AWS INNOVATE

ONLINE CONFERENCE 2019

MACHINE LEARNING & AI EDITION

# Building Business Outcomes with AI/Machine Learning (Level 200)

Barnam Bora, Head of AI & Machine Learning, AWS APAC

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# AI Is The New Normal

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# AI Is The New Normal – Why?

2017
WW GDP

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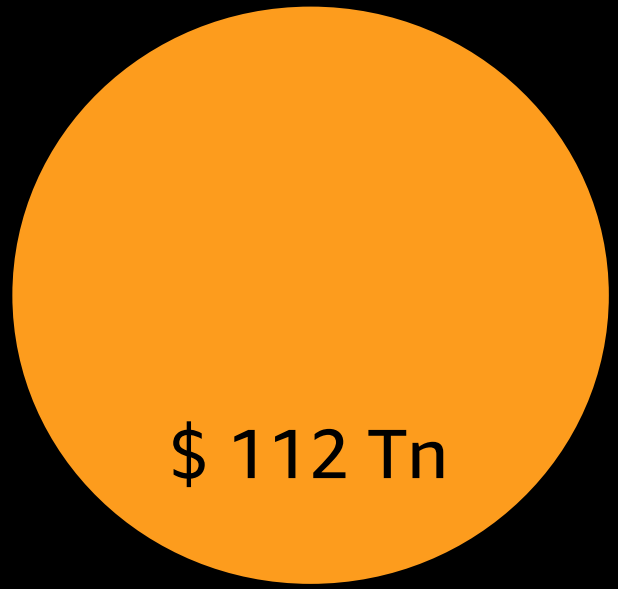
# AI Is The New Normal – Why?

2017
WW GDP




2030
WW GDP
**projected*

-Sizing the prize

PwC's Global Artificial Intelligence Study: Exploiting the AI Revolution

27 June 2017

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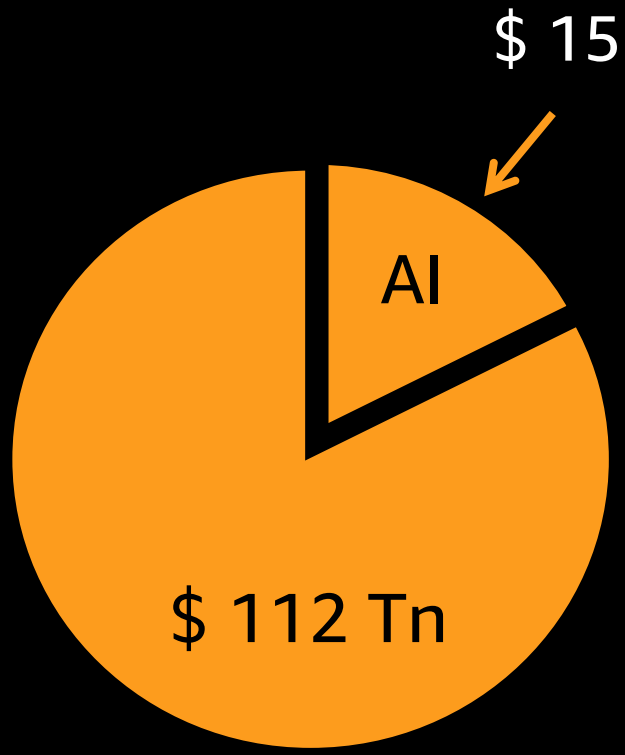


