



# INNOVATE

DATA AND AI/ML EDITION

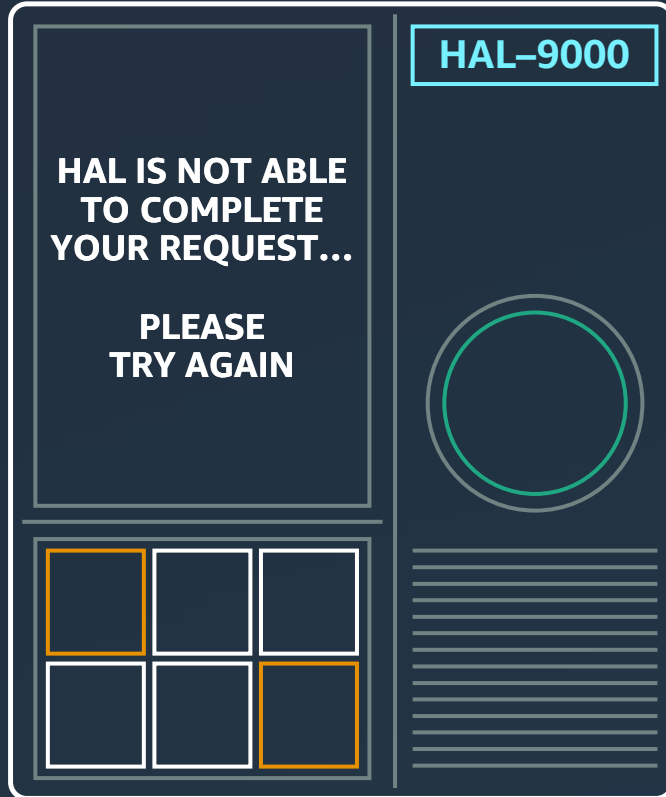
**22 February 2023**

# Building a smarter organization Powered by Machine Learning

**Tom Godden**

Director Enterprise Strategy  
Amazon Web Services

# Science fiction or science fact?



~~Hal.... please increase my EBITDA~~

~~Hal.... please increase  
my customer satisfaction~~

Hal.... please improve  
our product quality




**“Any sufficiently advanced technology is indistinguishable from magic”**





**Arthur C. Clarke**

Co-writer for the 1968 film 2001: A Space Odyssey



Hal.... please detect  
defects in manufacturing 

Hal.... please translate  
this document 

Hal.... what is the  
sentiment of customers? 



# “Customers are always beautifully, wonderfully dissatisfied”

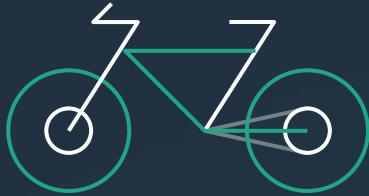


**Jeff P. Bezos**

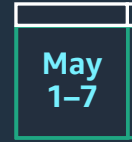
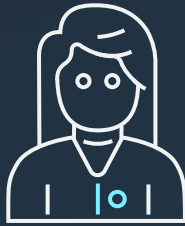
Founder and Executive Chair, Amazon, Inc.

# Today's customer expectations

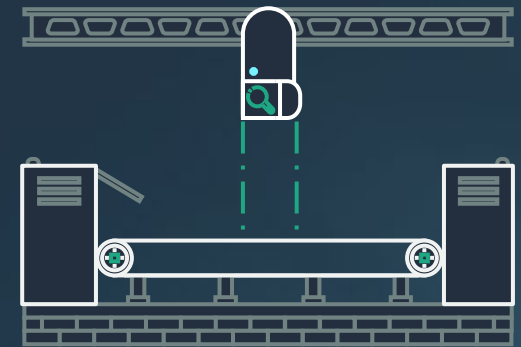
## Relevance



## Speed



## Efficiency



**“ A computer would deserve to be called intelligent if it could deceive a human into believing that it was human ”**

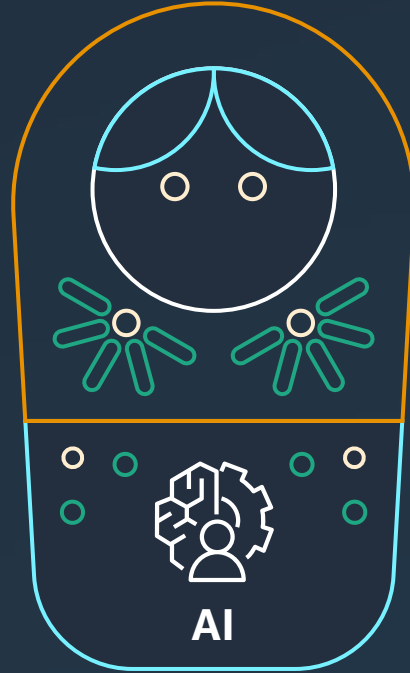


## **Alan Turing**

English mathematician, computer scientist,  
and father of artificial intelligence



