Microsoft

Ethics: a key consideration

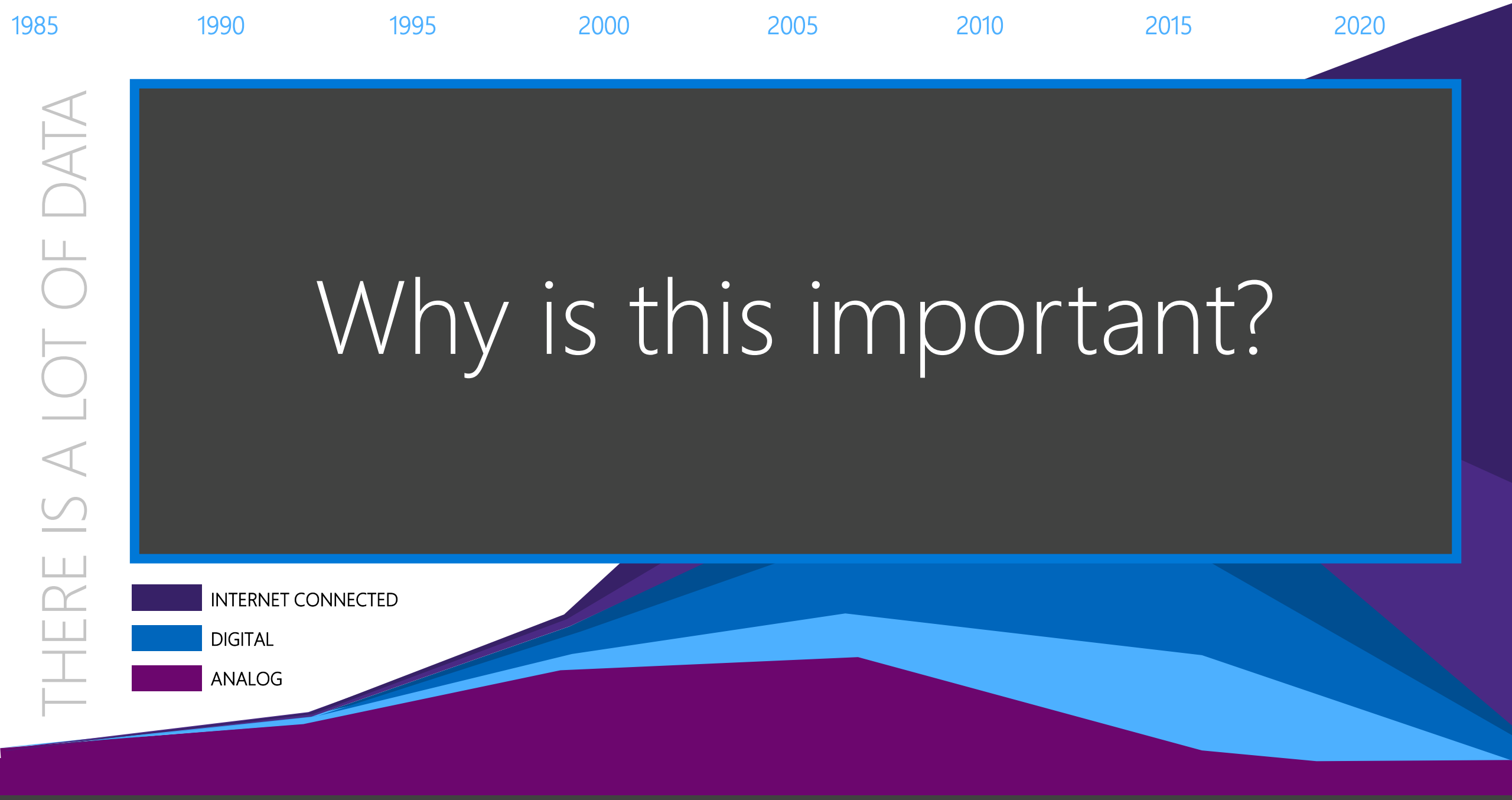
In Data & Artificial Intelligence

Phil Harvey
Cloud Solution Architect for Data & AI
One Commercial Partner UK

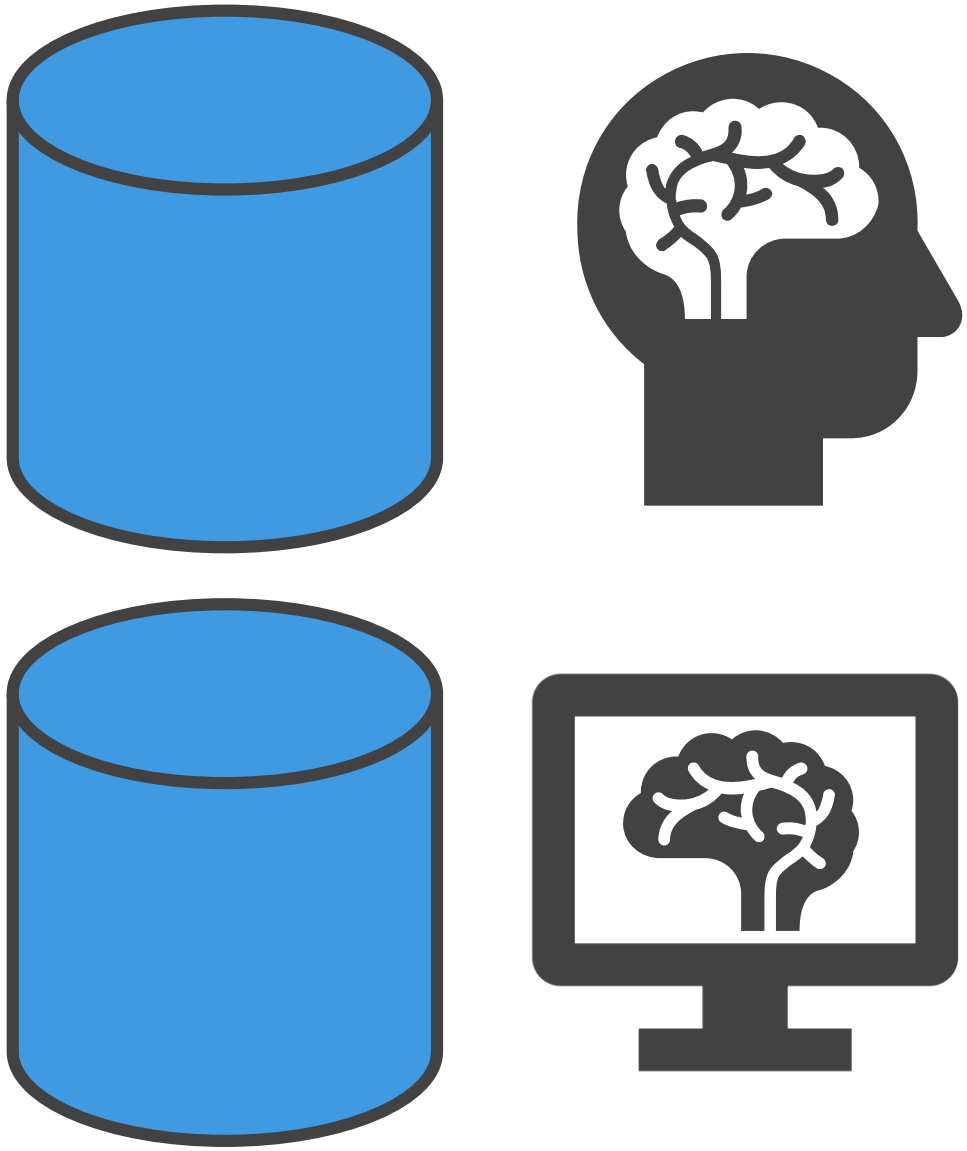
1985 1990 1995 2000 2005 2010 2015 2020