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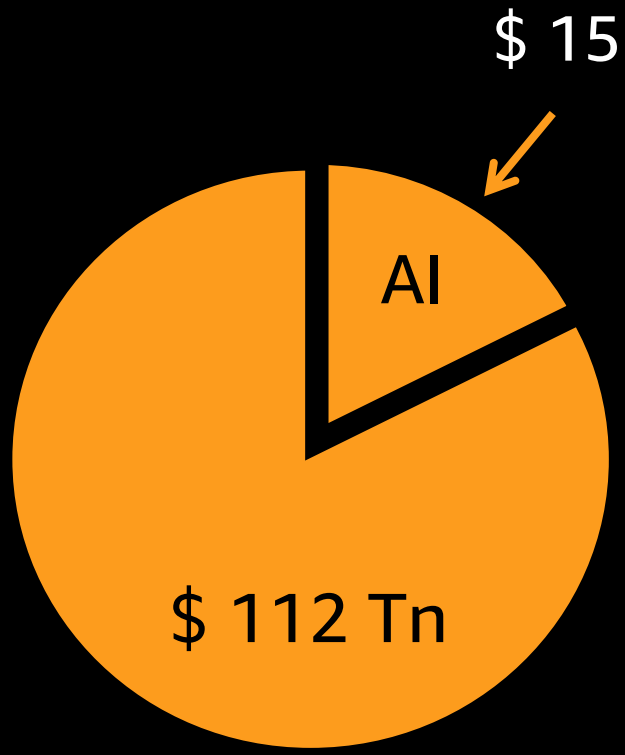


14% OF Human Productivity in 2030

2030
WW GDP
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The BUILDERS who embrace AI will be the engines of human acceleration.

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# Our Mission In AWS Is To Put Machine Learning In The Hands Of Every Developer

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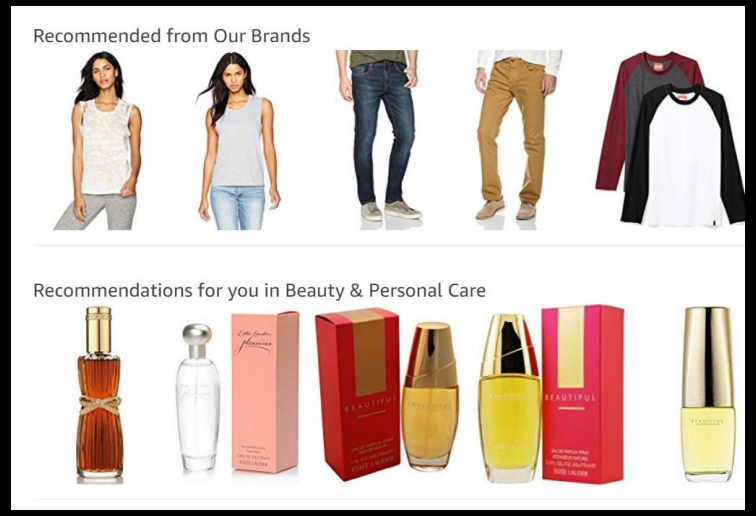

20+ Years of
Machine Learning
Innovation
@
amazon

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Every Day We Apply New
AI/ML Based Improvements To
The Amazon Business,
At a Global Scale Through AWS