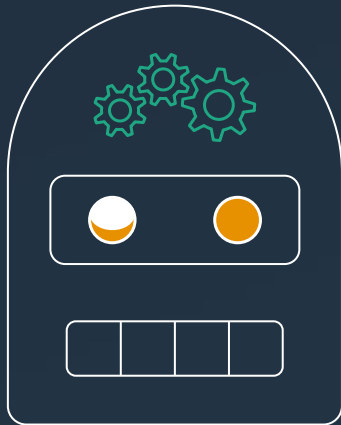
# Artificial Intelligence



# Artificial Intelligence



## Pure AI



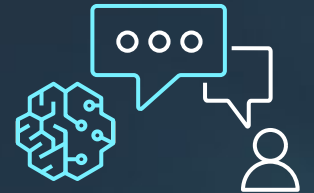
## Pragmatic AI



Text-to-speech



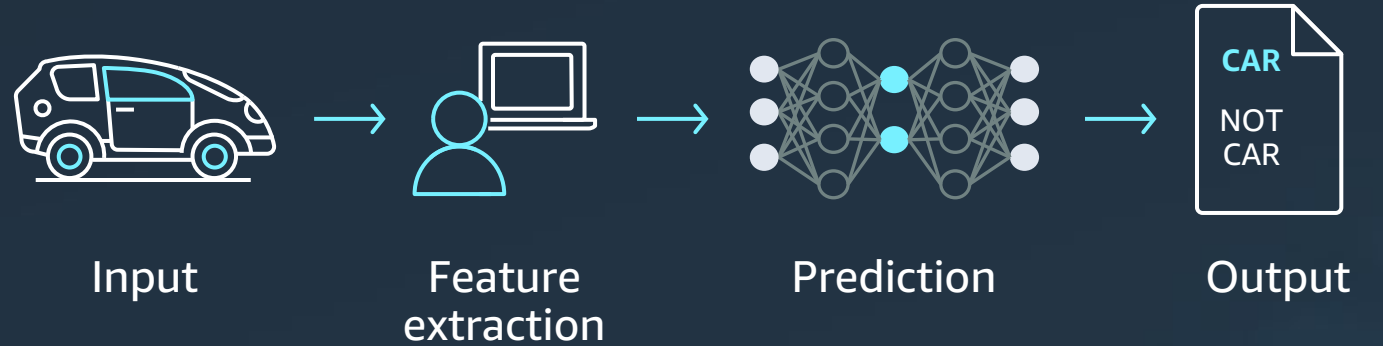
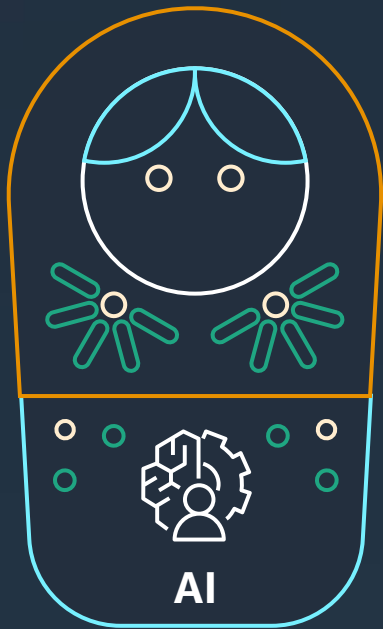
Image recognition



ChatBots



# Machine learning



- > Supervised Learning
- > Unsupervised Learning
- > Reinforcement Learning



# Supervised learning



## Classification

Predict a category



Sort socks by color

## Regression

Predict a number



123 Sunset Street  
Tokyo, Japan  
2000 sq ft  
\$2,000,000



456 Churchill Avenue  
London, UK  
2100 sq ft  
\$2,100,000



789 Fifth Avenue  
New York, USA  
2300 sq ft  
\$2,300,000



# Supervised learning



## Regression Predict a number



123 Sunset Street  
Tokyo, Japan  
2000 sq ft  
\$2,000,000



456 Churchill Avenue  
London, UK  
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789 Fifth Avenue  
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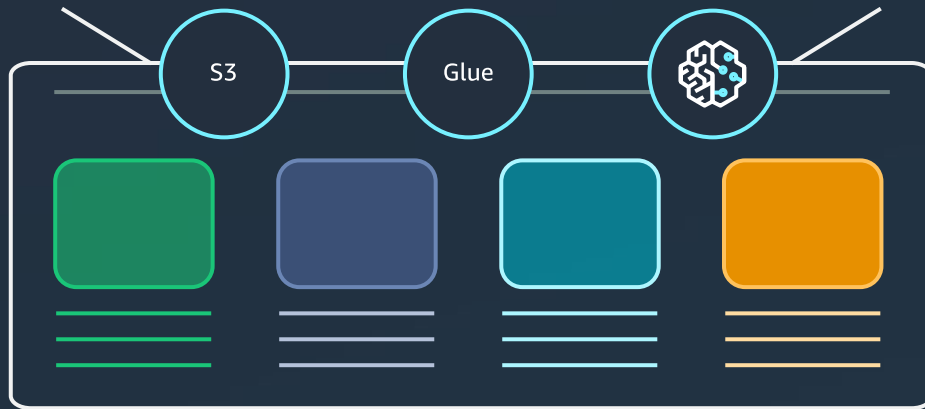