THERE IS A LOT OF DATA

Why is this important?



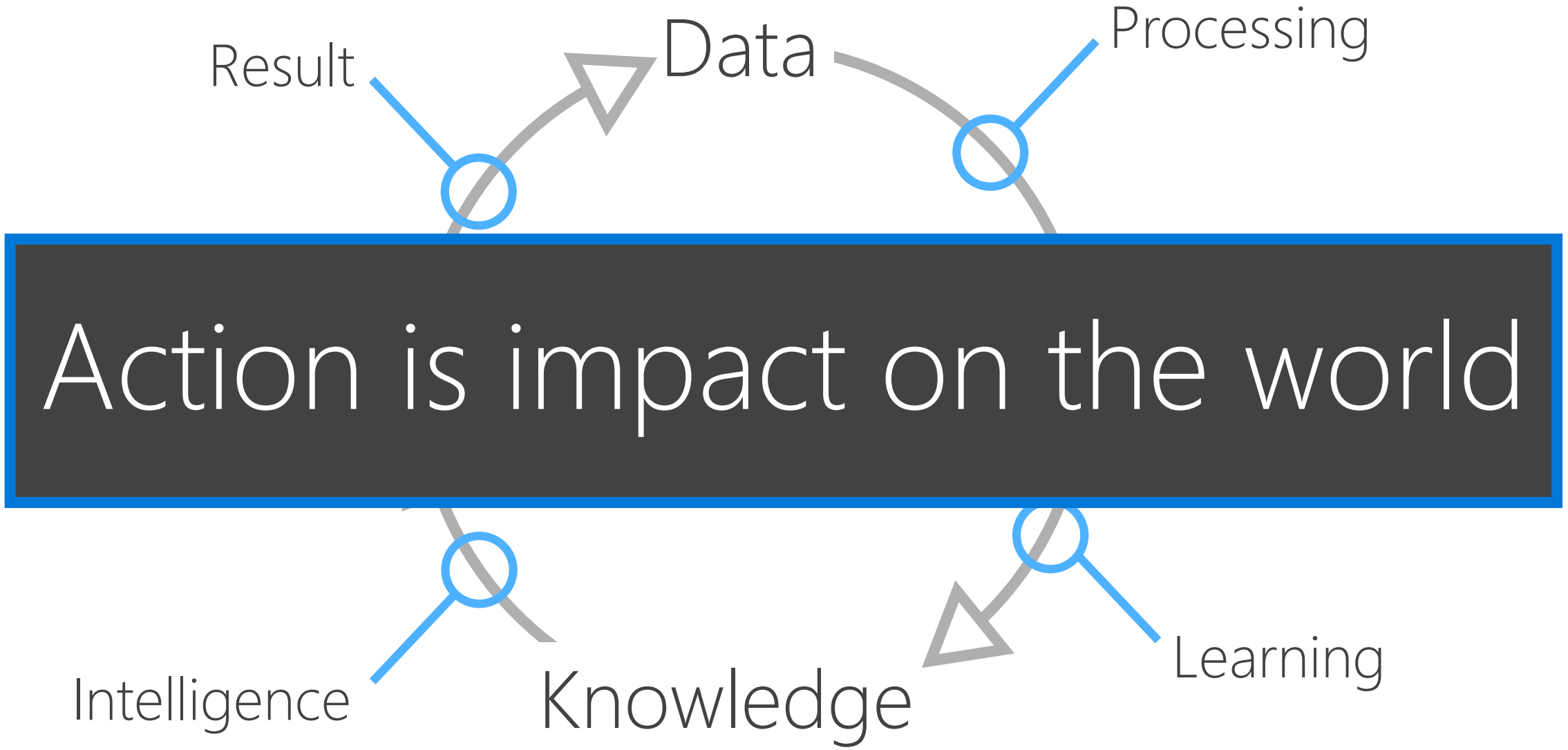
DATA IS IMPORTANT



Data gives us new ways of knowing and new things to know.

Data makes software smarter through AI. It is how machines know.