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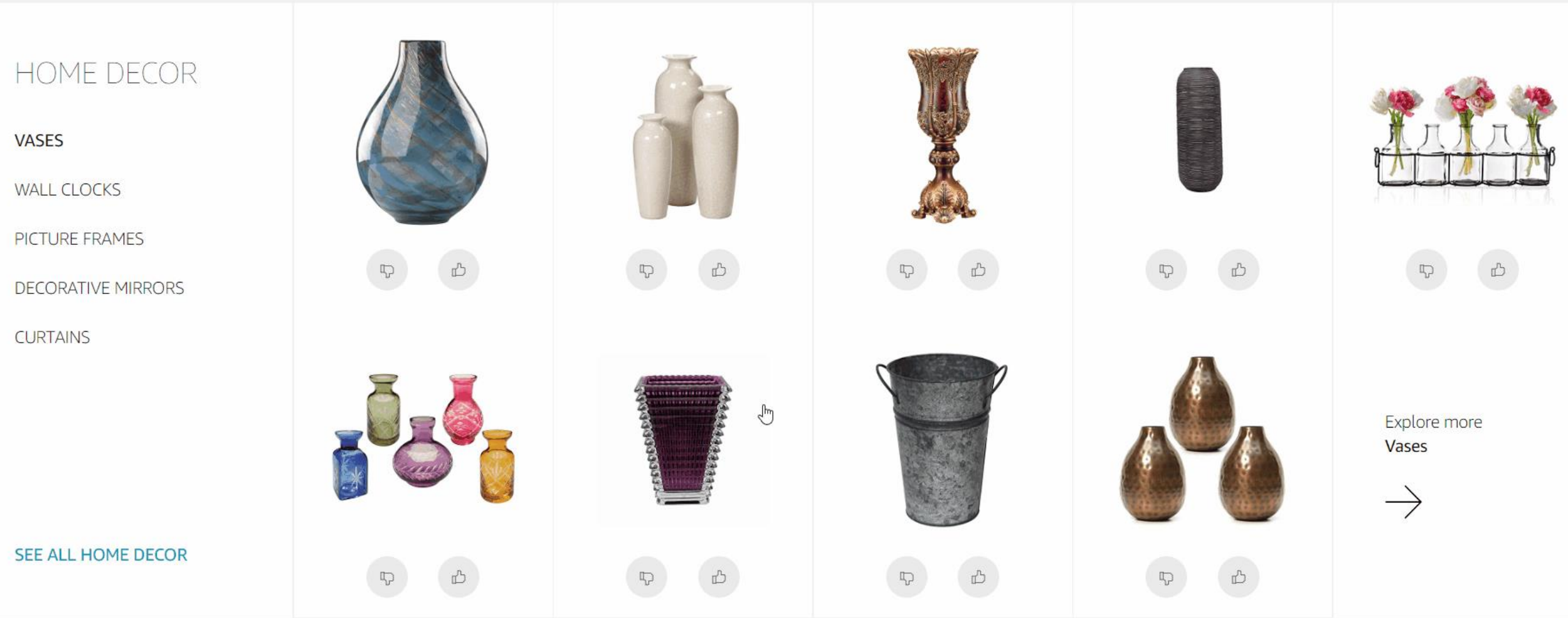
# Amazon Scout, a Machine Learning Powered Visual Shopping Tool For Personalized Recommendations…. *www.amazon.com/scout*

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# Challenges That Have So-far Prevented Organization From Adopting Machine Learning Quickly?