1011 Clark Road  
Smallville, Ohio  
2200 sq ft  
~~\$2,200,000~~ ✗  
\$220,000 ✓



# Domino's Pizza Enterprises delivers in record time

SUPERVISED ML 



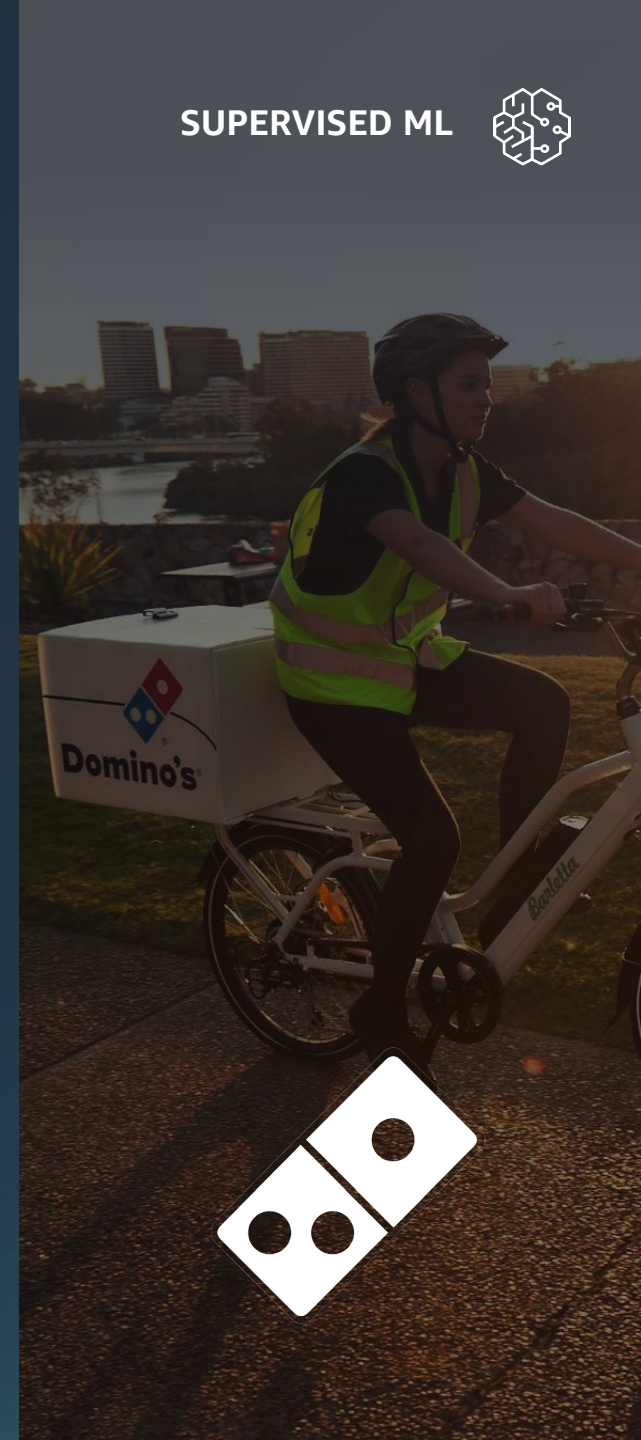
Predictive ordering  
solution



Pizza delivery in  
10 minutes or  
less



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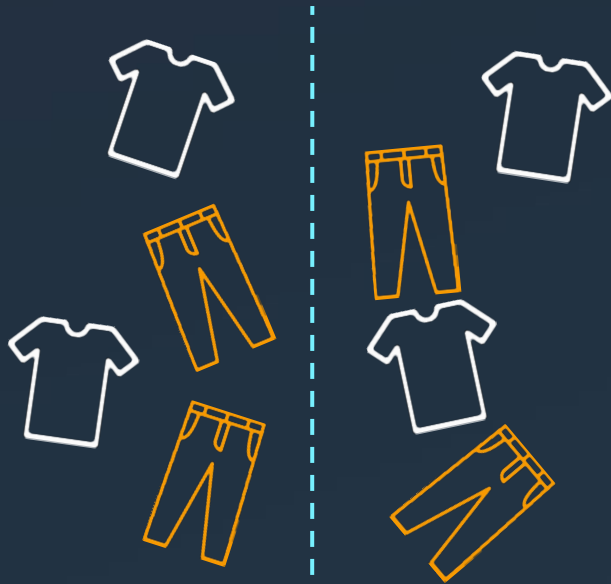


# Unsupervised learning



## Clustering

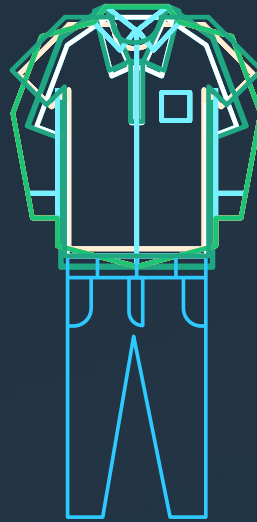
Group by similarity



Sort clothes by type

## Association

Identify sequences



Clothes often worn together

## Anomaly Detection

Determine which items are different

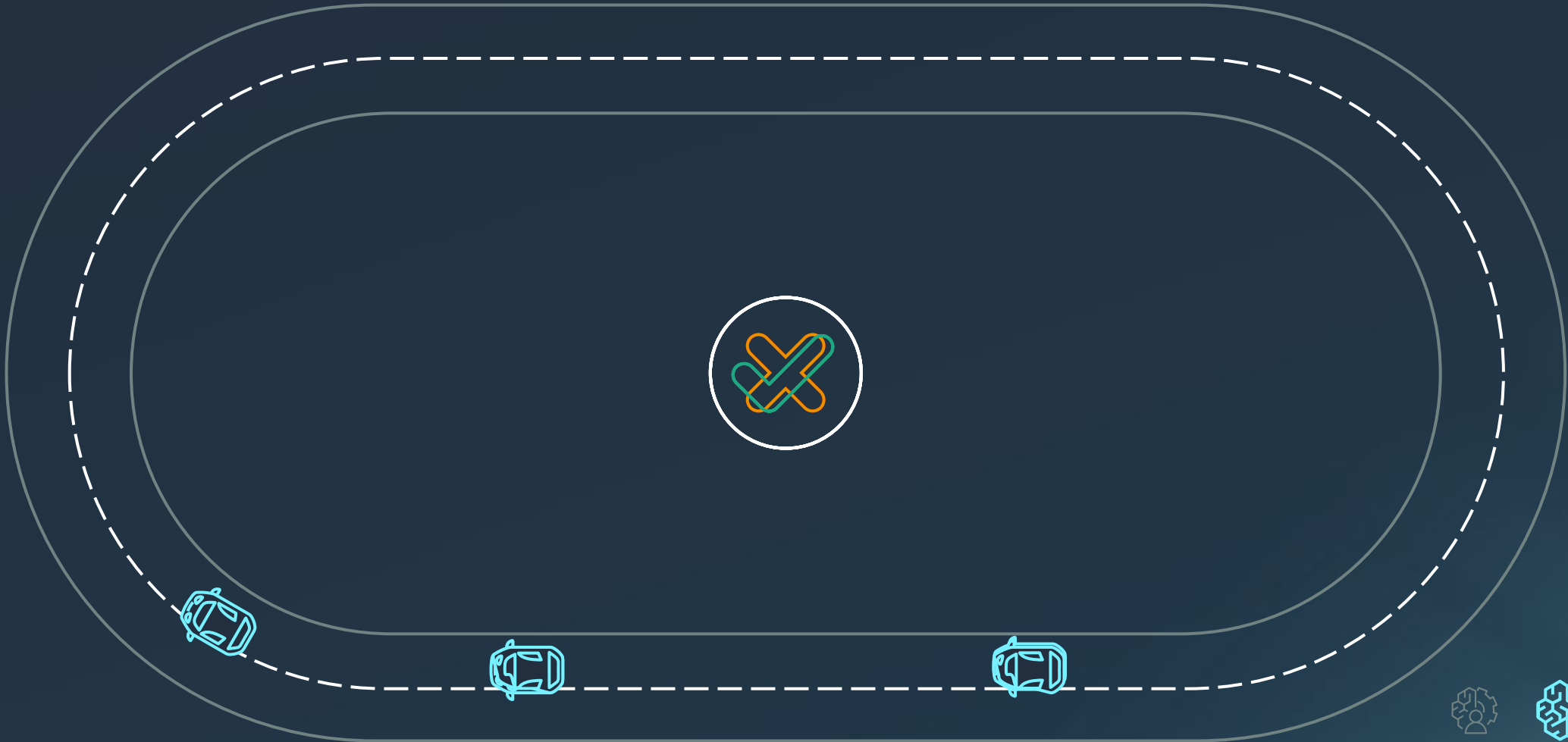


Identifying outliers



# Reinforcement learning

 Efficiency





**“Most applications, in the fullness of time, will be infused in some way with machine learning and artificial intelligence”**