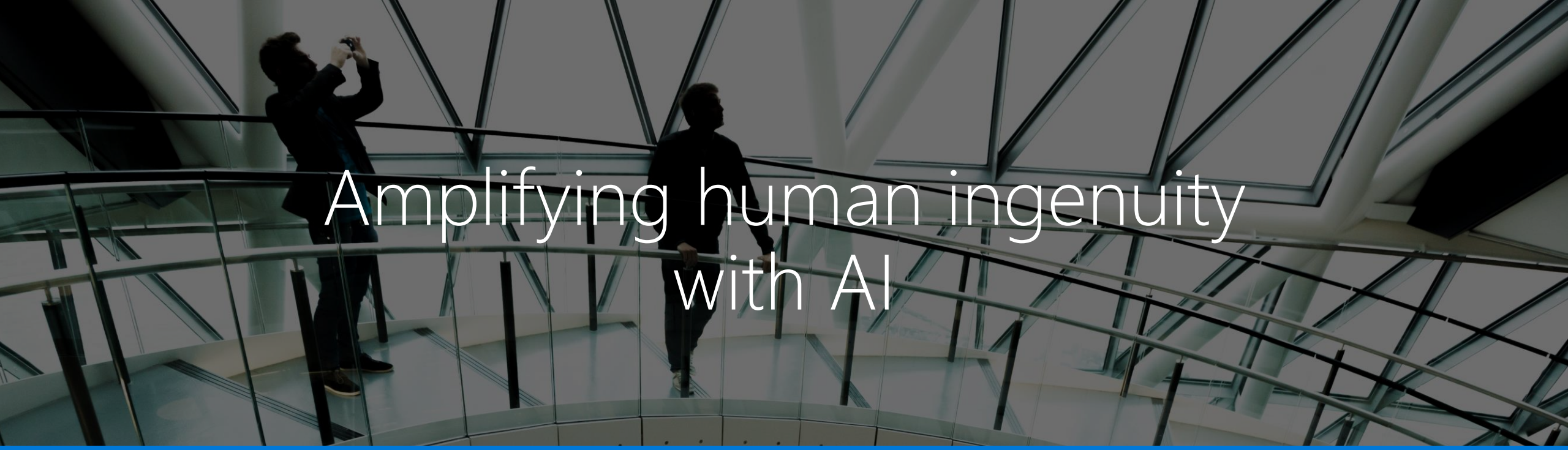
THE DATA JOURNEY



Microsoft

Microsoft's approach

to Artificial Intelligence



Amplifying human ingenuity with AI

Reasoning

Learn and form conclusions with imperfect data

Understanding

Interpret meaning of data including text, voice, images

Interacting

Interact with people in natural ways

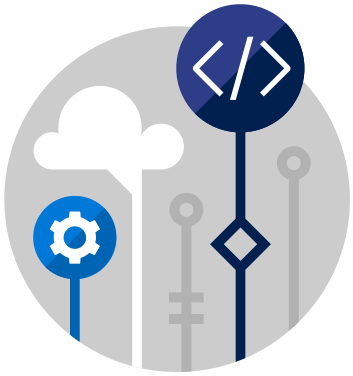
LEADERSHIP

- "Our goal is to **democratise AI** to empower every person and every organisation to achieve more.

- "The **core currency** of any business going forward will be the ability to convert their **data into AI** that drives competitive advantage"

- **"Every developer** can be an **AI developer**, and **every company** can become an **AI company**"

MICROSOFT AI



AI platform

Cognitive Services

Azure Bot Services

AI infrastructure and tools

Machine Learning Services

Intelligent products

Bing

Cortana

Office 365

Dynamics 365

AI business solutions

Templates

Accelerators

Microsoft AI Solution for Customer Care

Microsoft AI

ADVANCEMENTS

96%	5.1%	88.493%	69.9%
RESNET vision test 152 layers	Switchboard speech recognition test	SQuAD reading comprehension test	MT research system
Object recognition Human parity 2016	Speech recognition Human parity 2017	Machine reading comprehension Human parity Jan 2018	Machine translation Human parity March 2018

AI PRINCIPLES

Fairness

Reliability & Safety

Privacy & Security

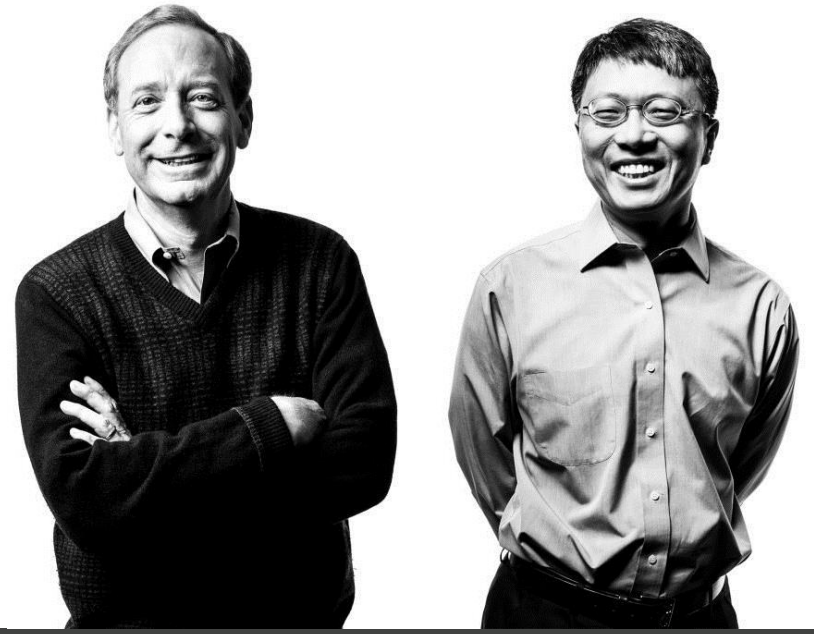
Transparency

Accountability

WANT TO KNOW MORE?

Covering …

- Fairness
- Reliability
- Privacy & Security
- Inclusiveness
- Transparency
- Accountability
- Social Impact

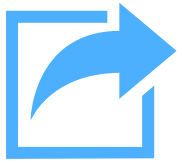


ETHICAL

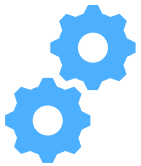
Develop a **shared understanding** of the **ethical** and **societal implication** of the AI technologies your application implements.

Design and testing should also **anticipate** and **protect against** the potential for **unintended system interactions** or **bad actors** to influence operations, such as through cyberattacks or misleading communications.

Humans should play a critical role in **making decisions** about **how** and **when** an AI system is **deployed**, and whether it's **appropriate to continue** to use it over time



Describe **when** and **how** an AI system should **seek human input** during **critical situations**, and how a system controlled by AI should **transfer control** to a **human** in a manner that is **meaningful** and **intelligible**.



When AI systems are used to help make decisions that **impact people's lives**, it is particularly important that **people understand how those decisions were made**.

ETHICAL

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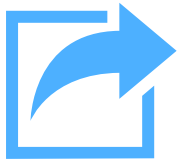

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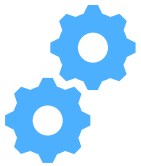


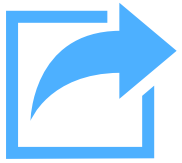
When AI systems are used to help make decisions that impact people's lives, it is particularly important that people understand how those decisions were made.