ML expertise is rare

Building and scaling ML technology is hard

Deploying and operating models in production is time-consuming and expensive

A lack of cost-effective, easy-to-use, and scalable ML services

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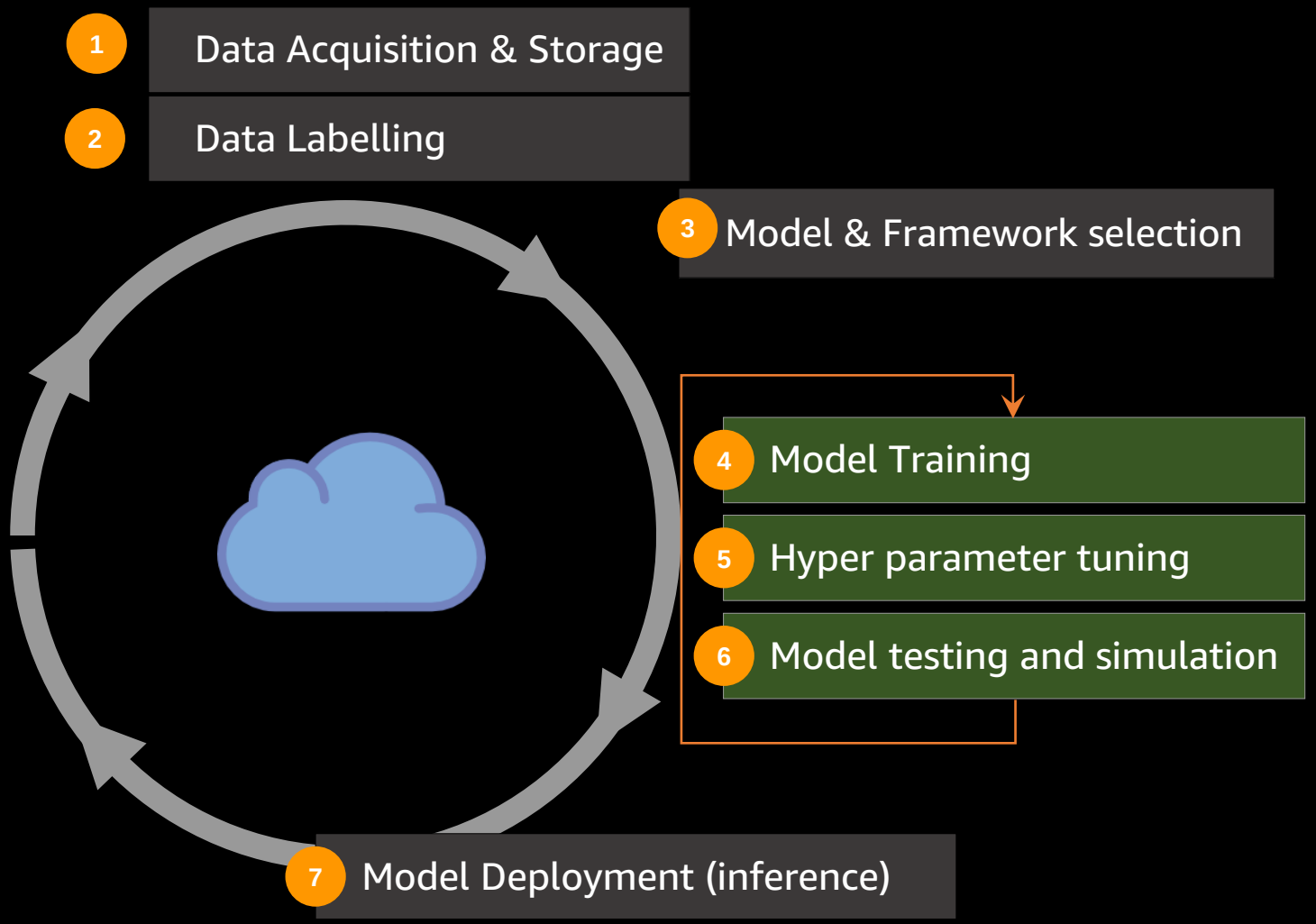
# Typical ML Workflow – Customer Pain Points




## Training

- Iterative and time consuming.
- Image recognition/ object detection require training with over a million images with each image containing over 65,000 pixels.
- Speech recognition and synthesis require training with 100s of hours of human speech.

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## Customers Want To Train & Run Models In The Cloud At Scale

Tesla V100

120 TFLOPS

Amazon SageMaker

Amazon EC2

## Customers Want To Run Models At The Edge

AWS Greengrass

AWS IoT Platform

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We Set Out To Build a
Machine Learning Platform That
Is Accessible To Every Developer

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# Customers Need a Complete End-to-end Machine Learning Stack

## AI SERVICES

Vision

REKOGNITION IMAGE

REKOGNITION VIDEO

Speech

TEXTRACT

POLLY

TRANSCRIBE

Language

TRANSLATE

COMPREHEND

Chat-bots

LEX

Forecasting

FORECAST

Recommendations

PERSONALIZE

## ML SERVICES

AMAZON SAGEMAKER

GROUND TRUTH

NOTEBOOKS

ALGORITHMS

MARKETPLACE

SUPERVISED LEARNING

UNSUPERVISED LEARNING

REINFORCEMENT LEARNING

TRAINING

OPTIMIZATION (NEO)

DEPLOYMENT

HOSTING

## ML FRAMEWORKS & INFRASTRUCTURE

Frameworks

TensorFlow

mxnet

PYTORCH

Chainer

HOROVOD

Interfaces

GLUON

Keras

Infrastructure

EC2 P3 & P3DN

EC2 C5

FPGAs

GREENGRASS

ELASTIC INFERENCE

INFERENTIA

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# Customers Need a Complete End-to-end Machine Learning Stack

## AI SERVICES

Vision: REKOGNITION IMAGE, REKOGNITION VIDEO

Speech: TEXTRACT, POLLY, TRANSCRIBE

Language: TRANSLATE, COMPREHEND

Chat-bots: LEX

Forecasting: FORECAST

Recommendations: PERSONALIZE

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## ML FRAMEWORKS & INFRASTRUCTURE