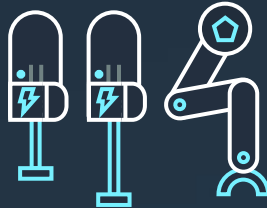


**Andy Jassy**  
CEO, Amazon, Inc.

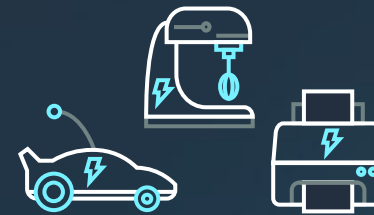
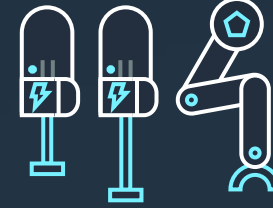
# General Purpose Technologies



Replacement



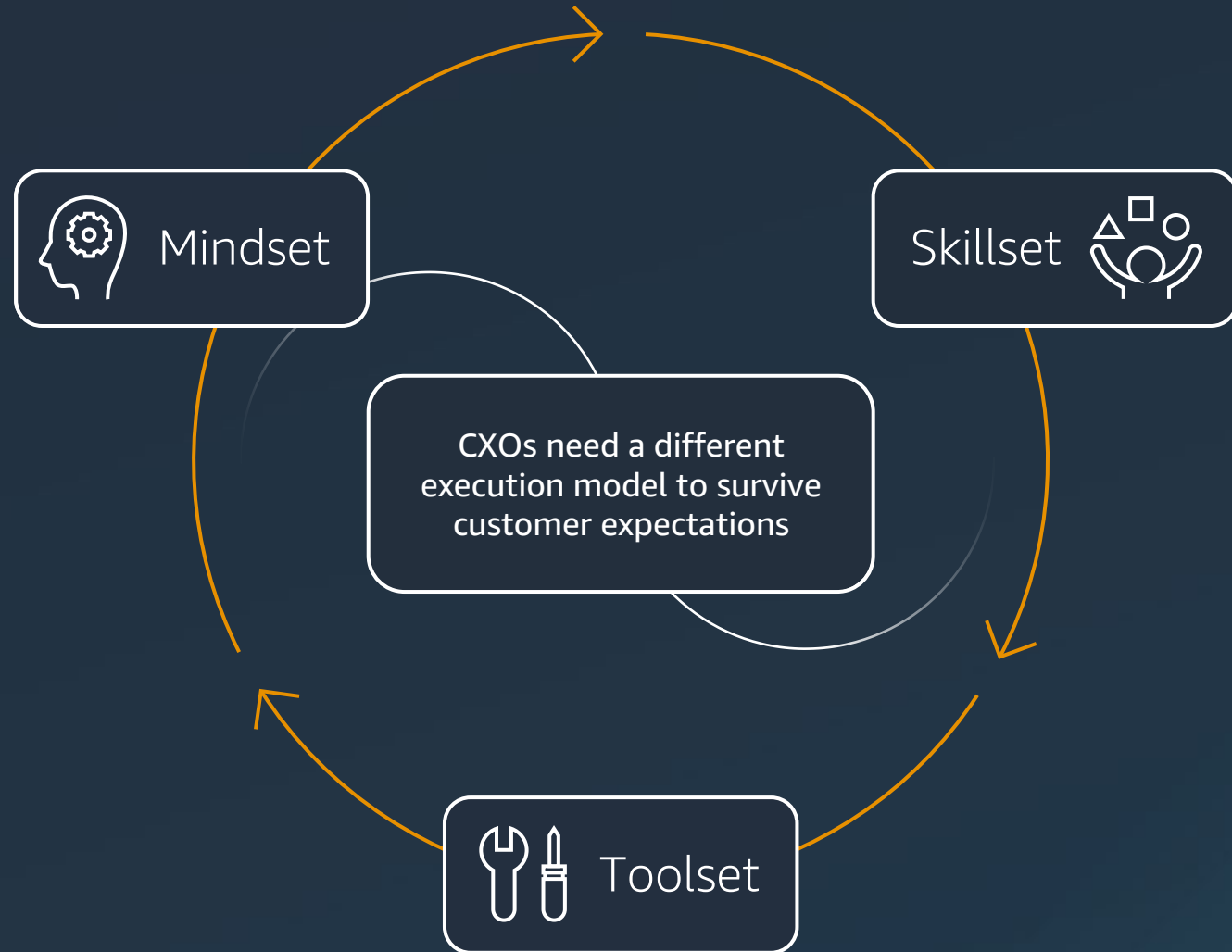
Reconfiguration

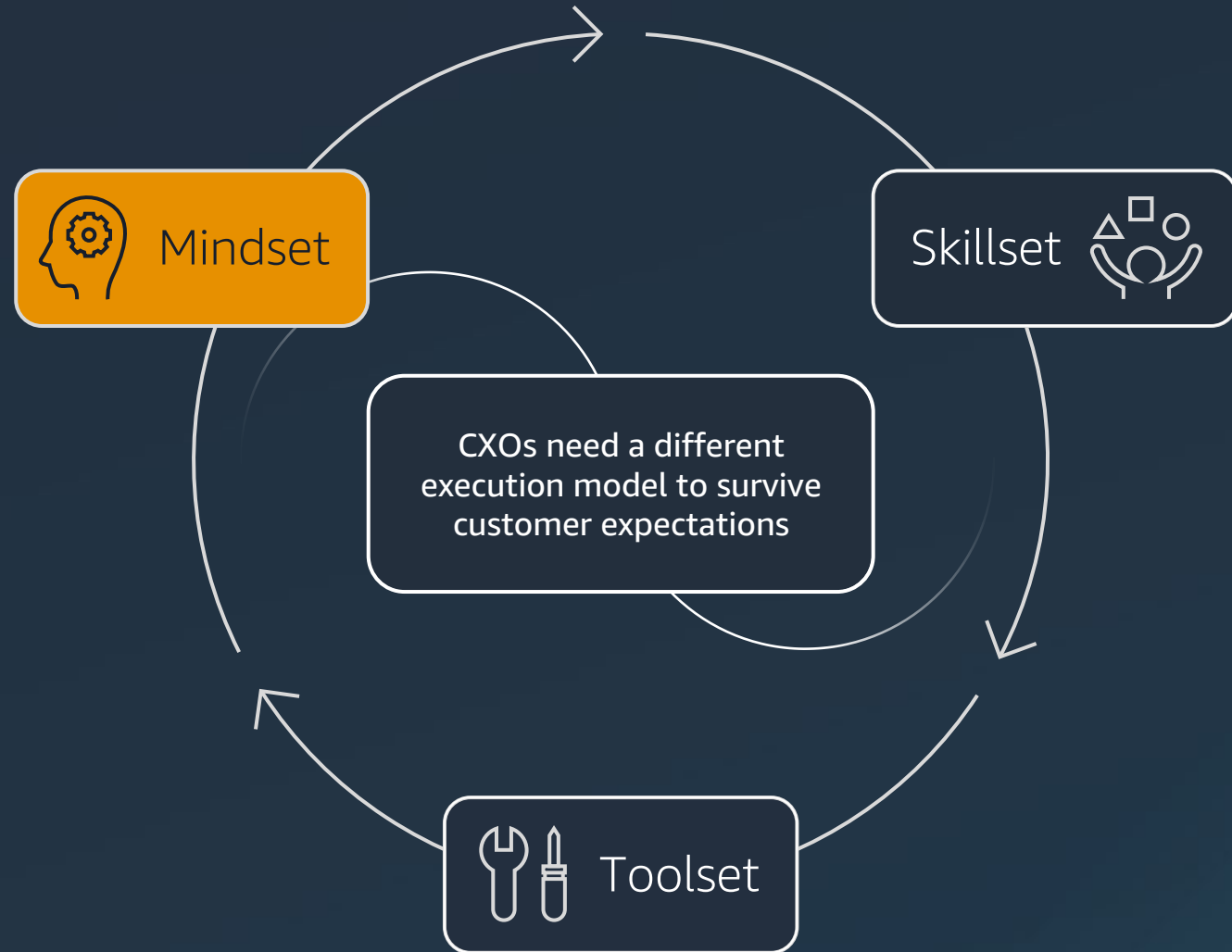


Reimagination