ETHICAL

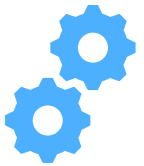
Understand the impact

Anticipate and protect against **abuse** of the system

Humans play a key roles **in the process**

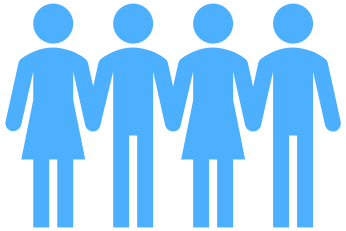


Meaningful human handoff in critical situations



Transparency of process when a human is impacted

AI PRINCIPLES



Designing for people

The following design principles are influenced by our ethics and guide the way we design and develop our products:

Humans are the heroes

People first, technology second. Design experiences that augment and unlock human potential.

Balance EQ and IQ

Design experiences that bridge emotional and cognitive intelligence.

Honour societal values

Design to respect differences and celebrate a diversity of experiences.

Know the context

Context defines meaning. Design for where and how people work, play, and live.

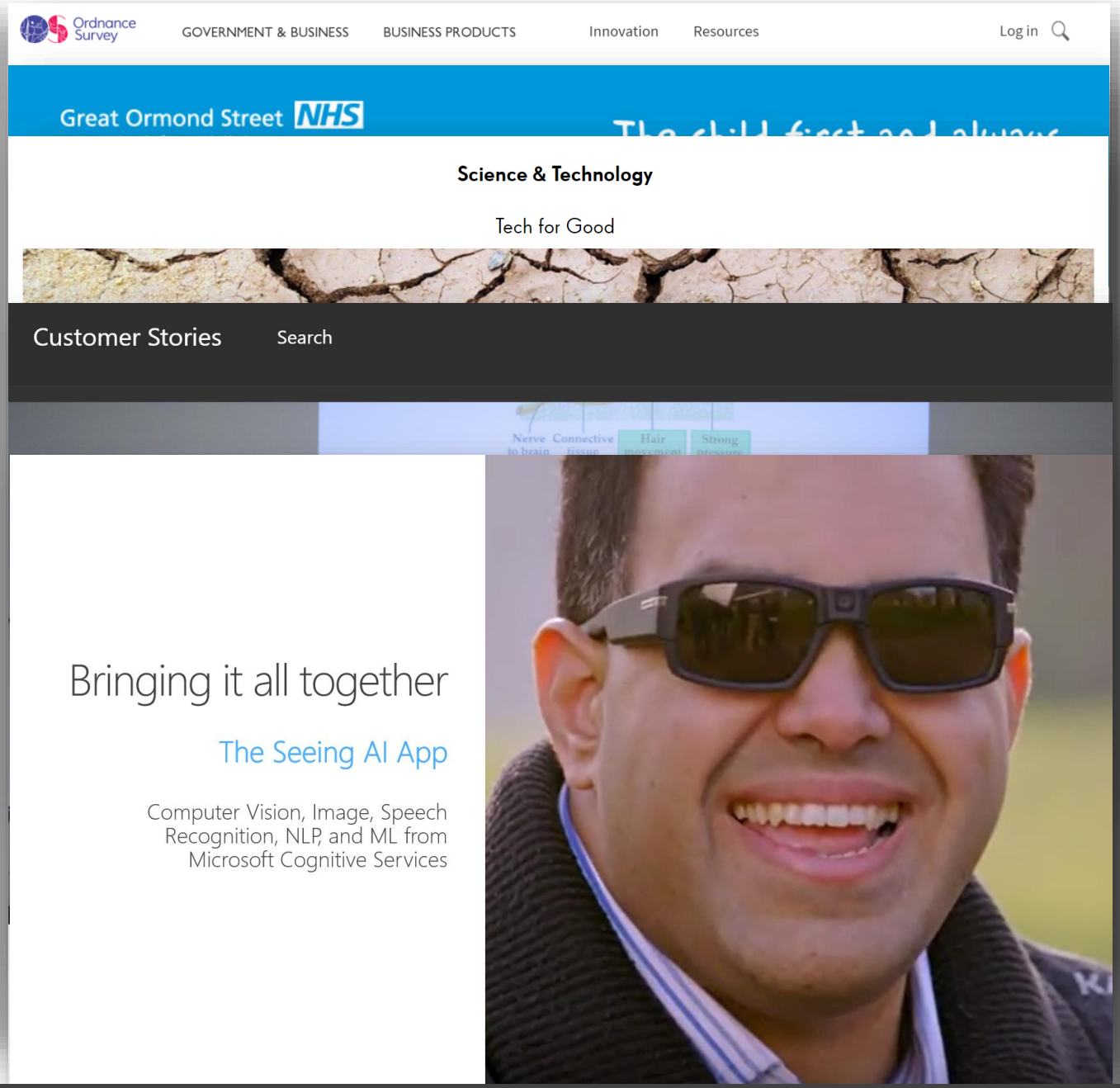
Evolve over time

Design for adaptation. Tailor experiences for how people use technology.

Designing with EMPATHY

AI FOR GOOD

Ethical AI



Microsoft

Ethics

learning how to think about right and wrong

STORIES

Crime

UK police are using AI to inform custodial decisions – but it could be discriminating against the poor

Durham Constabulary, which has been testing its HART algorithm since 2017, recently made changes to avoid reinforcing human biases against people living in certain areas

TECHNOLOGY

The Hidden Biases in Big Data

by Kate Crawford

APRIL 01, 2013

SAVE SHARE 0 COMMENT TEXT SIZE PRINT $8.95 BUY COPIES

This looks to be the year that we reach peak big data hype. From wildly popular big data conferences to columns in major newspapers, the business and science worlds are focused on how large datasets can give insight on previously intractable challenges. The hype becomes problematic when it leads to what I call "data fundamentalism," the notion that correlation always indicates causation, and that massive data sets and predictive analytics always reflect objective truth. Former *Wired* editor-in-chief Chris Anderson embraced this idea in his comment, "with enough data, the numbers speak for themselves." But can big data really deliver on that promise? Can numbers actually speak for themselves?