Frameworks: TensorFlow, mxnet, PYTORCH, Chainer, HOROVOD

Interfaces: GLUON, Keras

Infrastructure: EC2 P3 & P3DN, EC2 C5, FPGAs, GREENGRASS, ELASTIC INFERENCE, INFERENTIA

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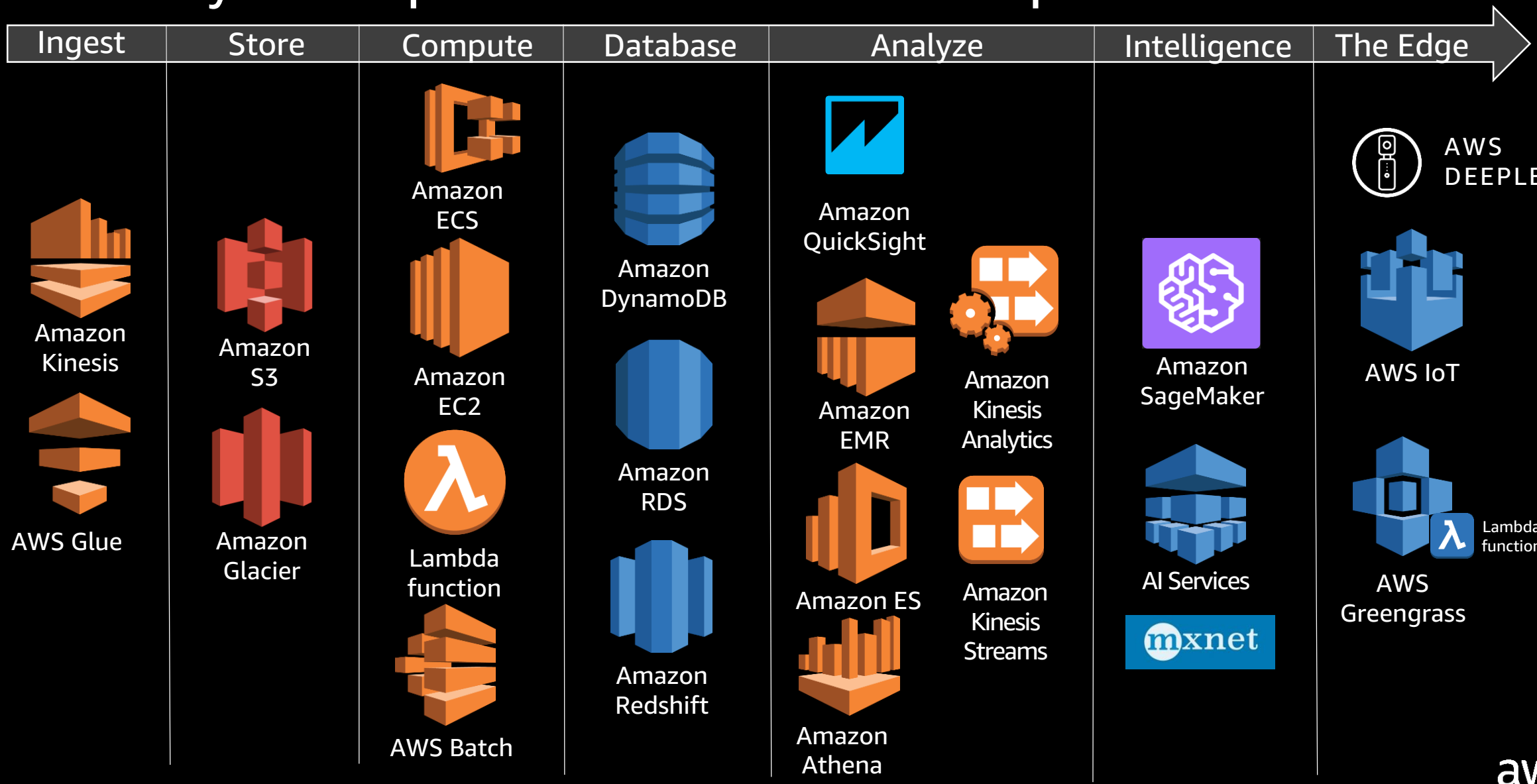
# ML Is Only a Component Of a Overall Complete Solution.