# The Data Network Effect







Health Warning

# ACIME

We are going to **build an AI-enabled, ML-powered, data-centric organisation that embraces customer centricity through global business synergies**

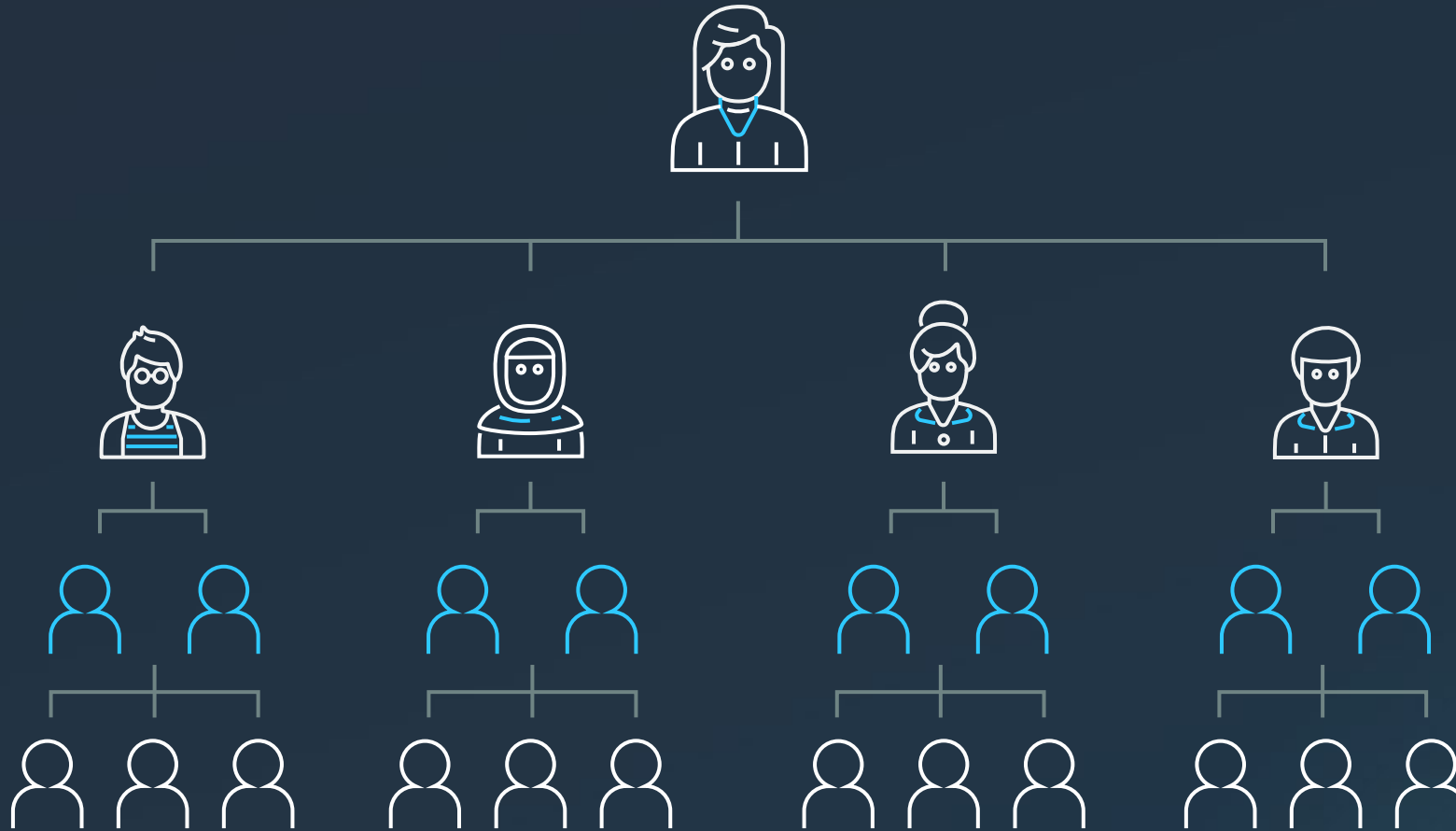
CXOs need a different execution model  
to survive customer expectations

