
AWS
re:Invent
NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

ENT221

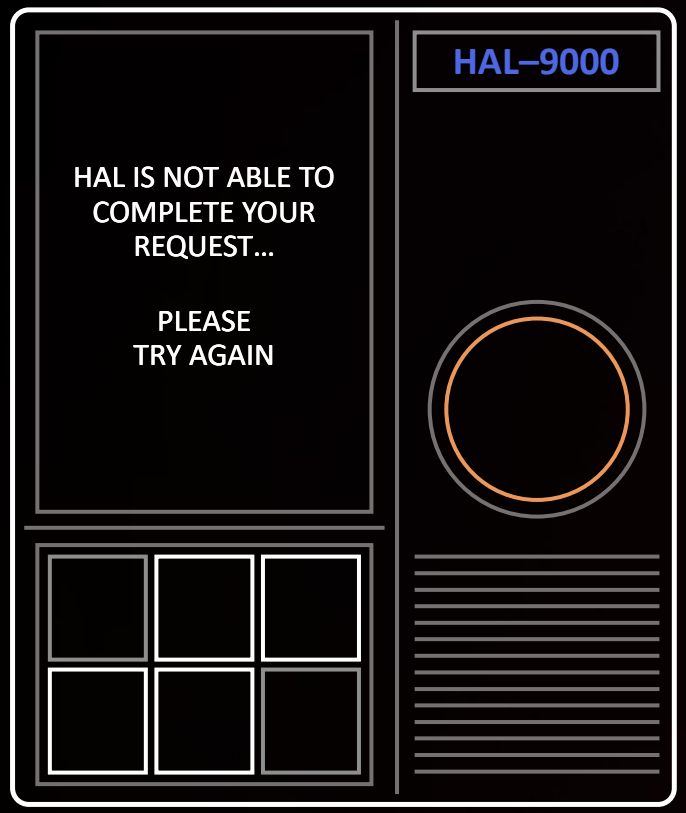
Building a smarter organization powered by machine learning

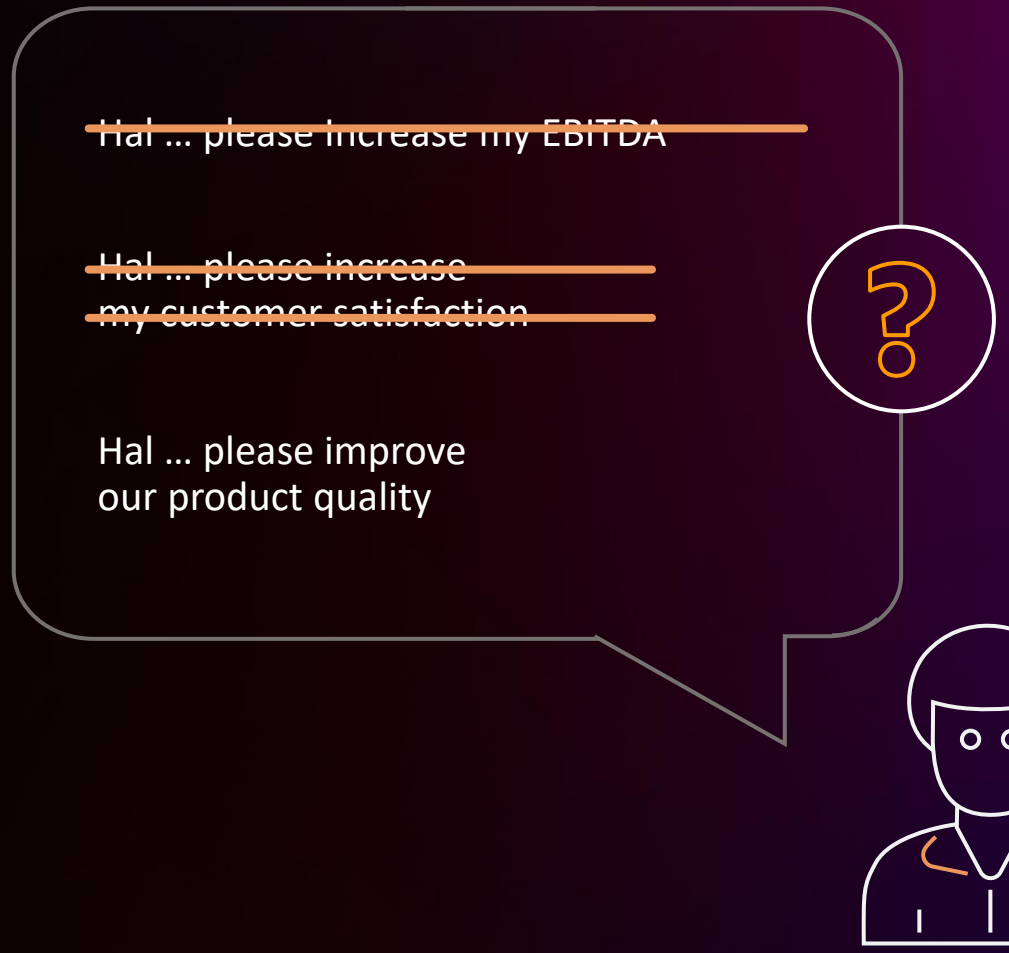
Tom Godden

Enterprise Strategy
AWS

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Science fiction or science fact?





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“Any sufficiently advanced technology is indistinguishable from magic”



Arthur C. Clarke

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

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Hal … please detect defects in manufacturing

Hal … please translate this document

Hal … what is the sentiment of customers?



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“Customers are always beautifully, wonderfully dissatisfied”



Jeff Bezos

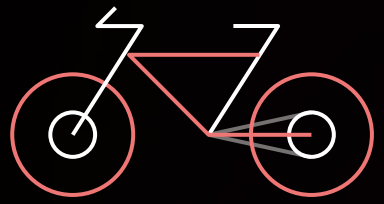
Founder and Executive Chair, Amazon.com, Inc.

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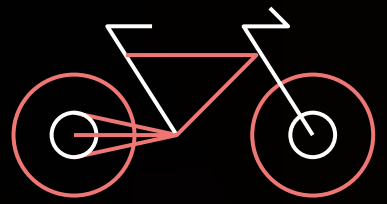
Today’s customer expectations

Relevance



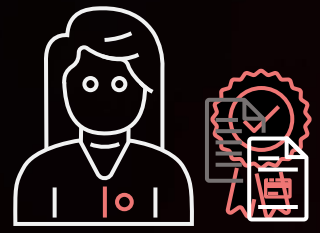






Speed

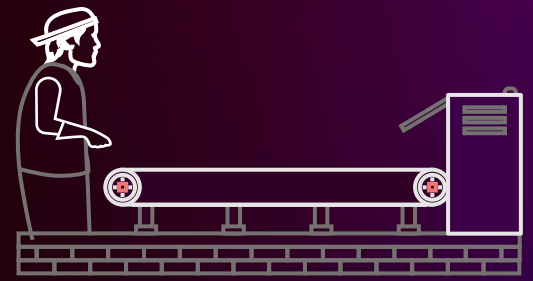


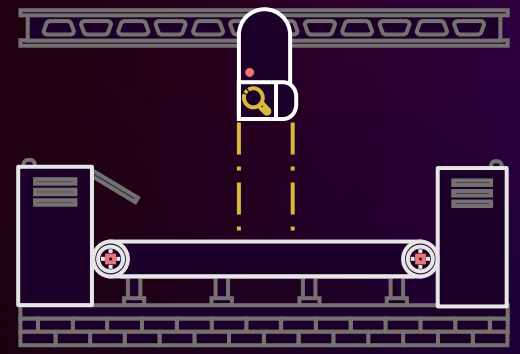






Efficiency





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



Alan Turing

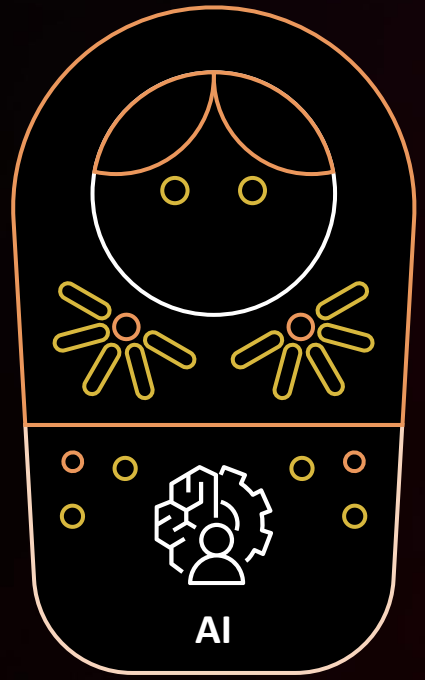
English mathematician, computer scientist, and father of artificial intelligence

Source: https://commons.wikimedia.org/wiki/File:Alan_Turing_Aged_16_(cropped).jpg

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Artificial intelligence

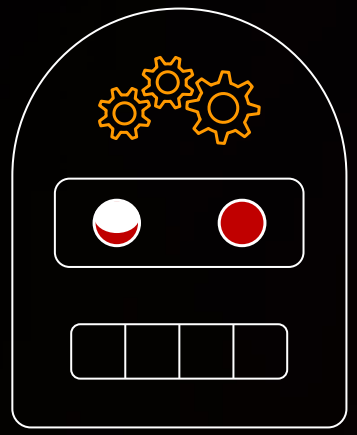


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Artificial intelligence

Speed Efficiency

Pure AI



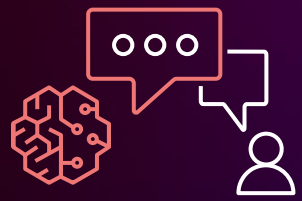
Pragmatic AI



Text-to-speech



Image recognition

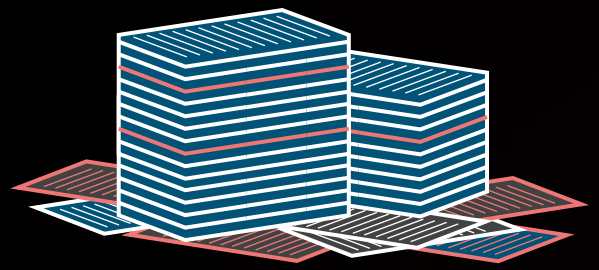


ChatBots

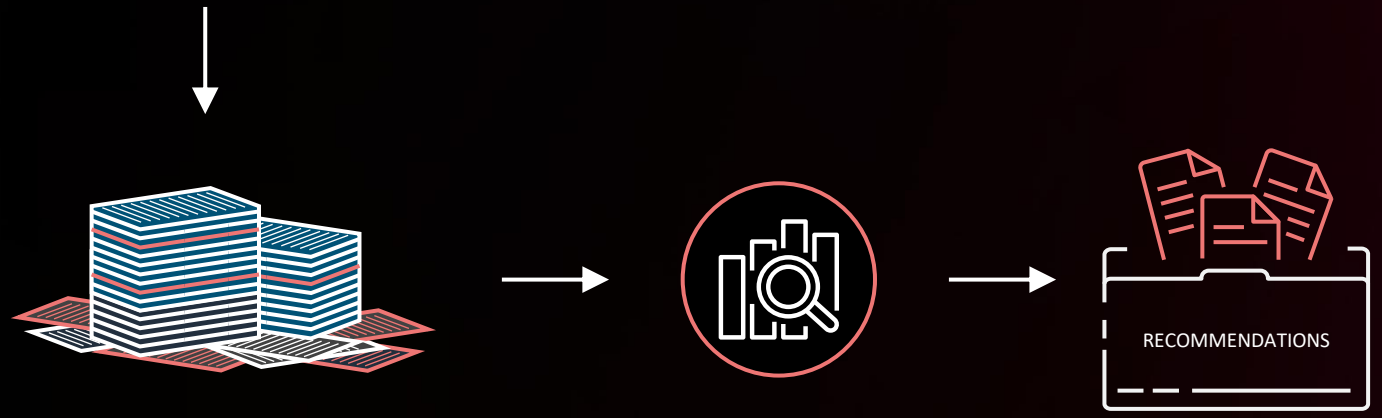
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Automating legal research and briefs