TL;DR \ MICROSOFT \ WEB

Twitter taught Microsoft's AI chatbot to be a racist <rude> in less than a day

68

By James Vincent | @jjvincent | Mar 24, 2016, 6:43am EDT

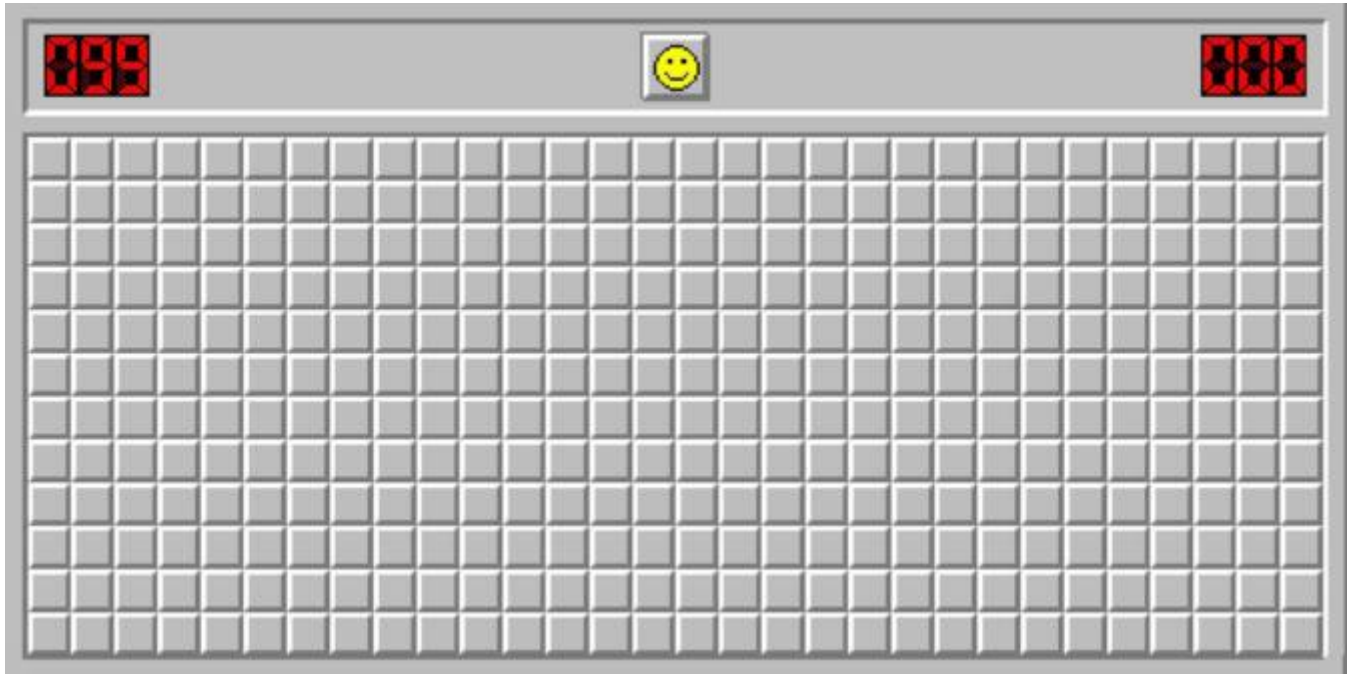
SHARE

Advert

Algorithmic bias

From Wikipedia, the free encyclopedia

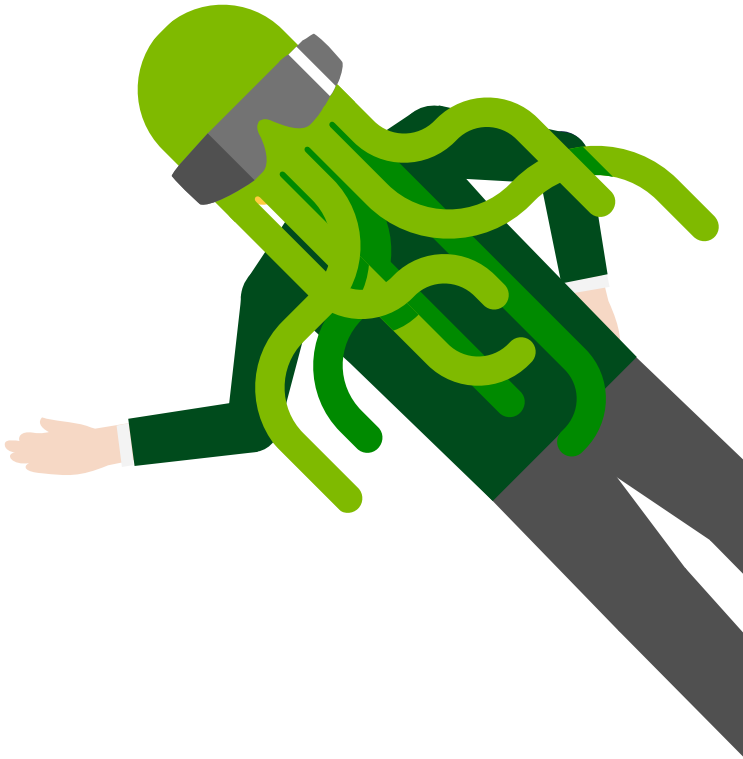
Algorithmic bias occurs when a computer system behaves in ways that reflects the implicit values of humans involved in that data collection, selection, or use.[2] Algorithmic bias has been identified and critiqued for its impact on search engine results,[3] social media platforms,[4] privacy,[5] and racial profiling.[6] In search results, this bias can create results reflecting racist, sexist, or other social biases, despite the presumed neutrality of the data.[7] The study of algorithmic bias is most concerned with algorithms that reflect "systematic and unfair" discrimination.[8]:332