Mindset

Skillset

Toolset

# What got you here, will not get you there



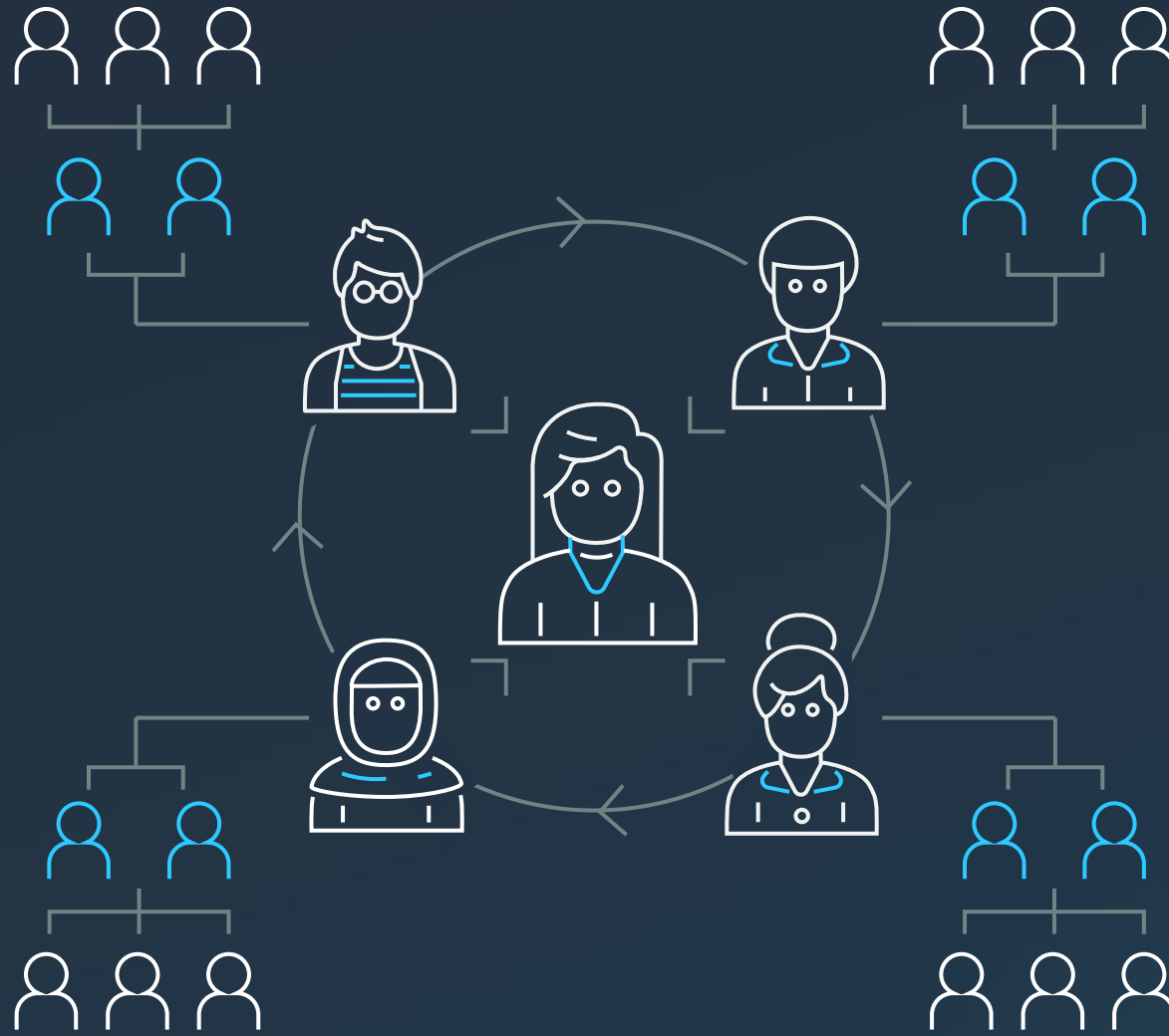
CXOs need a different execution model  
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# Autonomous cross functional teams are a necessity



CXOs need a different execution model  
to survive customer expectations

Mindset

Skillset

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# Value accurate data



CXOs need a different execution model  
to survive customer expectations

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# Creating and scaling a data-driven culture



**Engage** in data-driven decision making



**Educate** everyone on effective use of data



**Enable** frontline action using data



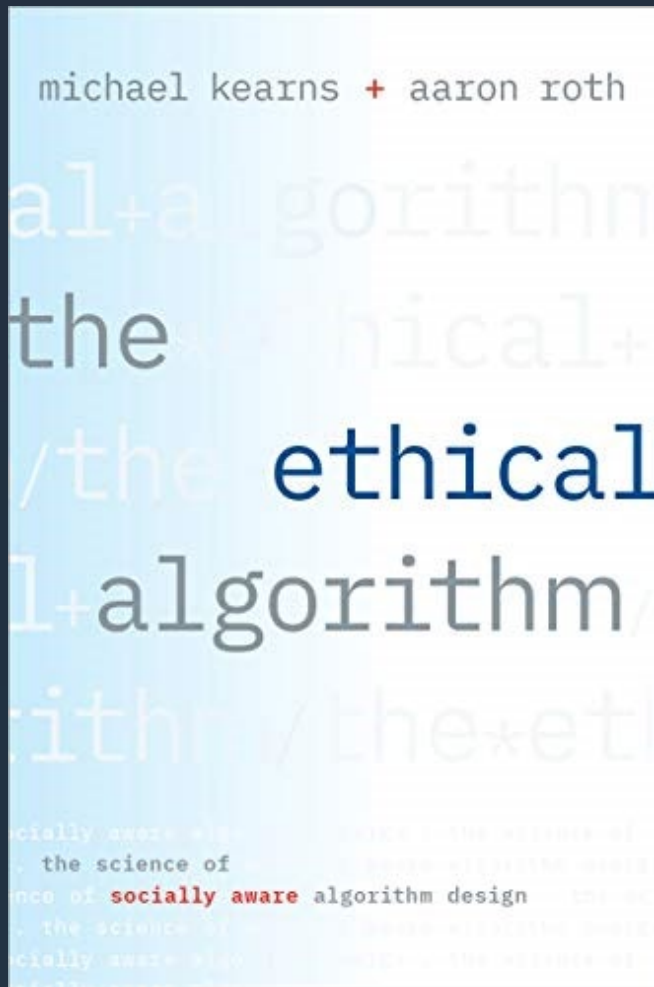
**Eliminate** blockers to becoming data-driven

CXOs need a different execution model to survive customer expectations

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## What's in it for me?