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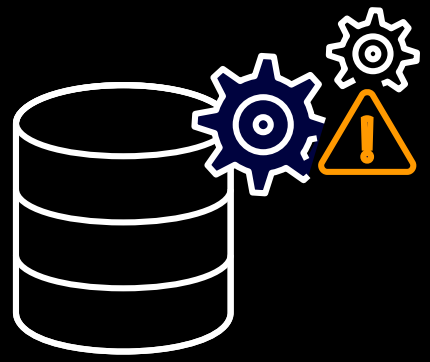
# Defining Machine Learning For Business Outcomes



Relevant Data

Domain Expertise

Intelligent Business Systems
& Experiments

**BUSINESS VALUE**

Automate - Repeated Decisions

Assist - Human Decisions

Predict - Future Behavior

Prescribe - Process Improvements

Disrupt - With Net-New Capability

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Our Customers Are Actively Building Innovative ML Based Intelligent Systems To Empower Their Businesses, At a Global Scale Through AWS

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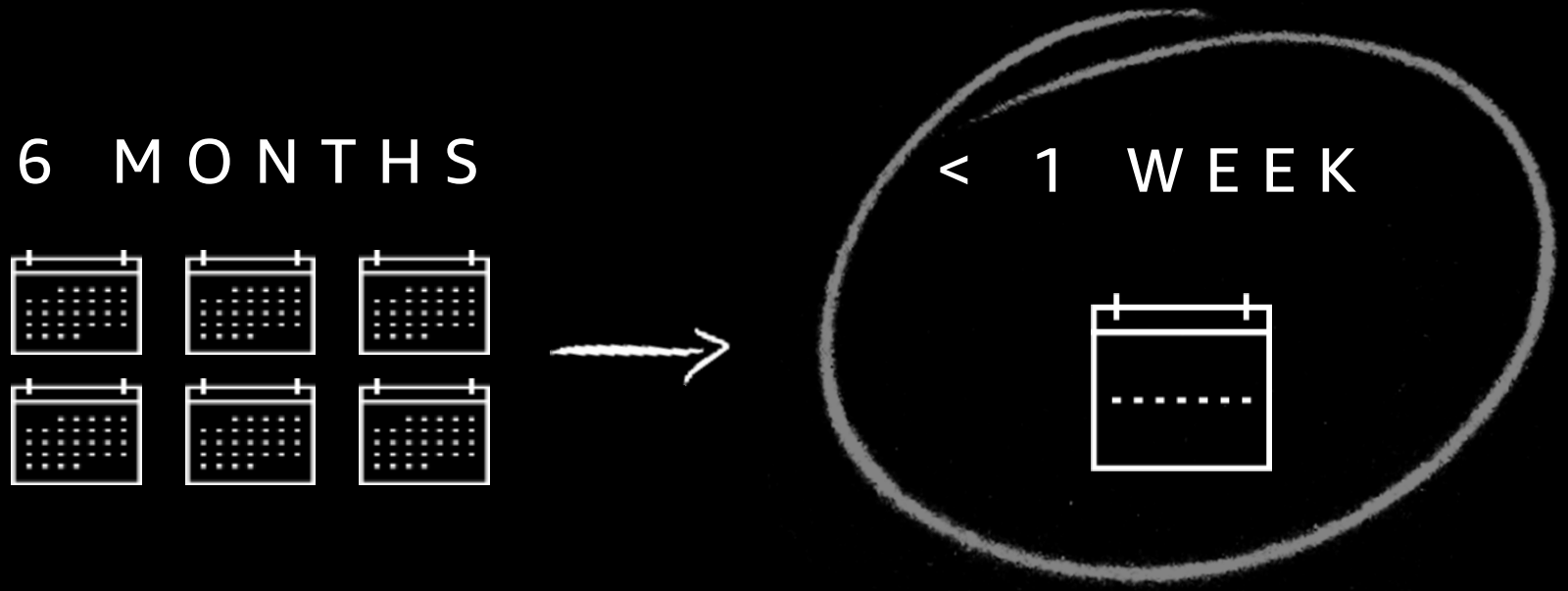
intuit®