It's a mine field

NEW PEOPLE

Got a new project for you



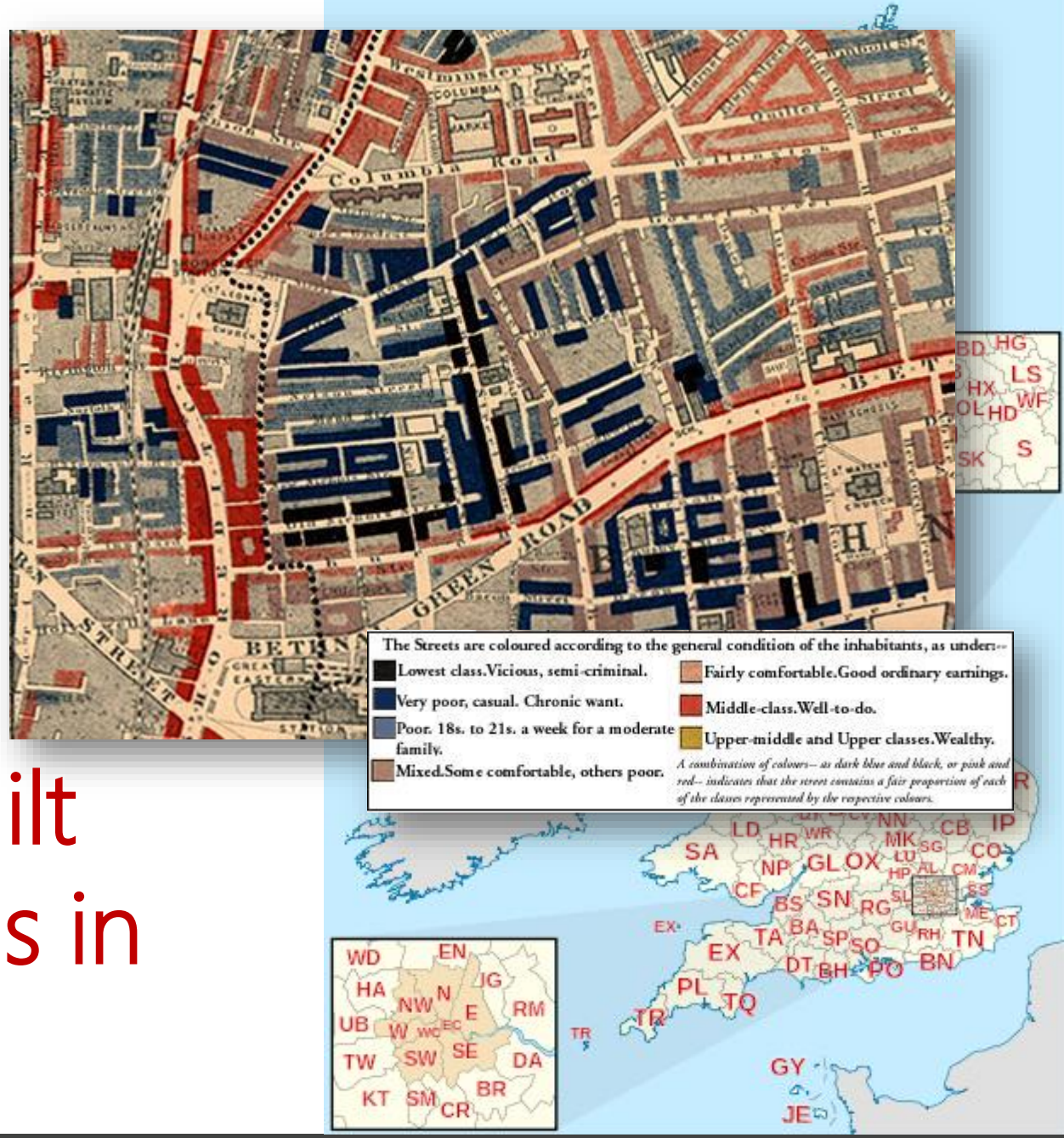
HOW DID THIS HAPPEN?

Crime

UK police are using AI to inform custodial decisions – but it could be discriminating against the poor

Durham Constabulary, which has been testing its HART algorithm since 2017, recently made changes to avoid reinforcing human biases against people living in certain areas

Using postcodes as a predictive factor



Postcodes have in-built bias based on the bias in human behaviour

Bias in data is human bias

BIAS

Fairness

Transparency

- Bias can be unfair
- Bias can discriminate
- Bias can be unethical

All data is biased and lacks context in some way

- Quality data is balanced data
- Data Science has the tools to check
- Transparency of process is key

Microsoft

But, ethics…

What kind of ethics are you talking about?

ETHICS

How to live a good life.

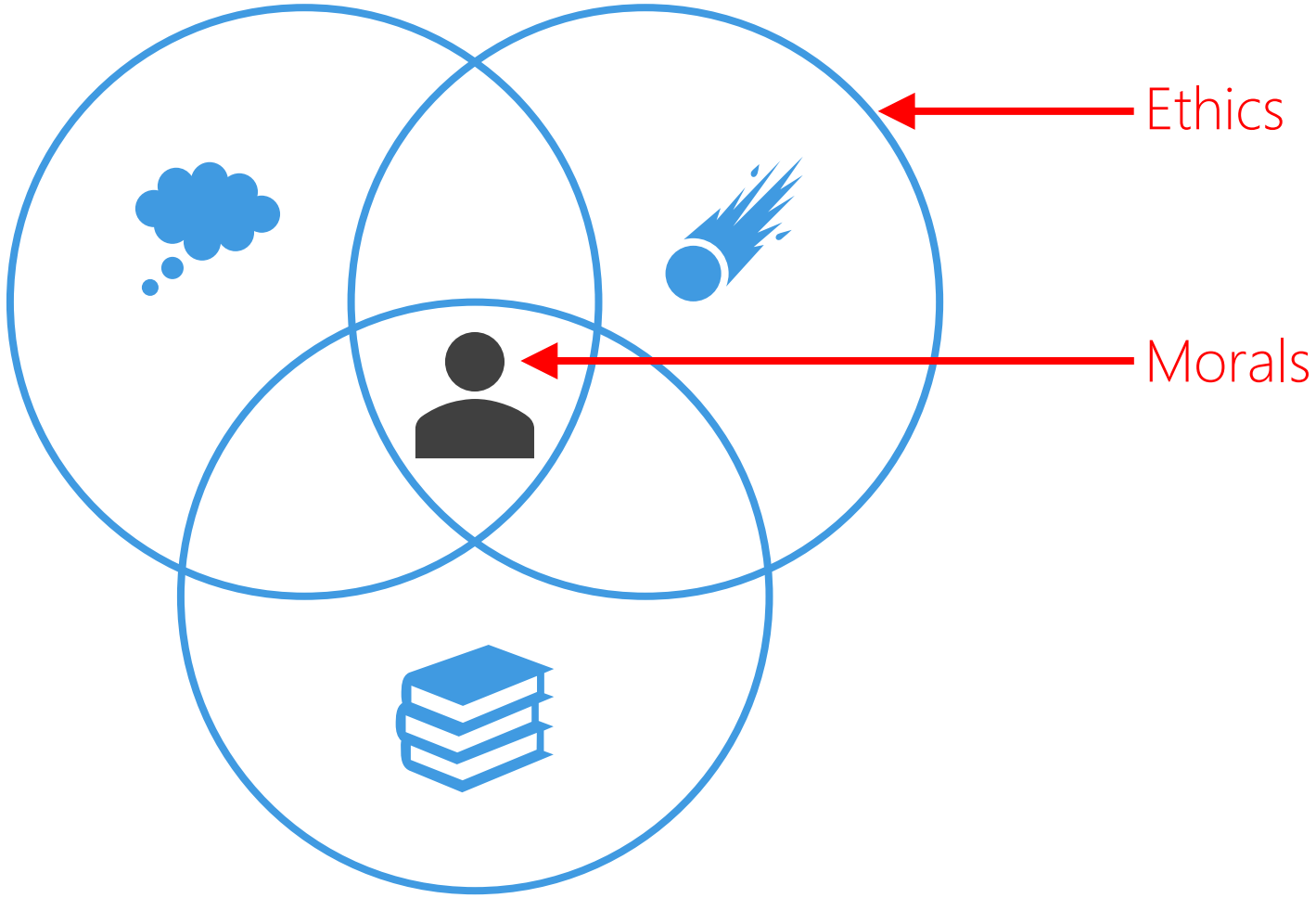
Our rights and responsibilities.