Employees



Customers



Society

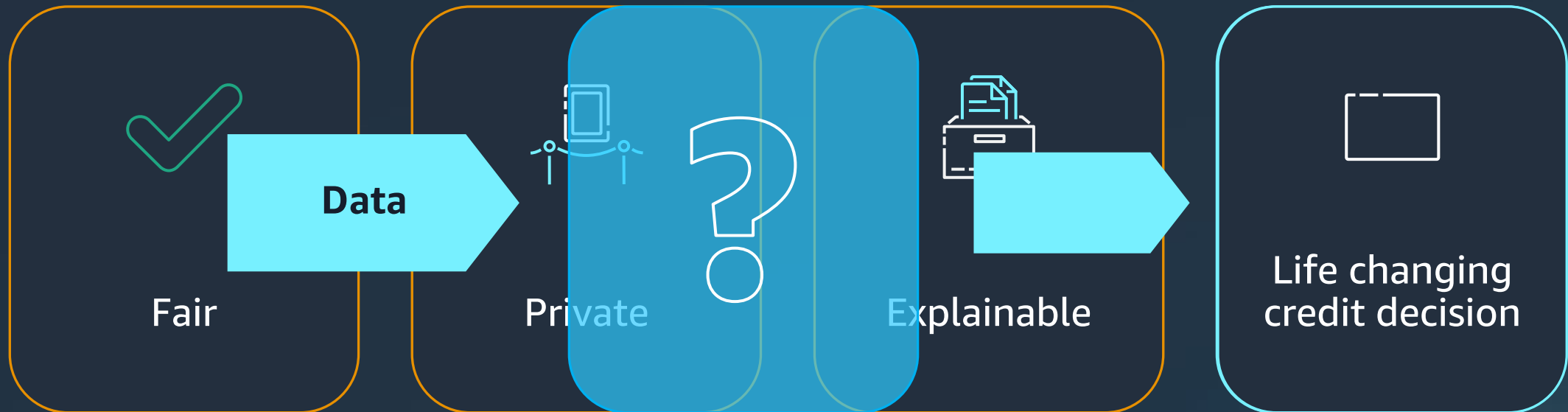
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# Ethics



CXOs need a different execution model  
to survive customer expectations

Mindset

Skillset

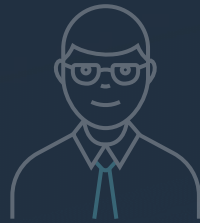
Toolset



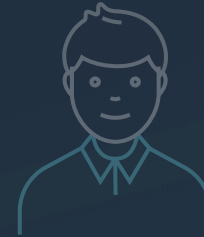
## What's in it for me?



Leadership



Employees



Customers



Society

CXOs need a different execution model  
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Mindset

**Skillset**

Toolset

## What's in it for me?



Leadership



Employees



Customers



Society

CXOs need a different execution model  
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**Skillset**

Toolset

# Data science isn't magic



Business domain knowledge

Curiosity

Communication skills

Data visualization

Machine learning

Coding (R, Python, etc)

Statistical techniques

CXOs need a different execution model  
to survive customer expectations

Mindset

**Skillset**

Toolset







Fast to start



Cost effective



Quickly scalable

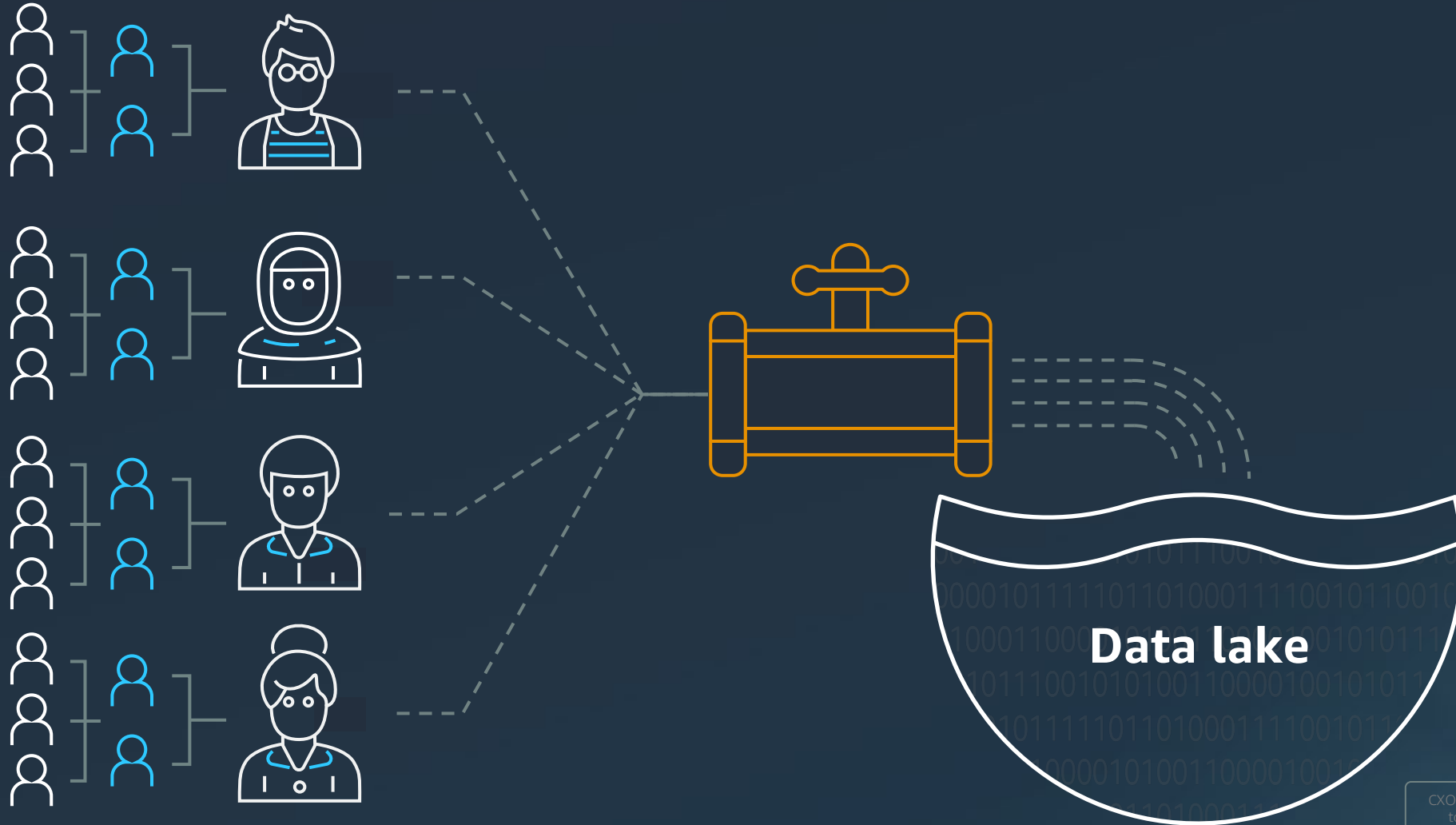
CXOs need a different execution model  
to survive customer expectations