Deployment time down by 90% with Amazon SageMaker




# BUILDERS Can Build Intelligent Systems Much Faster With AWS….

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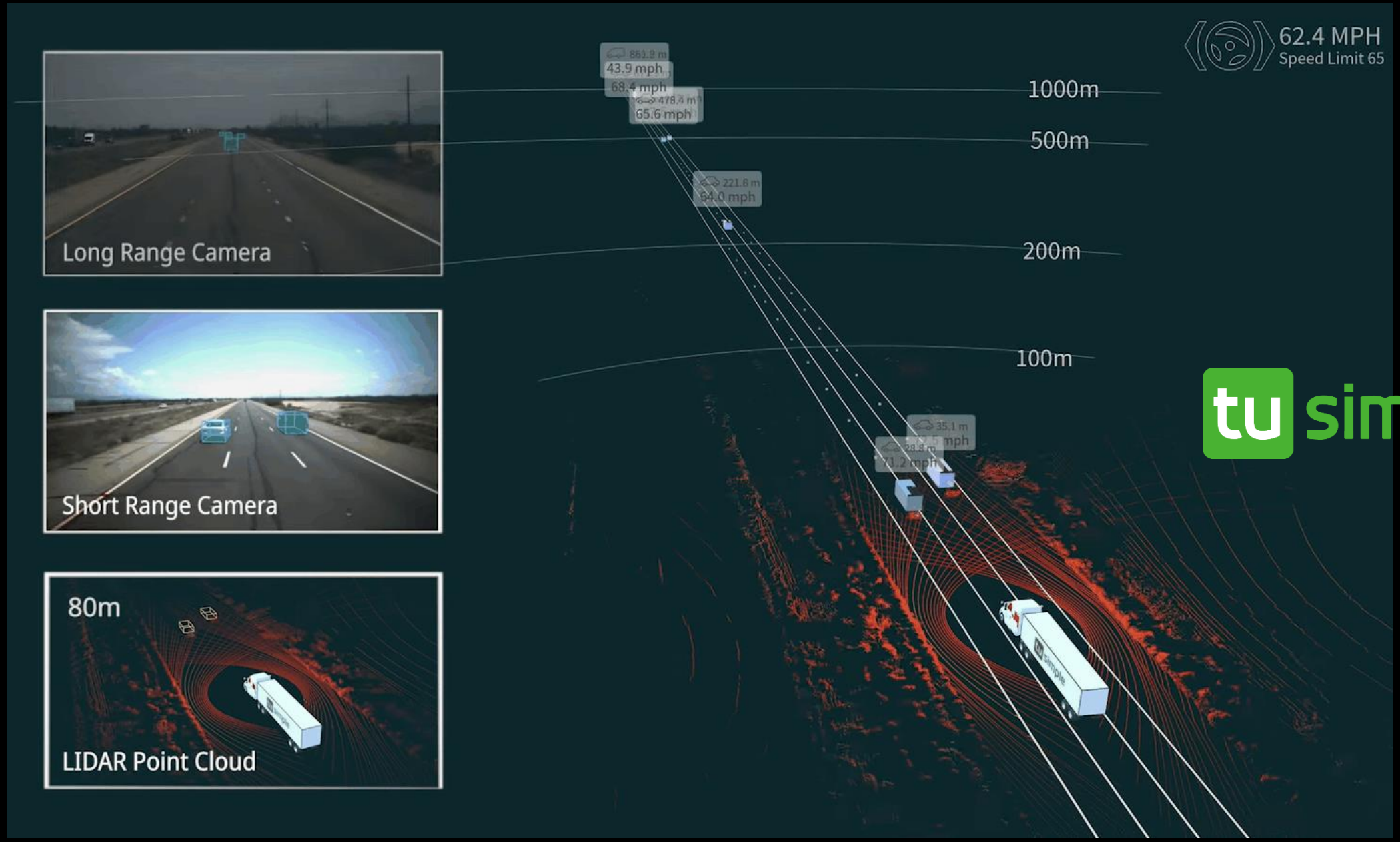