AI



Tediously scouring documents for relevant information



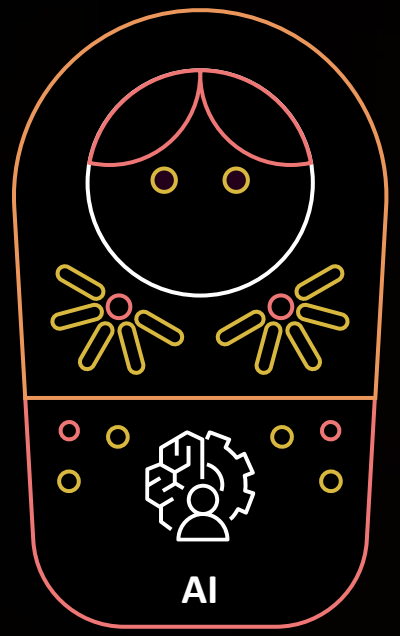
Amazon OpenSearch Service gathers data for intelligent recommendations

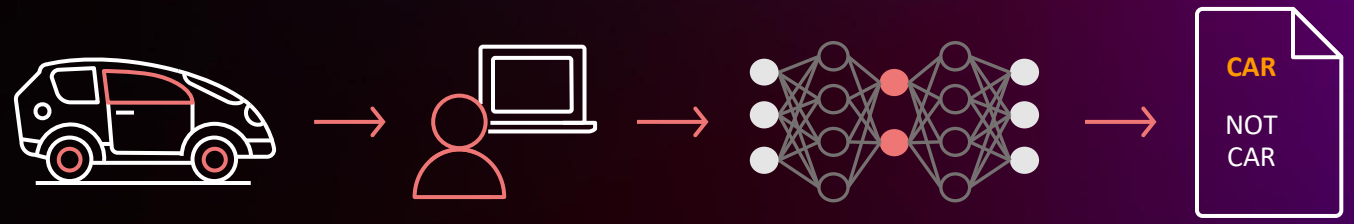
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Machine learning





Input → Feature extraction → Prediction → Output

> Supervised learning

> Unsupervised learning

> Reinforcement learning



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Supervised learning

Relevance

Classification
Predict a category



Sort socks by color

Regression
Predict a number



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



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



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

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Supervised learning

Relevance

Regression

Predict a number



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



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



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



1011 Clark Road
Smallville, Ohio
2,200 sq ft
~~$2,200,000~~
$220,000

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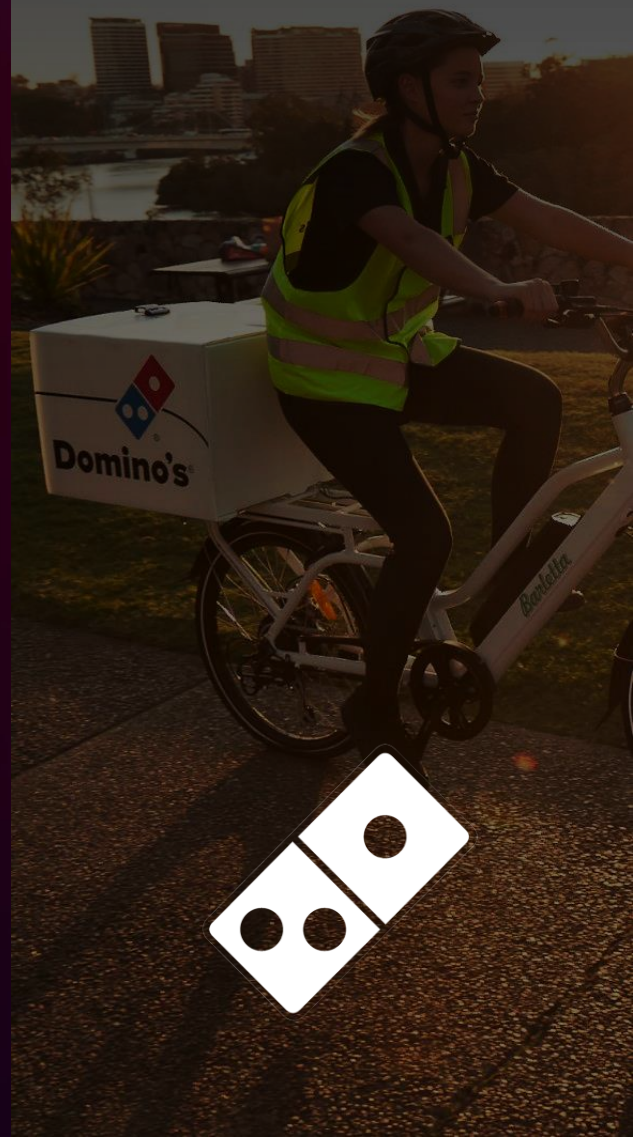
Domino’s Pizza Enterprises delivers in record time

SUPERVISED ML



Predictive ordering solution

Pizza delivery in
10 minutes or less



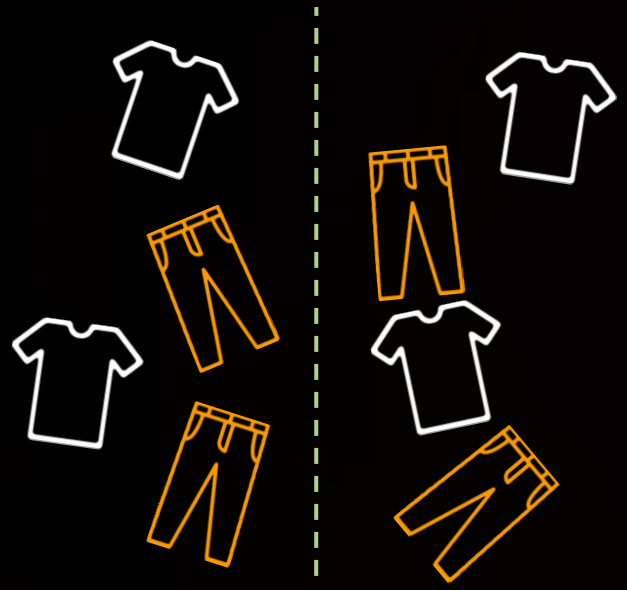
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Unsupervised learning

Relevance

Clustering

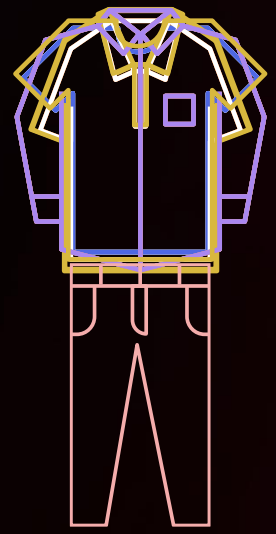
Group by similarity



Sort clothes by type

Association

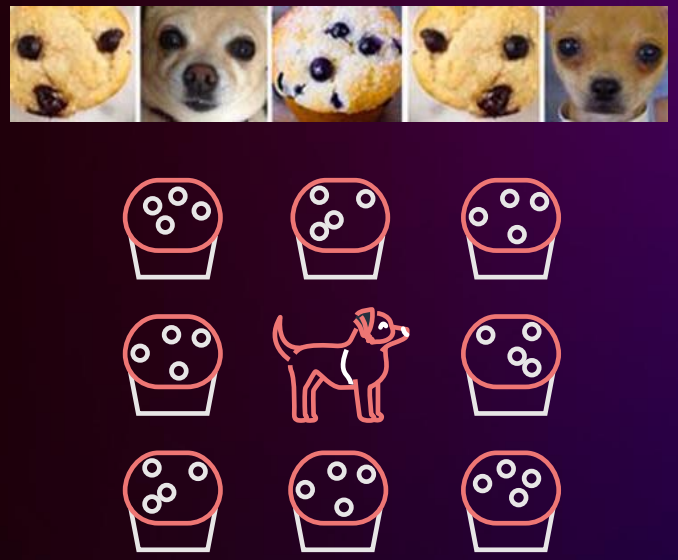
Identify sequences



Clothes often worn together

Anomaly detection

Determine which items are different



Identifying outliers

aws

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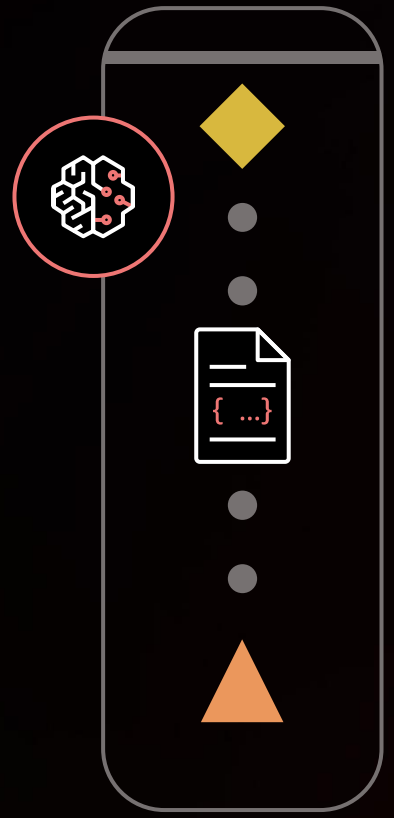
Advancing pharma research

AI

UNSUPERVISED ML

DEEP LEARNING

AI accelerates
data understanding





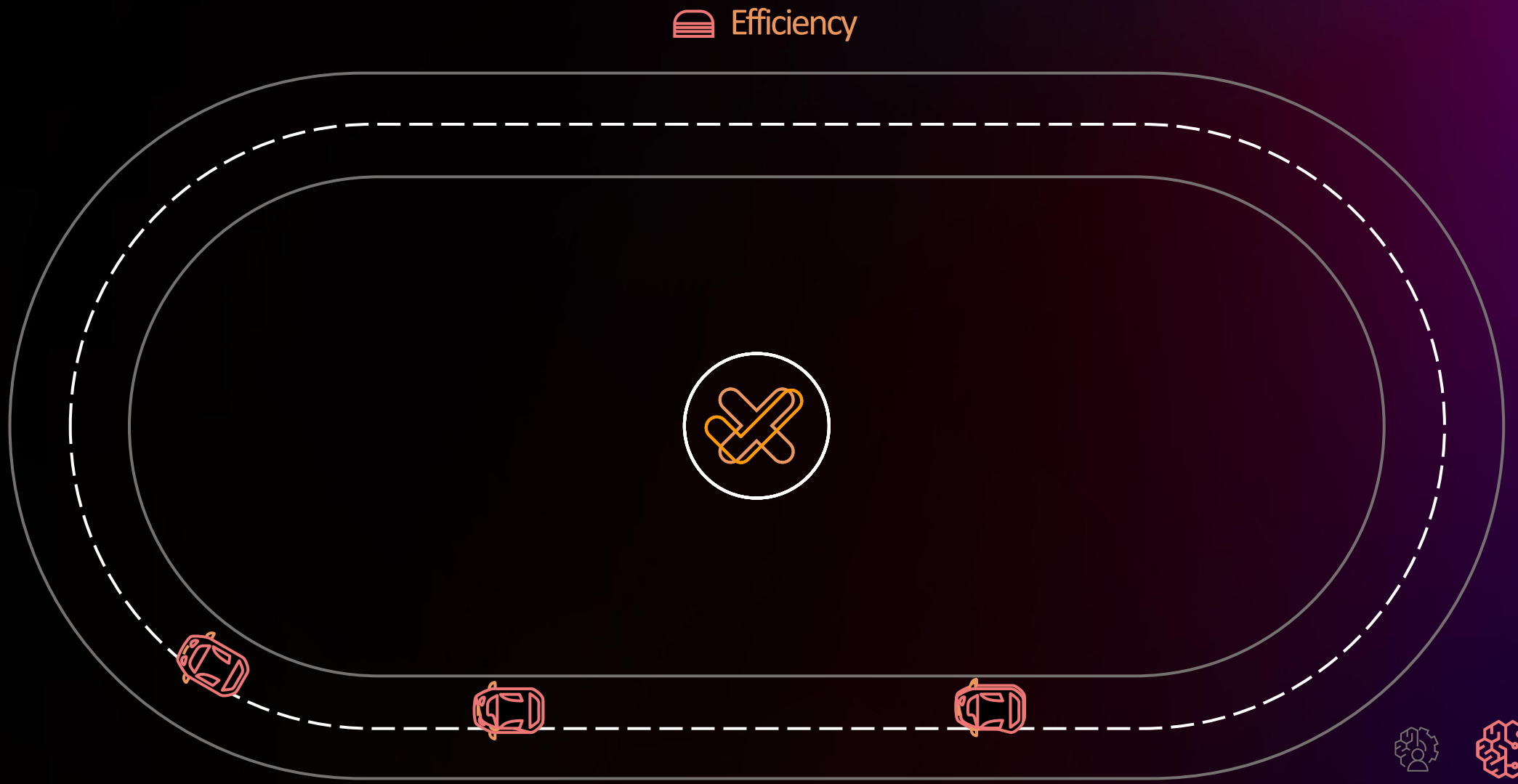
Accelerating drug
discovery and development