Mindset

Skillset

Toolset

# Liberate your data



CXOs need a different execution model  
to survive customer expectations

Mindset

Skillset

Toolset

# The AWS ML Stack

Broadest and most complete set of machine learning capabilities

## AI Services

For **everyday developers** that want to easily incorporate ML into their applications

Vision  
Documents  
Speech  
Fraud prevention  
Contact center

Chatbots  
Intelligent search  
Forecasting  
Personalization  
Language

Use-case driven or similar ML models accessed via an API, requiring no ML experience

## ML Services (Amazon SageMaker)

For **data scientists** who want to focus on data science and not worry about managing the underlying infrastructure



**End-to-end ML platform, streamlining the ML build, train and deploy process**

## ML Frameworks & Infrastructure

For **expert ML practitioners** who are comfortable building, tuning, training, deploying, and managing ML models



Full control over the infrastructure and supports all major ML frameworks

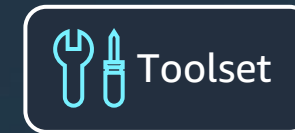
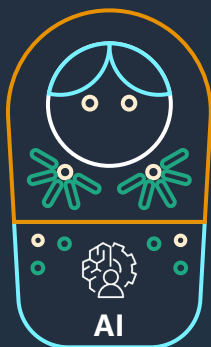
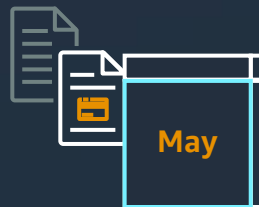
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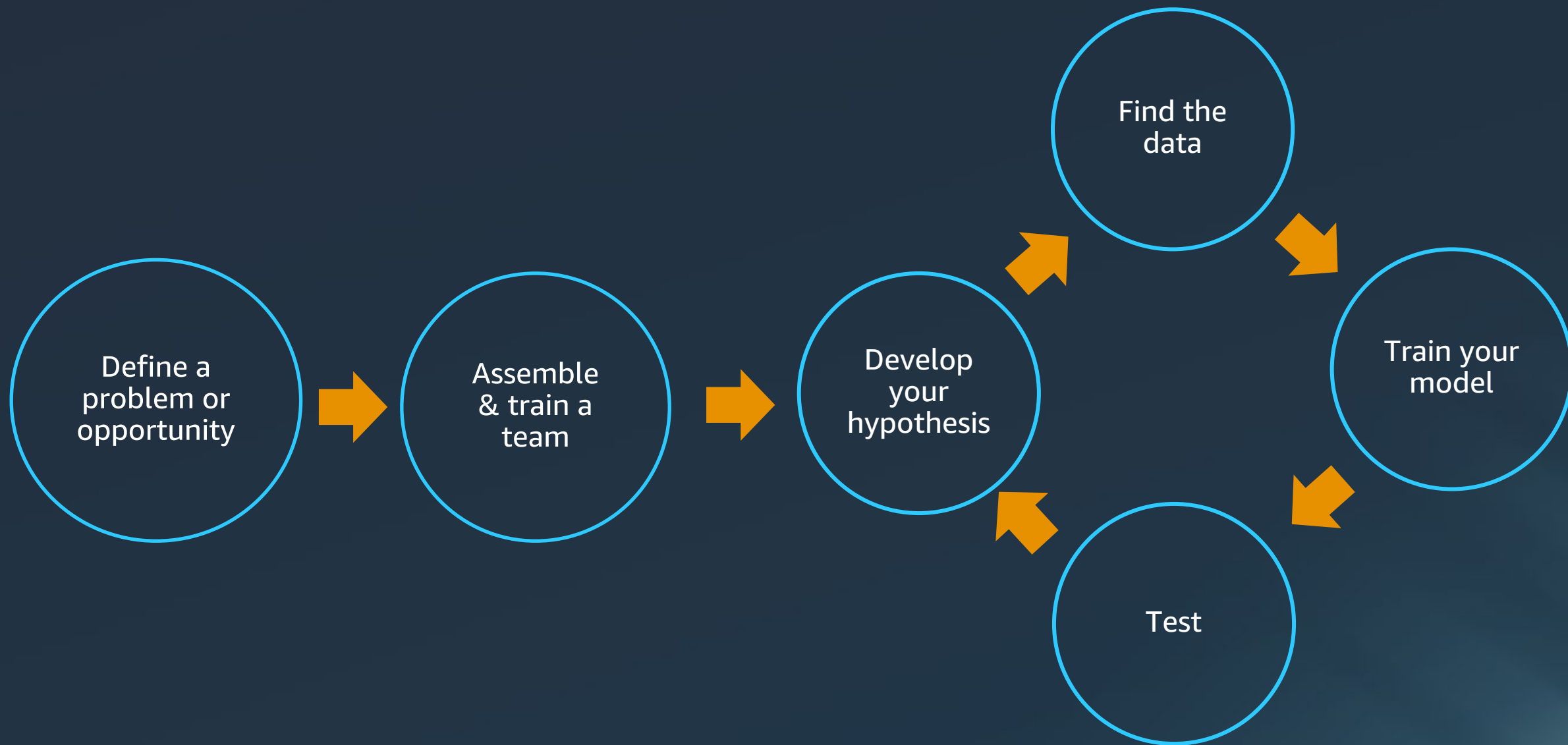




Drive plans from business needs  
Breakdown silos  
Liberate and protect your data  
Establish ethical guardrails

Invest in change management and skills  
Reimagine ways of working

Utilize the power of the cloud  
Build a data lake  
Leverage Amazon SageMaker



# Thank you!

**Tom Godden**

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/in/tomgodden





**Please complete the  
session survey**