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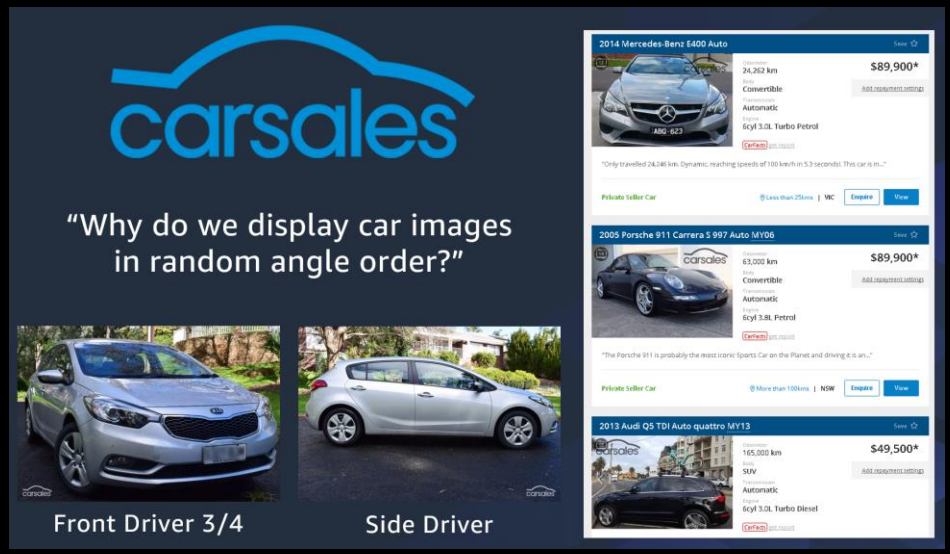


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# More ML Happens On AWS Than Anywhere Else

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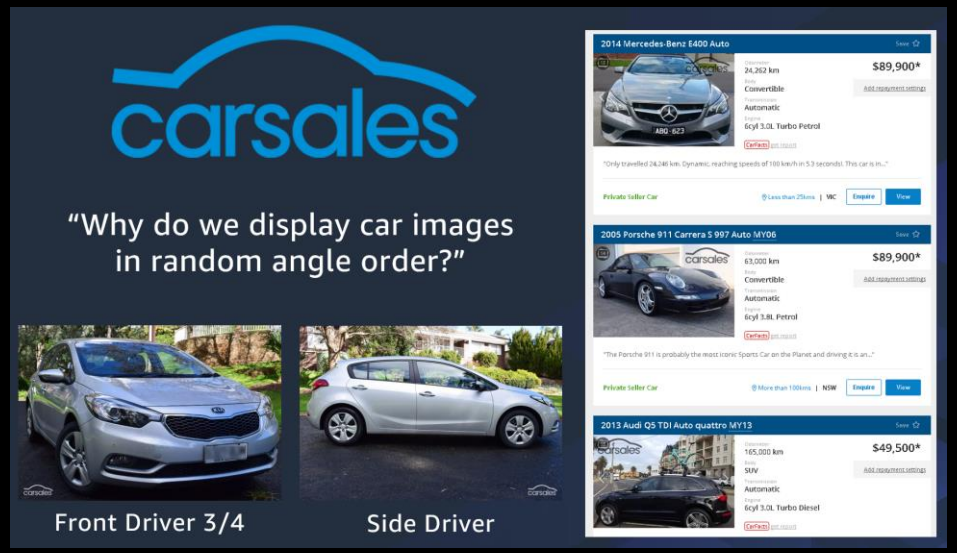
# Lets Hear From Carsales…

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# Learn why customers choose AWS for machine learning

**Demo Arena**

Watch how machine learning is used in real life applications

**Ask the Experts**

Get your questions answered by AWS Experts

**Machine Learning on AWS**

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

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# Thank You for Attending AWS Innovate

We hope you found it interesting! A kind reminder to **complete the survey.** Let us know what you thought of today's event and how we can improve the event experience for you in the future.

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