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Reinforcement learning

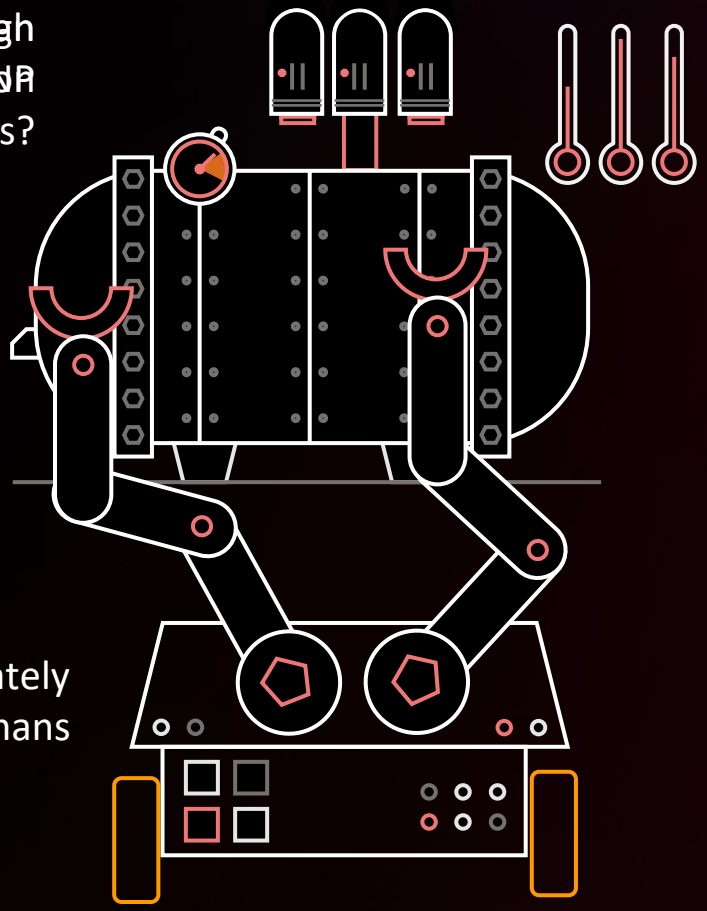


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Preventing gas plant shutdowns with IoT & ML

Complex and dangerous process that requires high availability in production facilities?





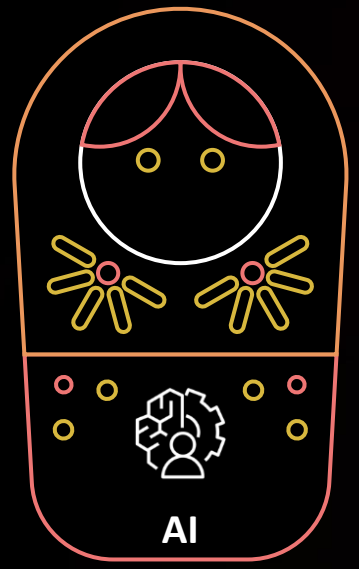
ML controlled robots safely, accurately replace humans

AI

REINFORCEMENT ML

Woodside

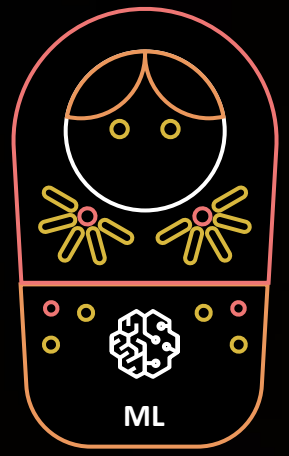
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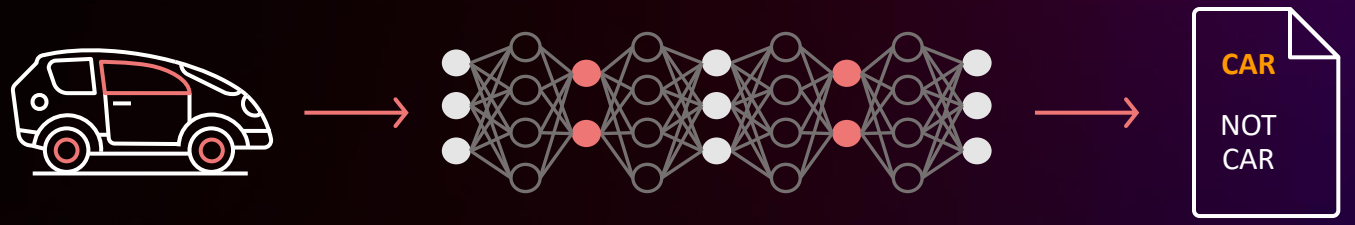
Machine Learning



Input → Feature extraction → Classification → Output



Deep learning



Input → Feature extraction + Classification → Output



aws

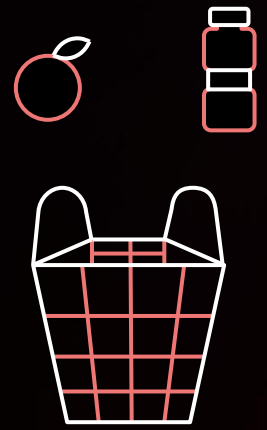
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Amazon Just Walk Out



1

Enter with
Amazon App



2

Shop



3

Just walk out

AI

UNSUPERVISED ML

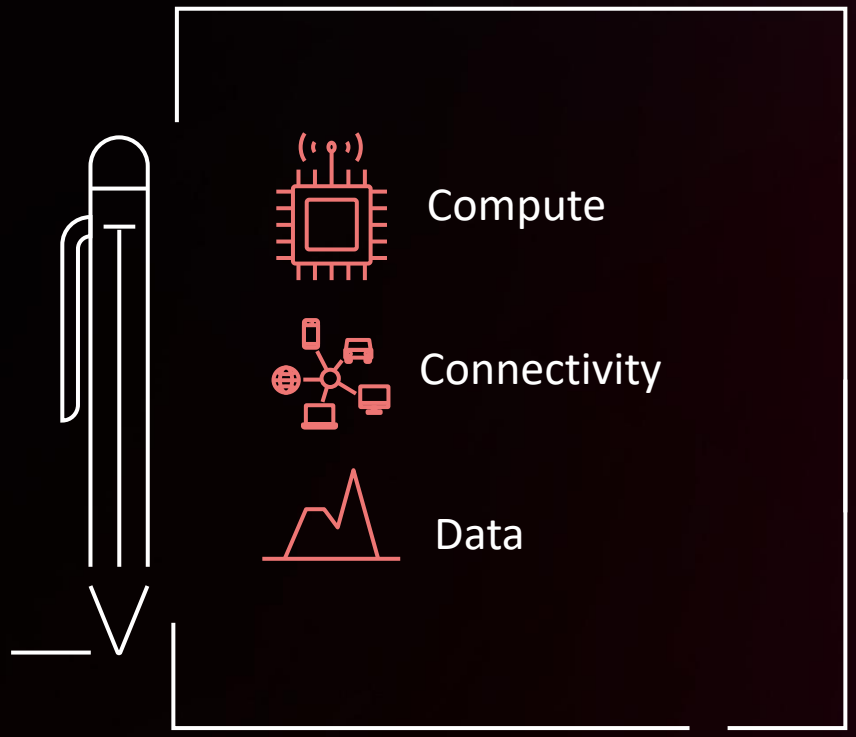
DEEP LEARNING



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Recipe for success



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

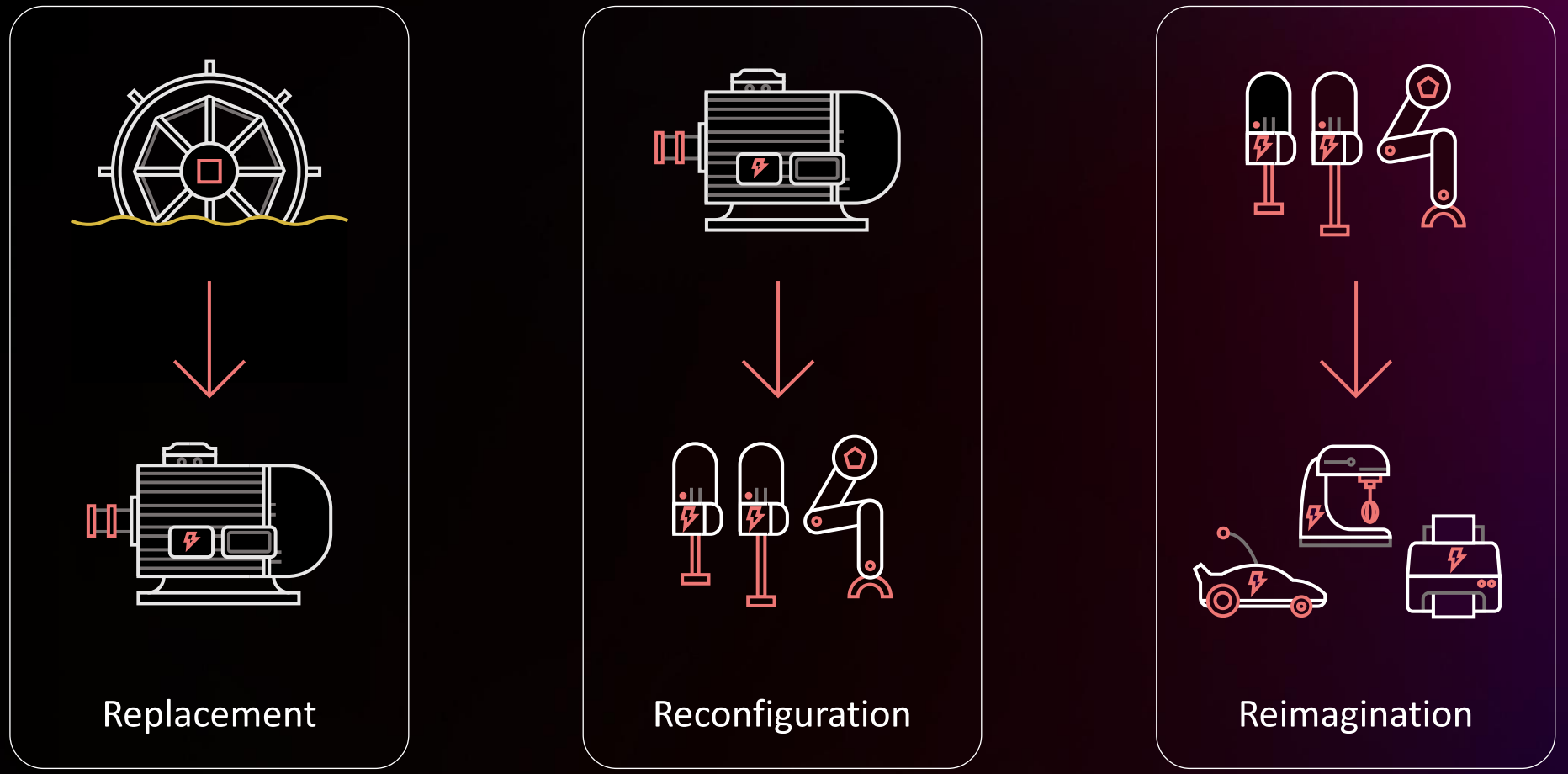


Andy Jassy

CEO, Amazon.com, Inc.

