organization’s strategic values.

- Risks — not only of investing in the proposed solution, but also the competitive costs and risks of doing nothing.tep No. 1: Align to stakeholder and organizational priorities
- The buying team’s first job is to verify stakeholder priorities and expectations.
- Solicit and capture feedback from budget owners and the broader organization to understand the needs and goals of those who will be directly or indirectly impacted by any change.
- Ensure that any tool or solution aligns with and advances enterprise mission-critical priorities and values and can achieve expected outcomes.

Fundamentals of a Business Case

Step No. 4: Document and communicate your business case

Use storytelling tactics to clearly explain why addressing that problem or need through the recommended software or technology is critical to your organization.

Show all activities that you expect to optimize through the solution. Discuss those that indicate performance and can be translated into impacts on your organization's key performance indicators and outcomes.

Always craft your story in the language of your audience or stakeholders, especially when referring to outcomes, but avoid overly technical or functional jargon.

Remember to address the role that people and processes will play in implementation success.

Case Study: Data Driven Talent Management

Challenge – Gender Equality

- Large retailer lacking female executives within key technology divisions.
- Losing highly talented females due to lack of career progression.
- Employee data resides on an array of systems, personal folders.
- Automation tools accelerating bias and enhancing enterprise risk.

Early Stage Results

- Reimagining the employee life-cycle resulting in saving up to **$250,000** in training costs.
- Saved up op **$550,000** by being able to extract data from key HR & Business Systems quickly.
- Exploring the development of an eMentoring platform that will be used for overall Talent management.

Tools used: Legacy System Modernization software , Data Analytics, Strategic Talent Management Consulting

Next Week

Artificial Intelligence and Cybersecurity

- 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

Lab today: Discuss Assignment

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Assignment

AI Bias and Business Case your chosen company

1. Identify the key growth strategies for your company (Read annual report)
2. Think 1 or two areas where AI could help the company meet its objectives and why
3. Which AI biases and Cybersecurity threats should the organization be aware of? (i.e. Gender, Geopolitical Attacks etc.).
4. Build a Business Case for AI in their company following these steps:
    - Step No. 1: Align to stakeholder and organizational priorities
    - Step No. 2: Measure projected outcomes in business terms
    - Step No. 3: Balance costs, value and risk
    - Step No. 4: Document and communicate your business case

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