The language of right and wrong.

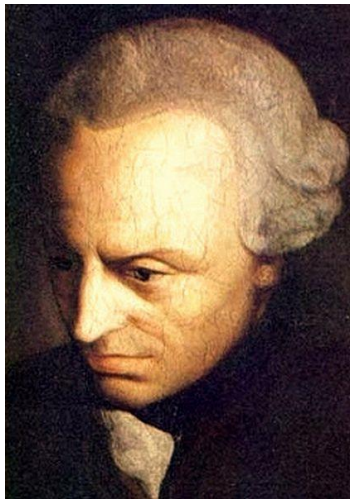
Moral decisions - what is good and bad?

http://www.bbc.co.uk/ethics/introduction

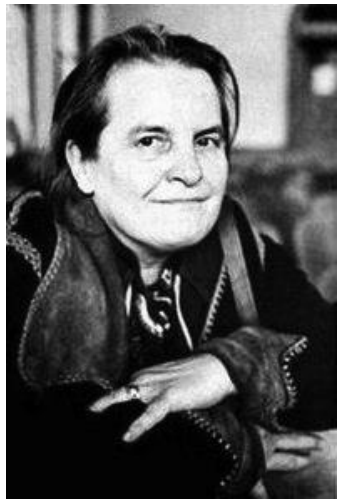
ETHICS VS. MORALS



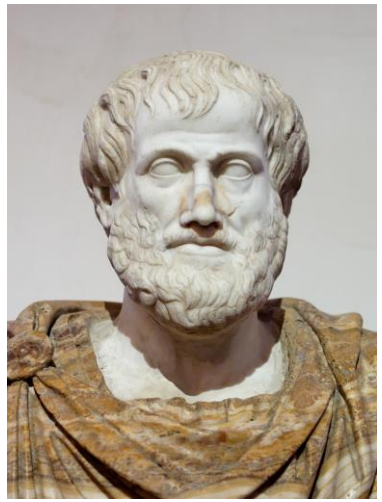
ETHICISTS



Kant



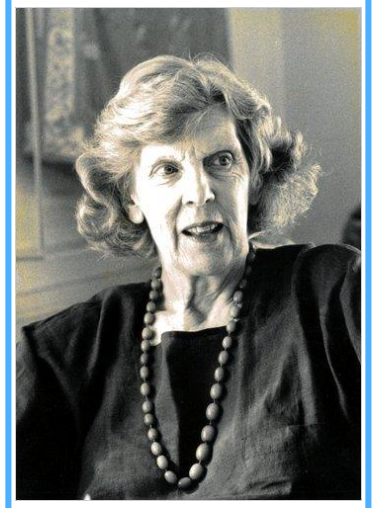
Anscombe



Aristotle

Kierkegaard

Philippa



Foot

Hume

Lets take a look at just one…

ETHICAL DILEMMAS

The Golden Rule & Subjectivist Fallacy (Also works for relativism)

> "How do you know what works for you, works for others?"

Euthyphro dilemma (Also works for deontology)

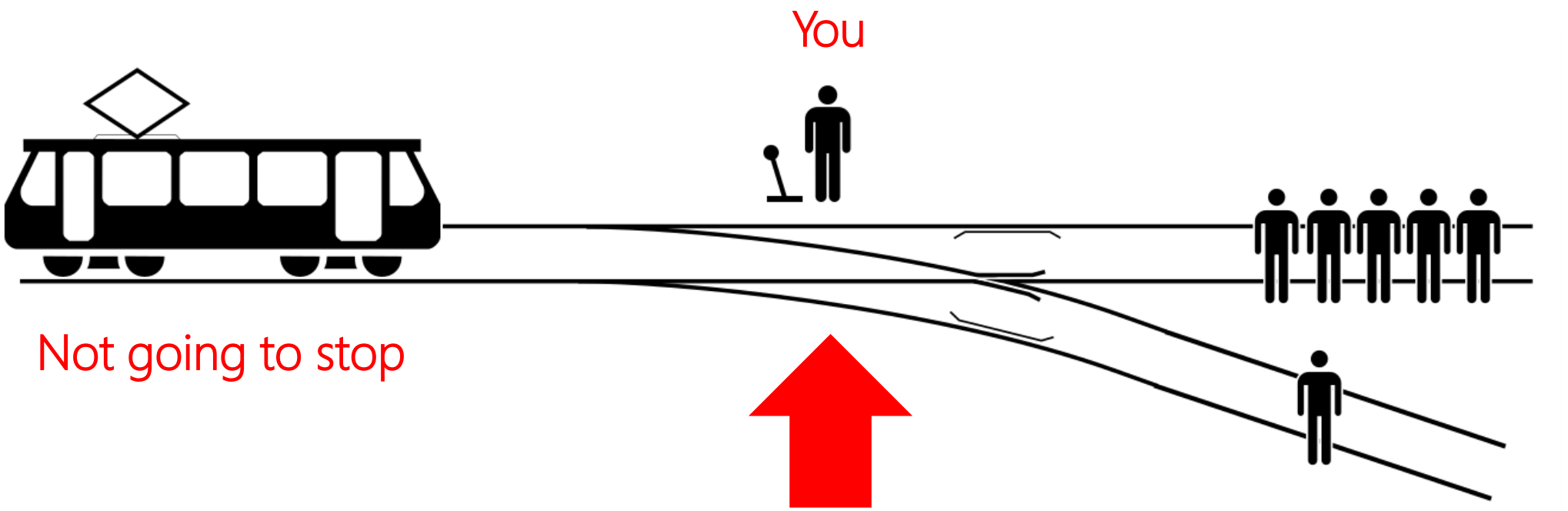
> "Is the pious loved by the gods because it is pious,
> or is it pious because it is loved by the gods?"