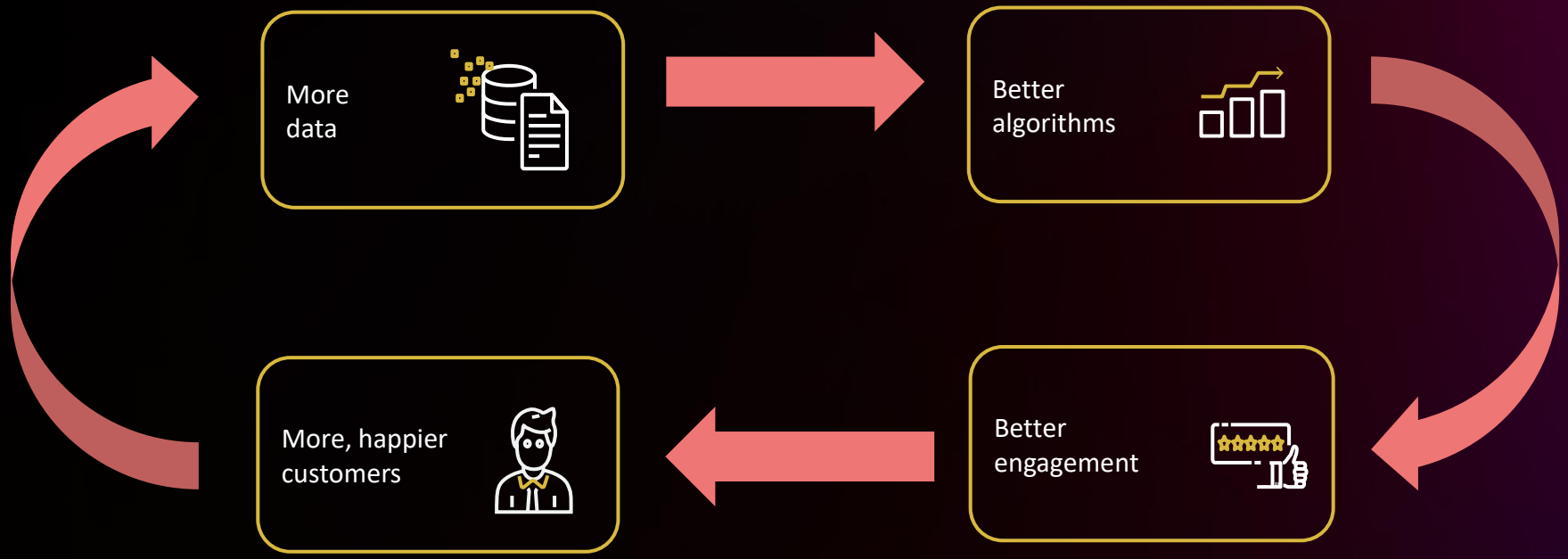
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General purpose technologies



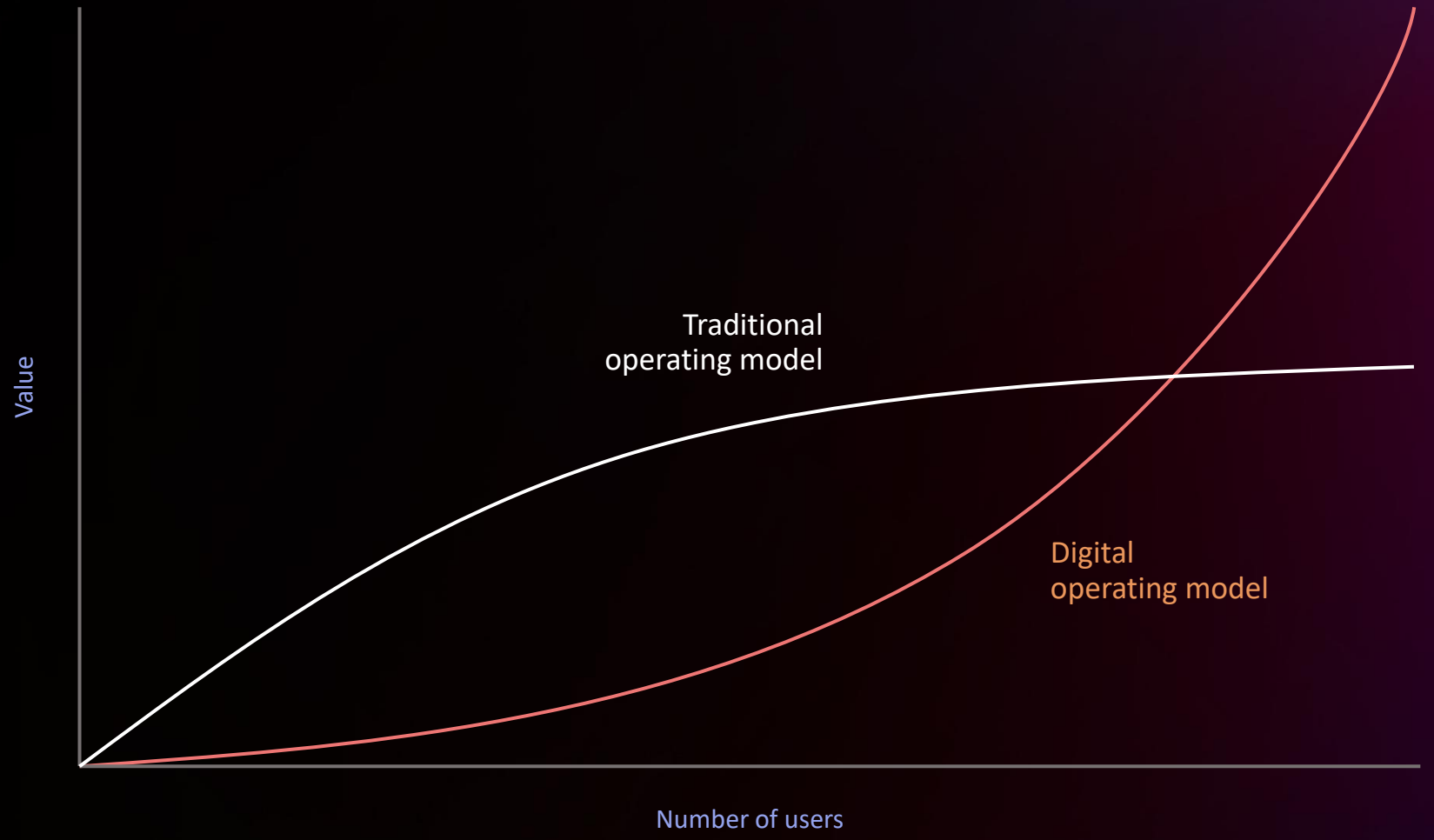
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The data network effect



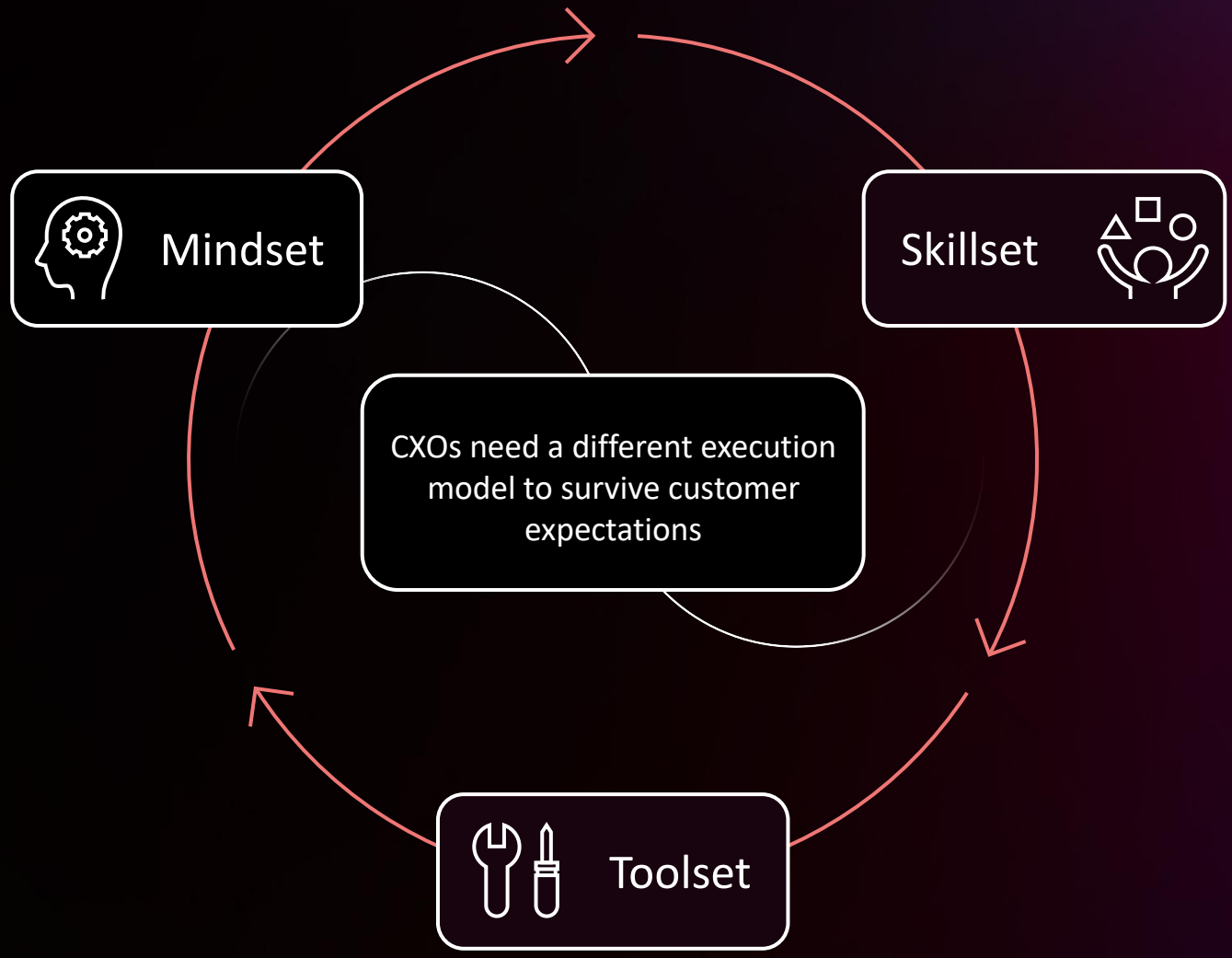
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Exponential impact over time



Source: “Competing in the Age of AI,” Iansiti & Lakhani

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Health Warning

ACME

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

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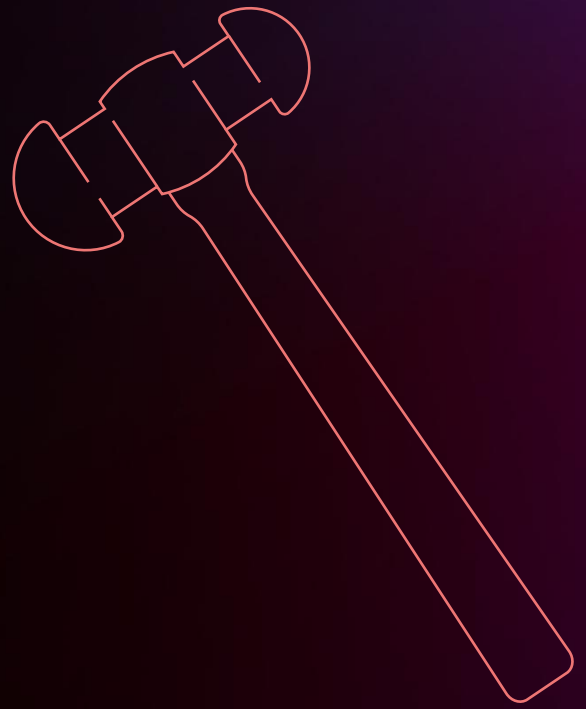


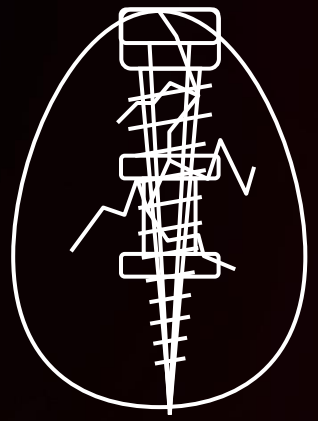
CXOs need a different execution model to survive customer expectations

Mindset | Skillset | Toolset

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The right tool for the job



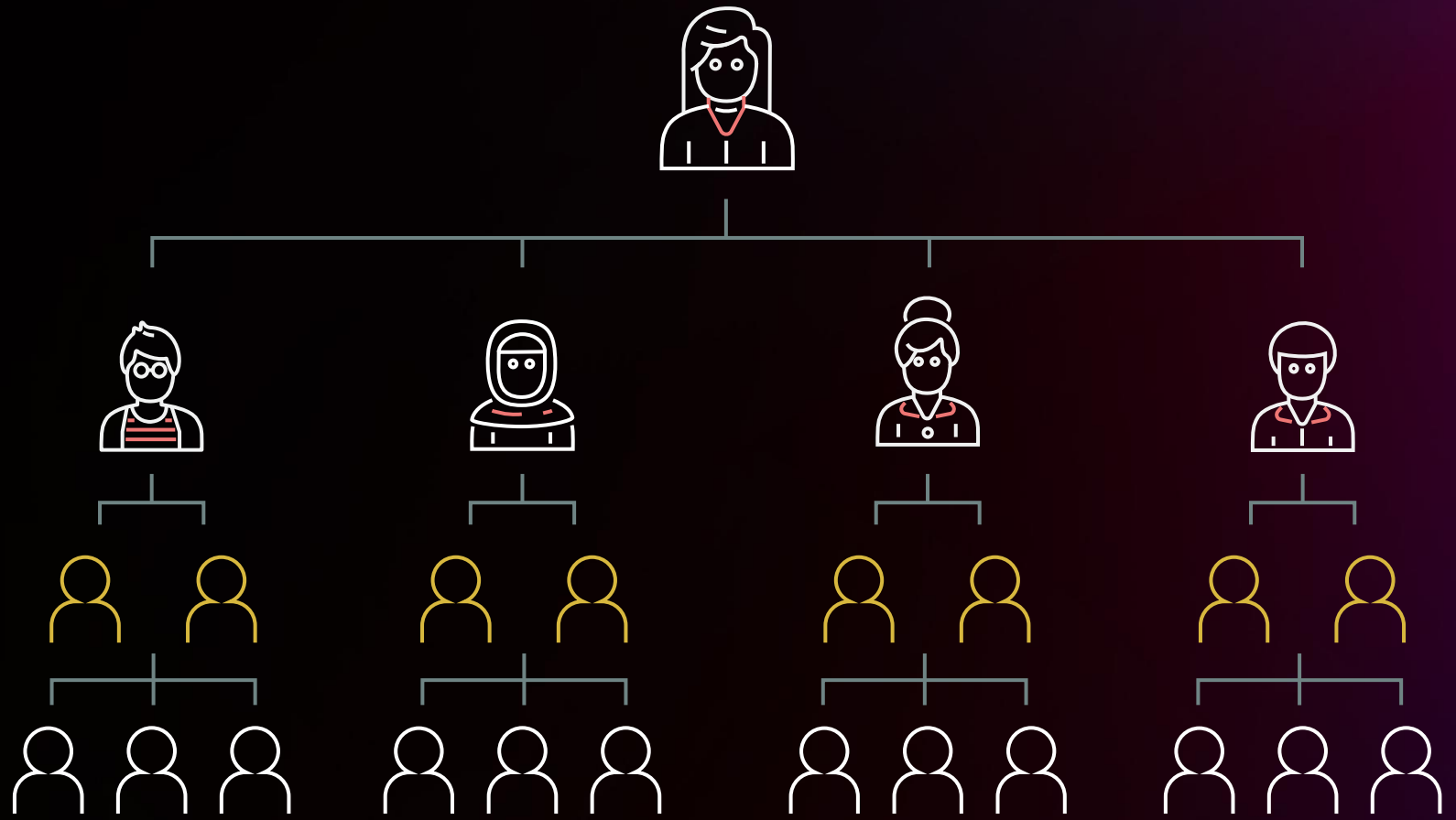


CXOs need a different execution model to survive customer expectations

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What got you here, will not get you there

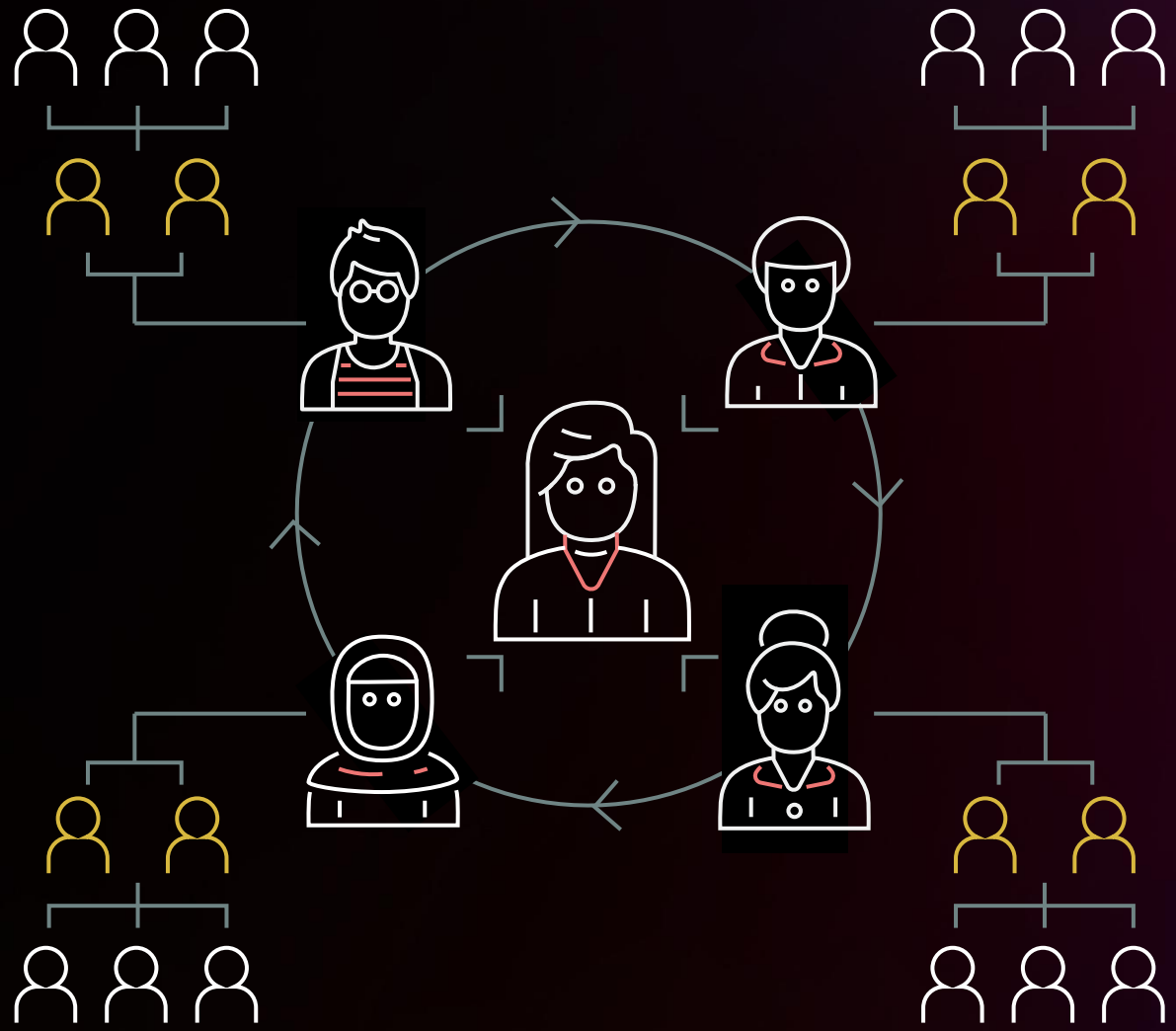


CXOs need a different execution model to survive customer expectations

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Autonomous cross-functional teams are a necessity



CXOs need a different execution model to survive customer expectations

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Value accurate data

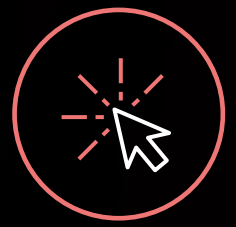


CXOs need a different execution model to survive customer expectations

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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

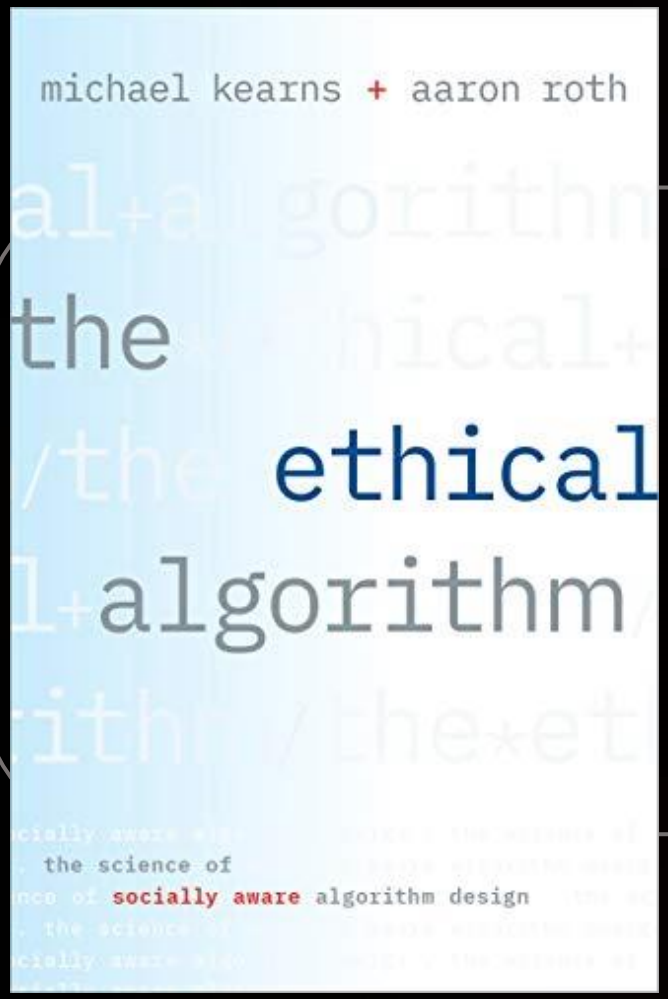


Eliminate blockers to becoming data driven

CXOs need a different execution model to survive customer expectations

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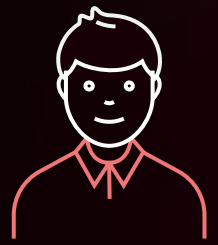
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What's in it for me?



Employees



Customers



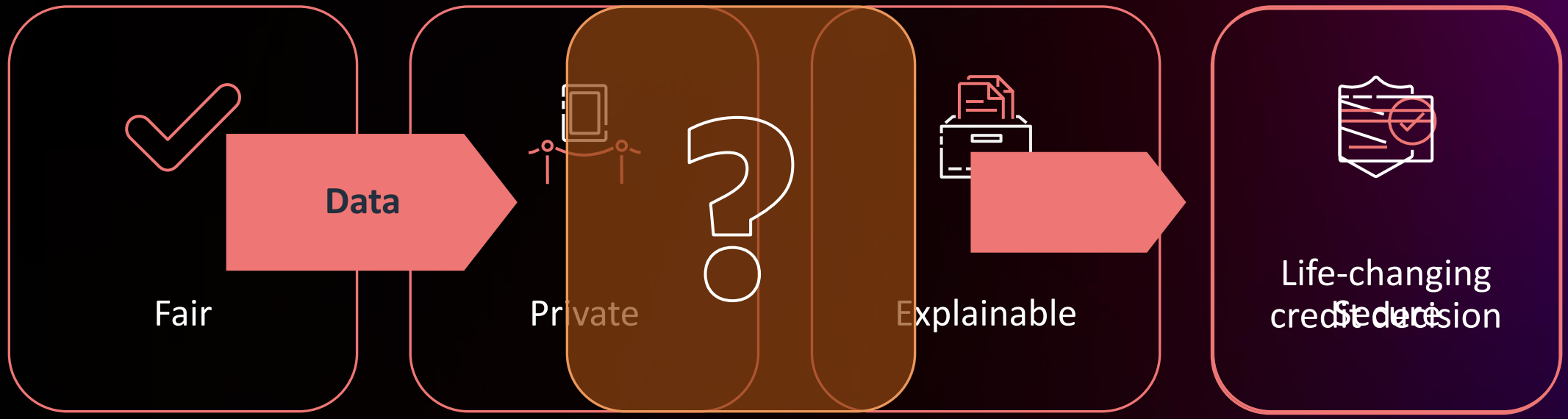
Society

CXOs need a different execution model to survive customer expectations

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Ethics



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What’s in it for me?



Leadership



Employees



Customers



Society

CXOs need a different execution model to survive customer expectations

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What's in it for me?