And then there is The Trolley Problem

authored by Philippa Foot

IT'S A TRAM IN AMERICAN

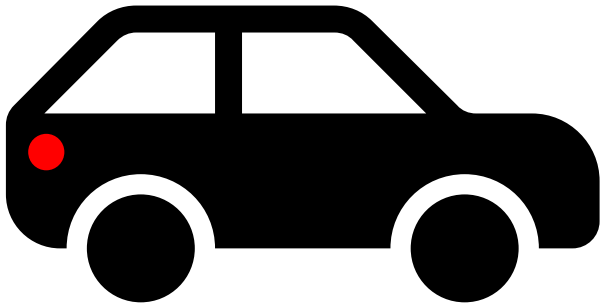
The Trolley Problem

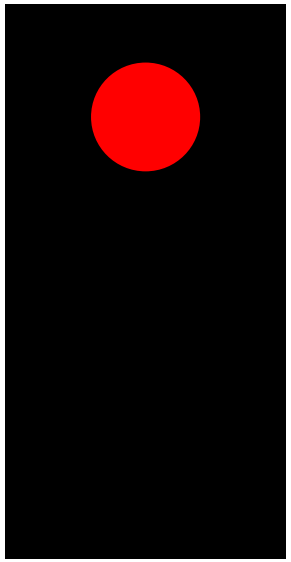


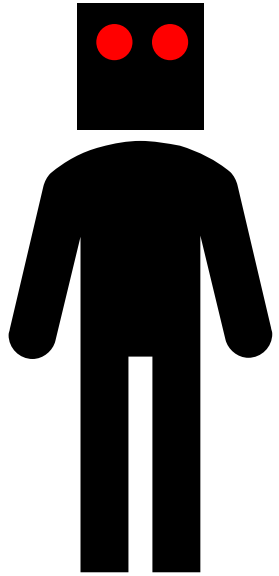
What do you do?

THE TROLLEY PROBLEM

For any automated system where harm could be caused







Microsoft

Dra

Believe it or no

We have created a bot capabl
pixel, from scratch, also returni
final art.

C

Ente

Th

BIRDS

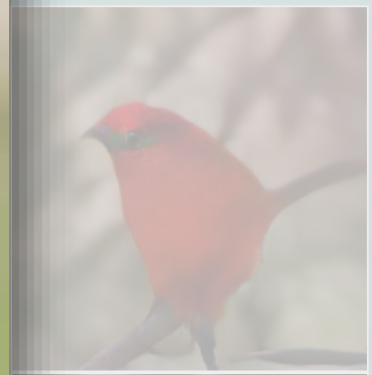
Create your novel image now!

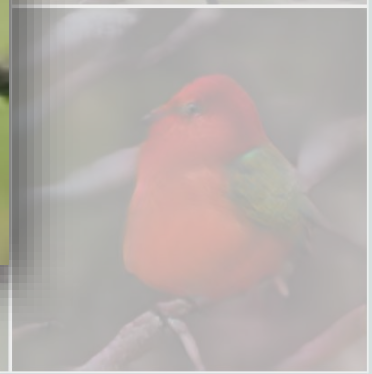
Enter the de

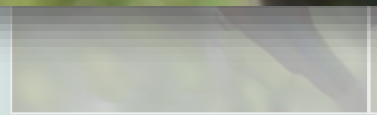
red belly".

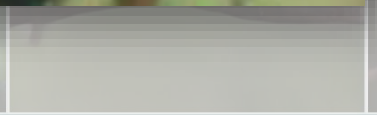
red bird w

Create!









Microsoft

https://drawingbot.azurewebsites.net/

you

What will you do?

AT MICROSOFT?

Microsoft has given up 'significant sales' over concerns that the customer will use AI for evil, says a top scientist

Matt Weinberger

Apr. 13, 2018, 9:09 PM 2,806

Microsoft Technical Fellow and Managing Director of the Redmond Lab Eric Horvitz Microsoft

At a conference this week, Microsoft Research scientist and leader Eric Horvitz says that the company has given up "significant sales" because it was worried the customer would use AI for not-good purposes.

"In a more general sense, Horvitz was discussing Aether, an acronym for "AI and ethics in engineering and research," which is Microsoft's overall AI ethical oversight committee. "It's been an intensive effort ... and I'm happy to say that this committee has teeth," Horvitz said.

REGULATION

Facial recognition technology: The need for public regulation and corporate responsibility

Jul 13, 2018 | Brad Smith - President

https://blogs.microsoft.com/on-the-issues/2018/07/13/facial-recognition-technology-the-need-for-public-regulation-and-corporate-responsibility/

GDPR

Article 22: *"The data subject shall have the right **not to be subject to a decision based solely on automated processing**, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her."*

AN EVOLVING LANDSCAPE

Lords Select Committee

UK can lead the way on ethical AI, says Lords Committee

16 April 2018

The UK is in a strong position to be a world leader in the development of artificial intelligence (AI). This position, coupled with the wider adoption of AI, could deliver a major boost to the economy for years to come. The best way to do this is to put ethics at the centre of AI's development and use concludes a report by the House of Lords Select Committee on Artificial Intelligence, AI in the UK: ready, willing and able?, published today.

GOV.UK

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Policy paper

AI Sector Deal

Published 26 April 2018

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Published on July 2, 2018

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Director, Corporate External and Legal Affairs, Microsoft
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