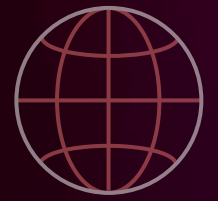
Leadership



Employees



Customers



Society

CXOs need a different execution model to survive customer expectations

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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

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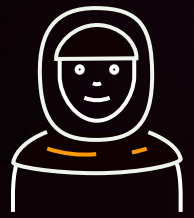
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Legal



ML engineer



Data engineer



Data scientist



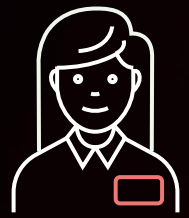
Business translator



Infrastructure



Architect



Communications



Data analyst



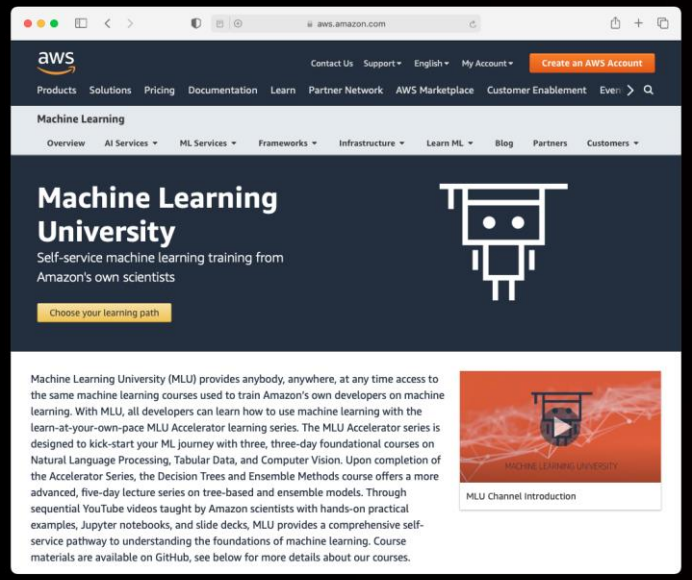
Process engineer

CXOs need a different execution model to survive customer expectations

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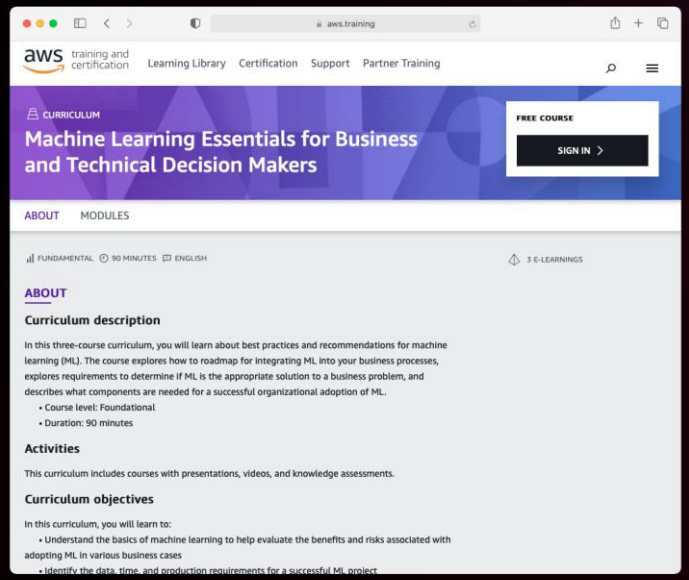
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Skills and training



Machine Learning University

https://aws.amazon.com/machine-learning/mlu/



ML Essentials for Business and Technical Decision Makers

https://www.aws.training/



Certification

https://aws.amazon.com/certification/certified-machine-learning-specialty/

CXOs need a different execution model to survive customer expectations

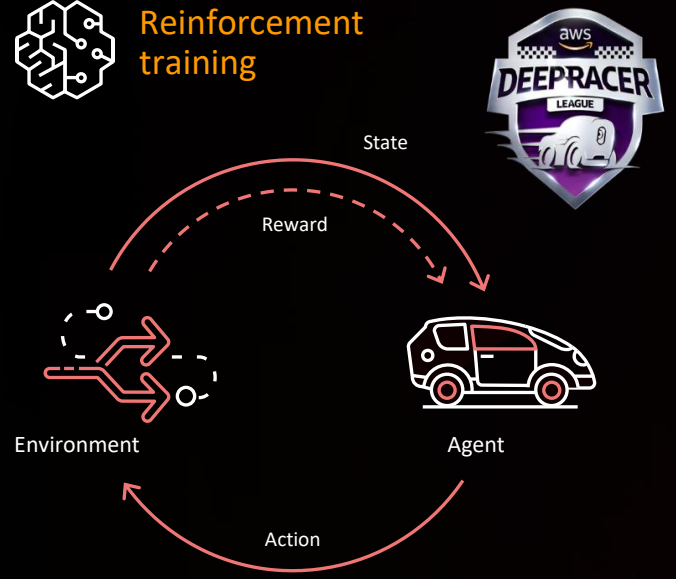
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Skills and training

MORNINGSTAR

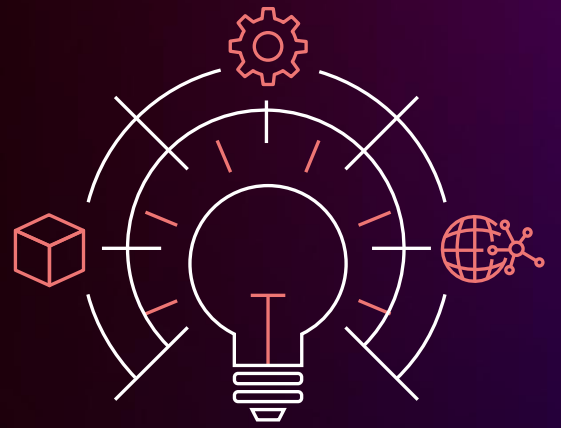
Reinforcement training



445
employees across 8 countries



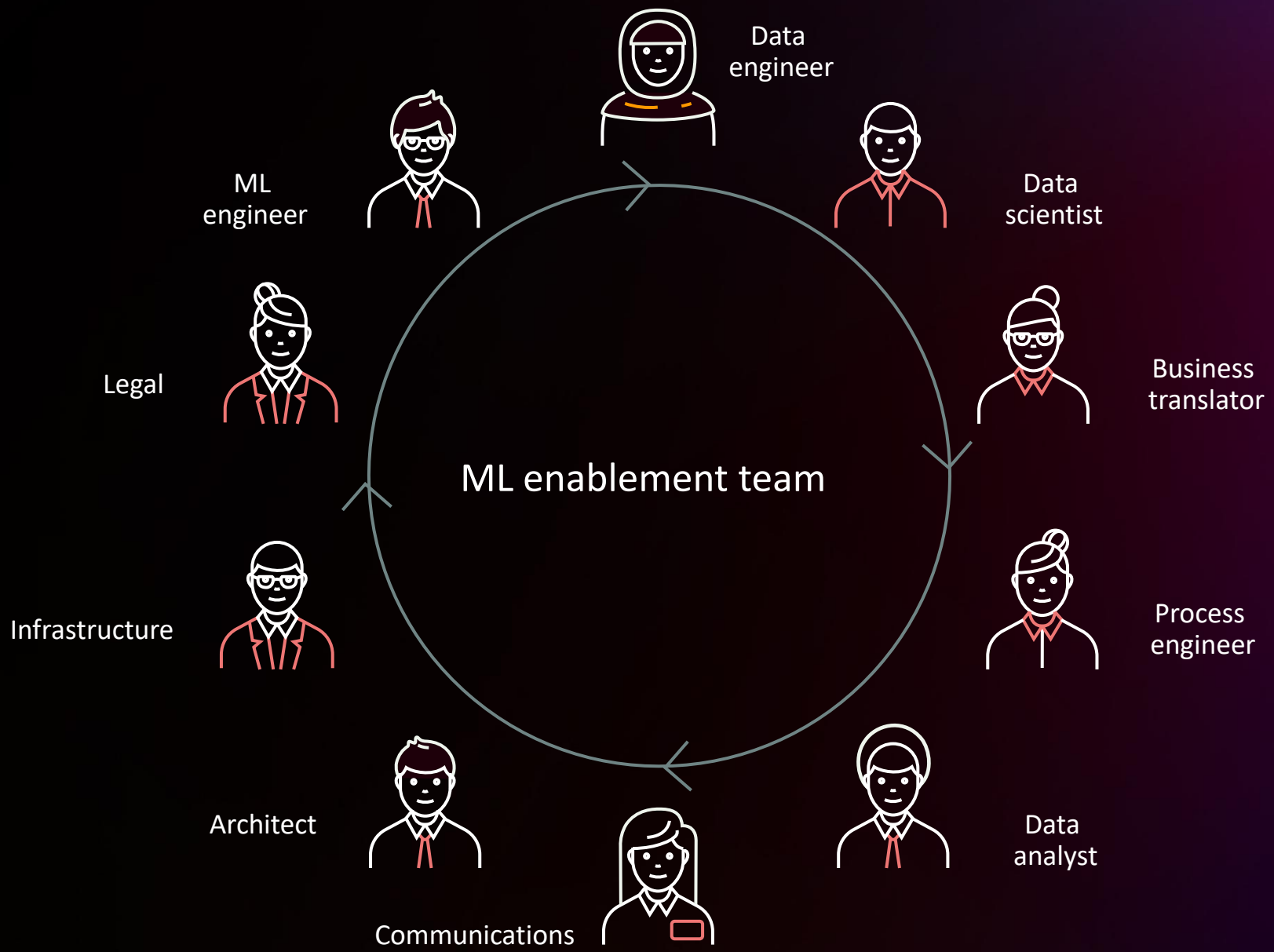
New products, services, and processes driven by ML



CXOs need a different execution model to survive customer expectations

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CXOs need a different execution model to survive customer expectations

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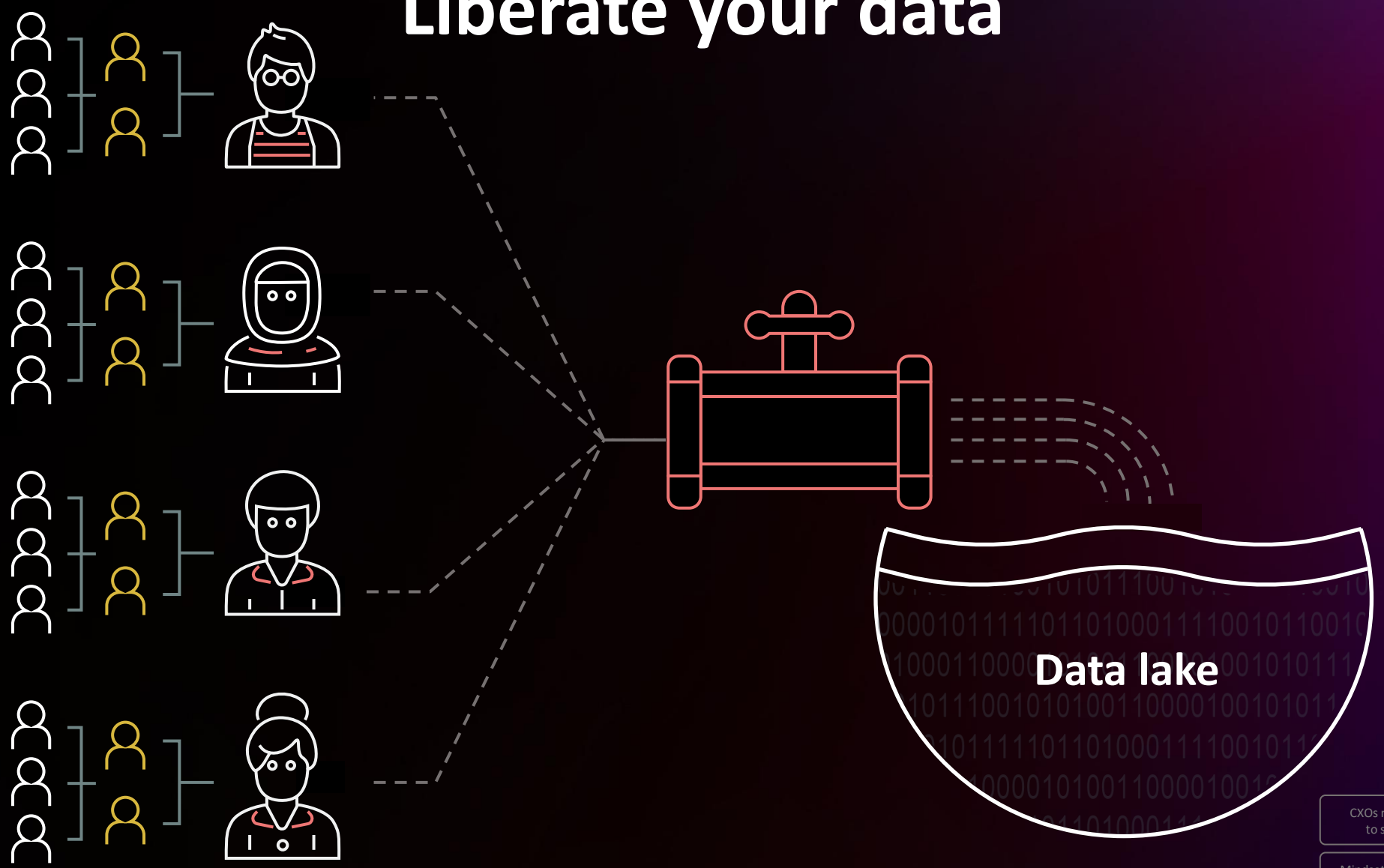
- Fast to start
- Cost effective
- Quickly scalable

CXOs need a different execution model to survive customer expectations

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Liberate your data



CXOs need a different execution model to survive customer expectations

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The AWS ML stack

MOST COMPREHENSIVE SET OF MACHINE LEARNING CAPABILITIES

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

AI services

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

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

ML services (Amazon SageMaker)



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

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

ML frameworks & infrastructure

TensorFlow
mxnet
PyTorch

Full control over the infrastructure and supports all major ML frameworks

CXOs need a different execution model to survive customer expectations

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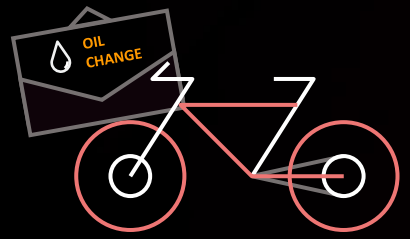
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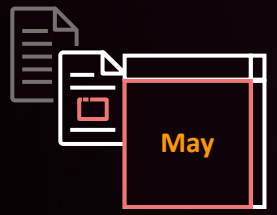
“Companies will adopt AI – not just because they can, but because they must”

Ritu Jyoti

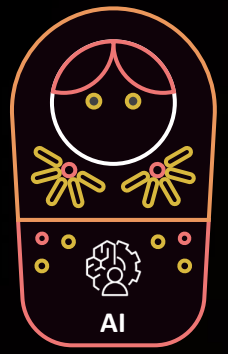
Vice President, Worldwide Artificial Intelligence (AI) and Automation Research, IDC

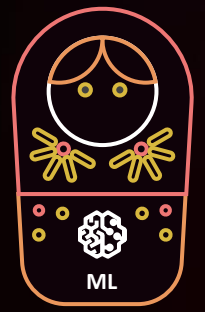
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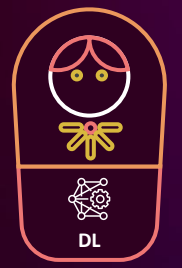


















Drive plans from business needs
Breakdown silos
Liberate and protect your data
Establish ethical guardrails

Invest in change management and skills
Reimagine ways of working

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

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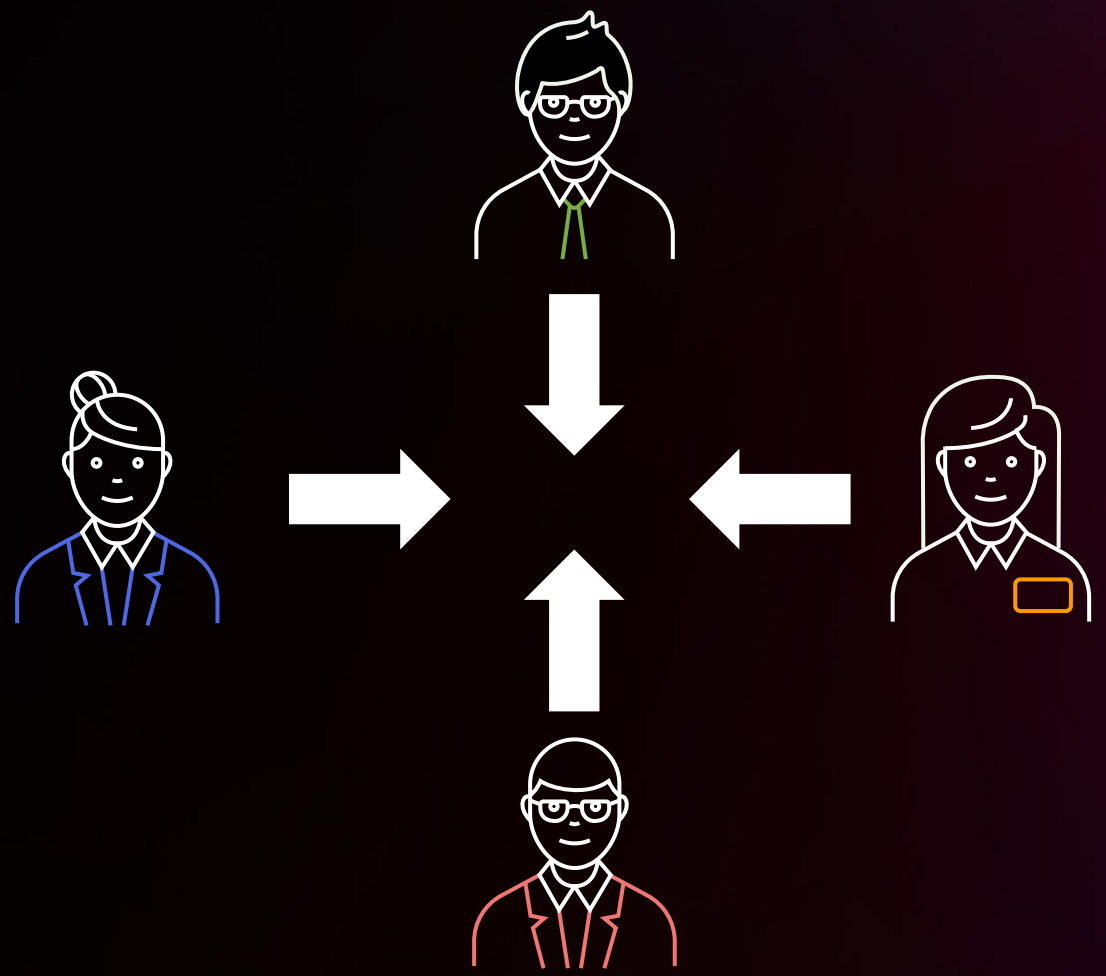
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Be clear on the why



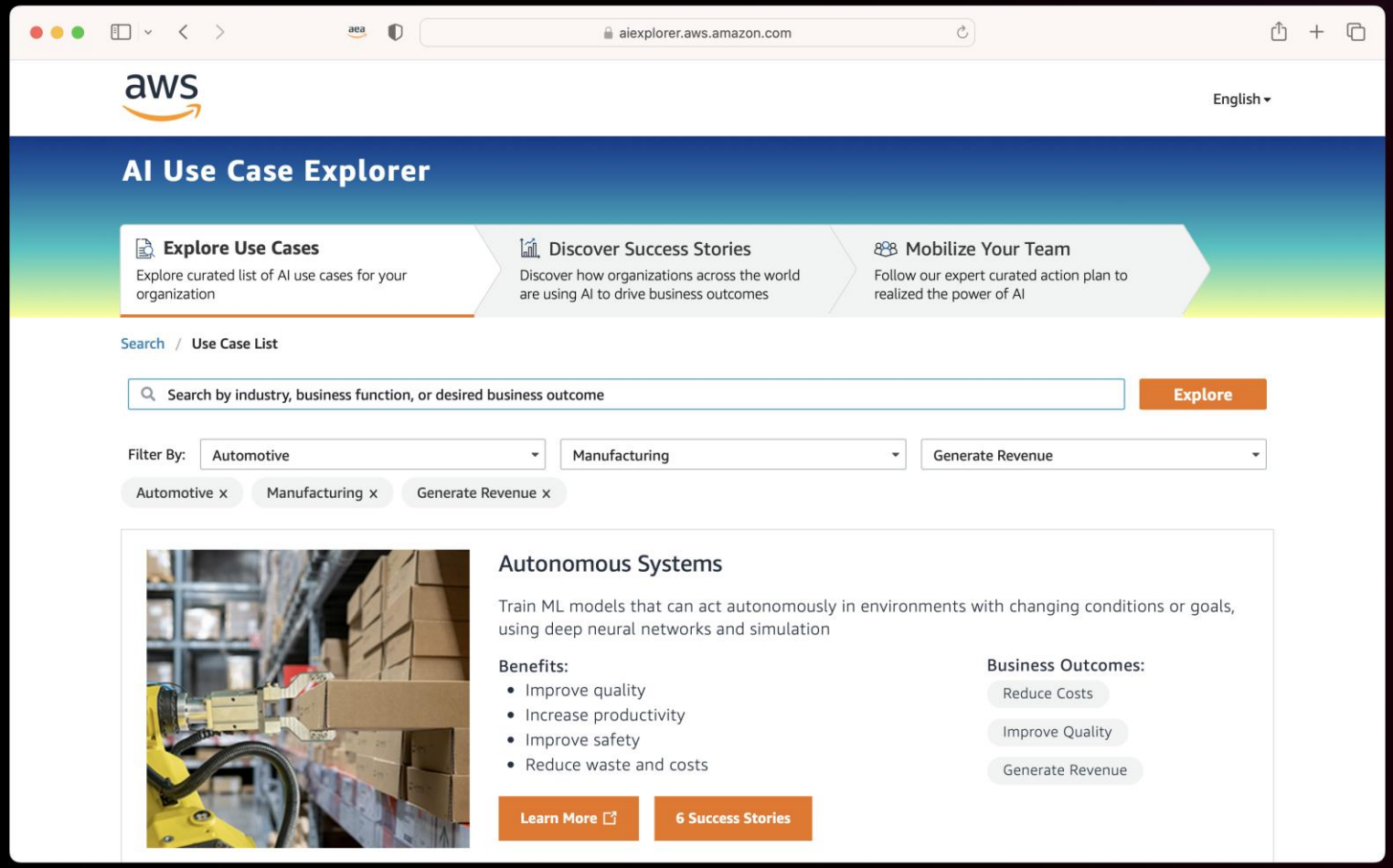
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Get alignment from your stakeholders



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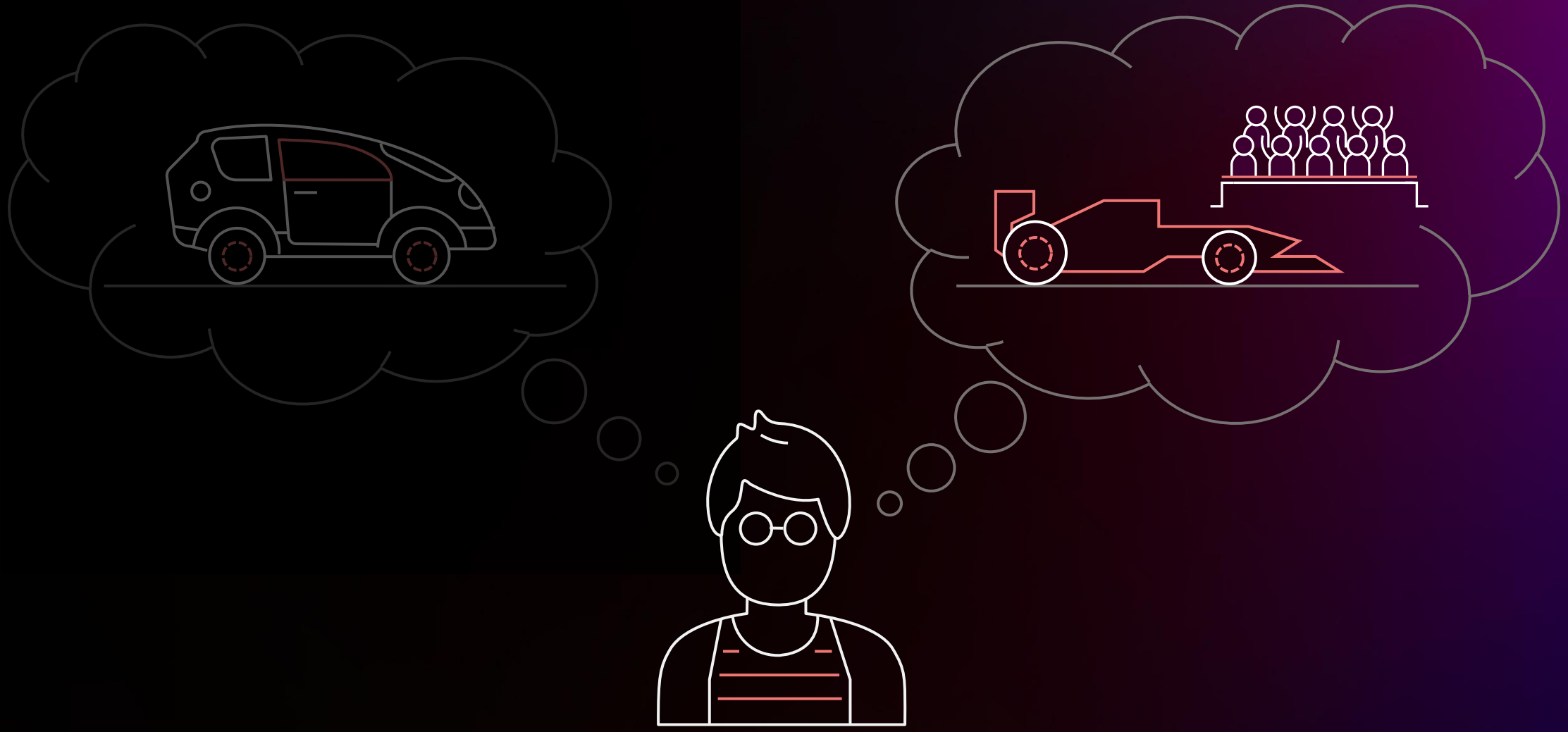
Explore what is possible with AI and get started



https://aiexplorer.aws.amazon.com

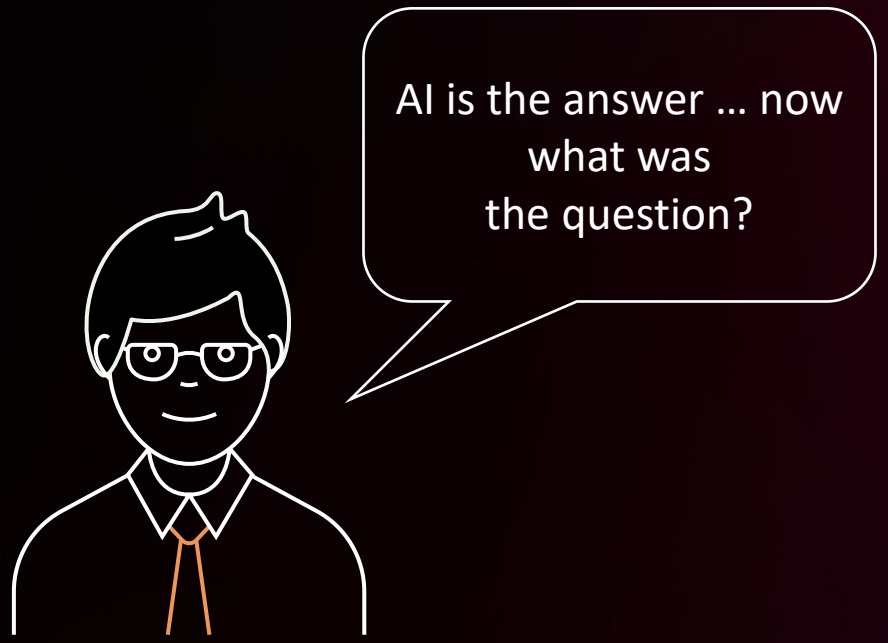
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Start small … think big

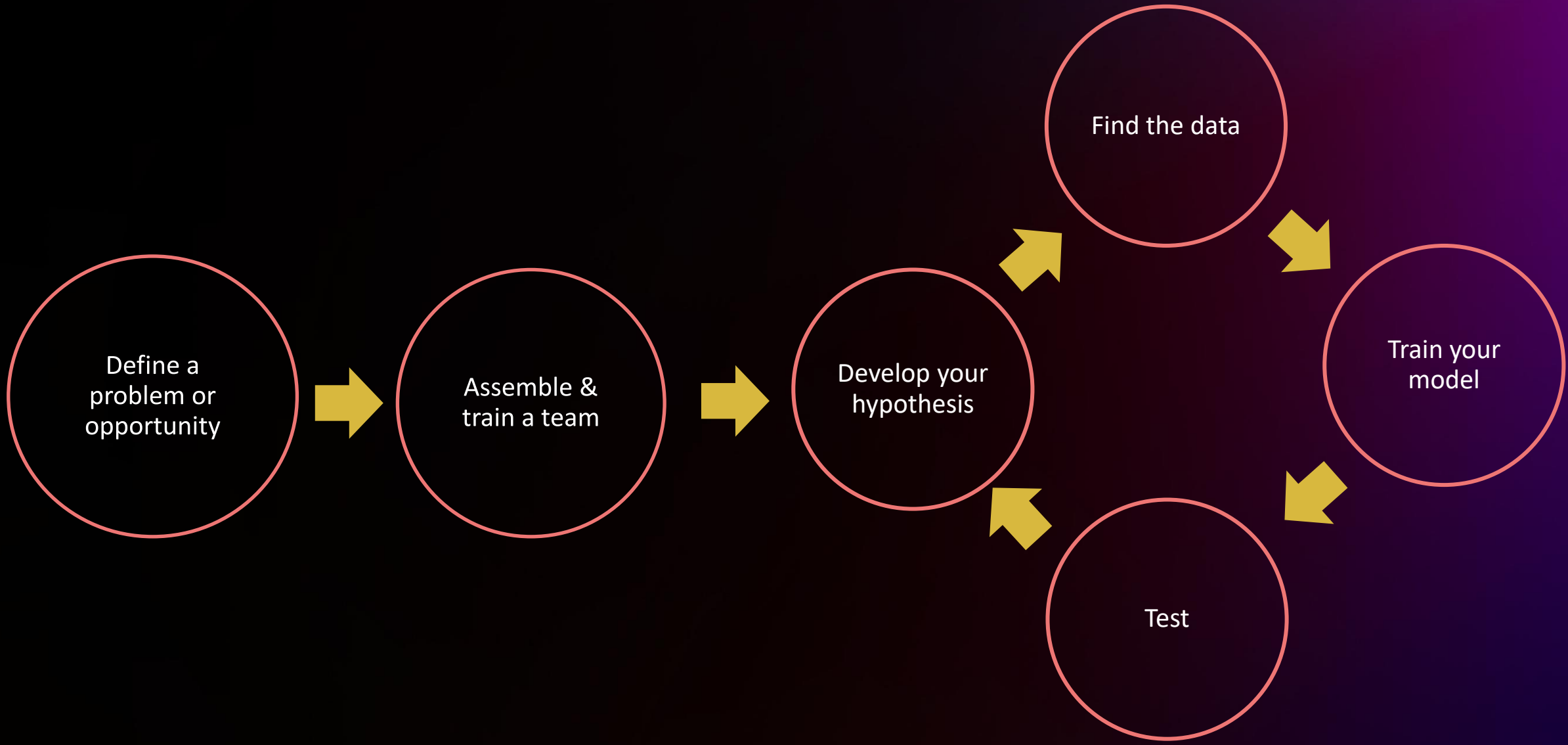


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Technology is not the objective … it is the enabler



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re:Invent 2022 Enterprise Strategy Track

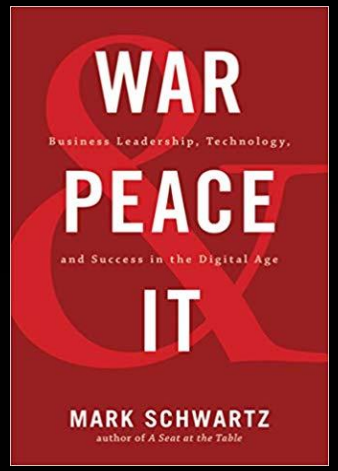
ENT217	Learning at the speed of cloud: Turning employees into entrepreneurs	Phil Le-Brun & Luc Hennekens	Nov. 29 @ 11:45 AM	Wynn Encore, Encore Ballroom 2
ENT218	The architect elevator: Connecting IT and the boardroom	Gregor Hohpe	Nov. 30 @ 5:30 PM	Wynn Encore – Lafite 5
ENT219	Everybody wins: Real-world business value for CIOs and CFOs with the cloud	Chris Hennesey & Jake Burns	Nov. 28 @ 5:30 PM	Venetian, Lido 3106
ENT220	How strong security can be your strategic advantage	Clarke Rodgers	Dec. 1 @ 2:00 PM	Wynn Encore – Lafite 5
ENT228	Succeeding in economies of speed: Rethinking your levers	Miriam McLemore	Nov. 30 @ 3:15 PM	Wynn Encore – Encore Ballroom 2
ENT231	Becoming an organization that attracts top talent (Chalk Talk)	Jake Burns	Dec. 1 @ 2:45 PM	Caesars Forum - Alliance 305
ENT232	Accelerating your migration journey	Mary McDaniel & Jonathan Allen	Dec. 1 @ 4:15 PM	Caesars Forum - Summit 221

Additional Enterprise Strategy Breakouts

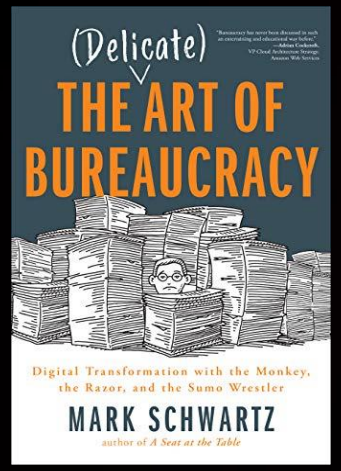
SVS301	Refactoring to serverless	Gregor Hohpe & Sindhu Pillai	Nov. 29 @ 5:00 PM	MGM Boulevard Ballroom 167
API308	Are you integrating or building distributed applications?	Gregor Hohpe	Nov. 30 @ 1:45 PM	Caesar's Forum Summit 228
ARC207	Modern cloud applications: Do they lock you in?	Gregor Hohpe	Dec. 1 @ 11:45 AM	Wynn Encore - Ballroom 2

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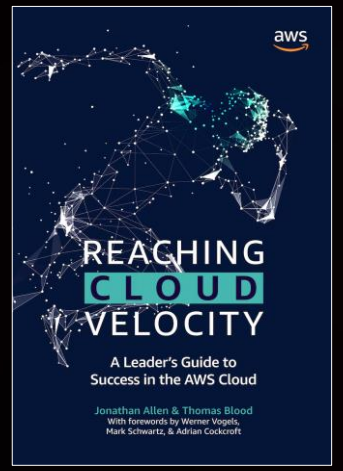
Like to read?



War and Peace and IT



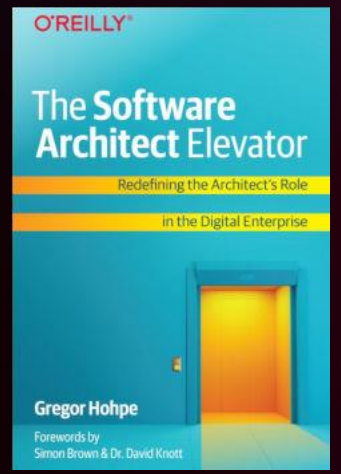
The Art of Bureaucracy



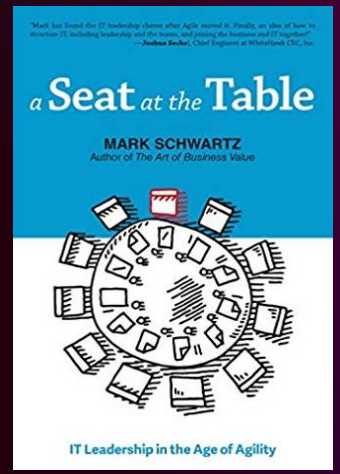
Reaching Cloud Velocity



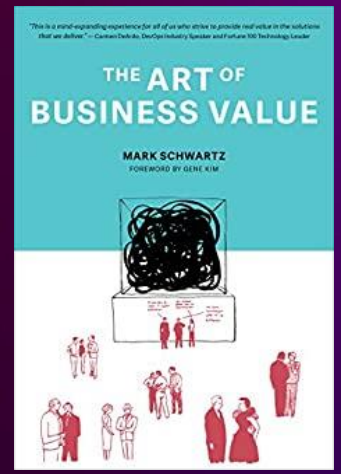
Cloud Strategy



The Software Architect Elevator



A Seat at the Table



The Art of Business Value

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Additional resources

Connect on LinkedIn for slides and material

aws Executive Insights

Self-service digital content written for executives

conversations with LEADERS

aws Executive Insights

Podcast: Featuring discussions with executive leaders

aws Executive Connection

LinkedIn: Community for business and technology leaders

aws Enterprise Strategy Blog

Blog channel for technical and non-technical executives in an enterprise

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Thank you!

Tom Godden

tgodden@amazon.com

@tomgodden211

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