

AWS re:Invent

NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

AIM210

Solve common business problems with AWS AI/ML services

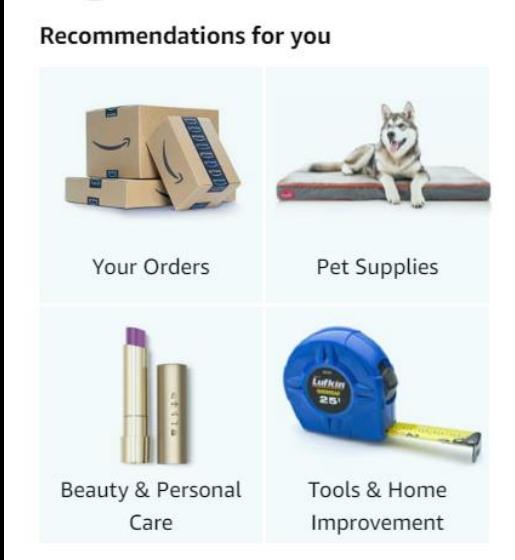
Albert Esplugas

Head of AI Solutions Marketing
AWS



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Amazon—Machine learning innovation at scale



4,000 products per minute sold on Amazon.com

1.6M packages every day

Billions of Alexa interactions each week

First Prime Air delivery on December 7, 2016

100,000+ customers use AWS for machine learning



Anthem.



ATLASSIAN



avis budget group

BMW GROUP



BUNDESLIGA



CONDÉ NAST

Discovery



Fannie Mae



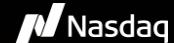
intuit.



Lenovo



moderna



NFL



NuData Security
mastercard



Pomelo.



SIEMENS

slack



StanleyBlack&Decker

SUBWAY

T Mobile



twilio





Enhance
customer
experience



Better and faster
decision-making



Improve business
operations

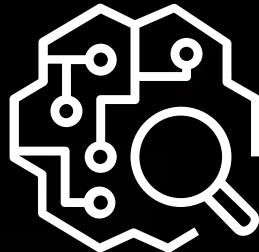


New products
and services

The universe of AI/ML is ever expanding

AI/ML use cases

Forecasting	Anomaly detection	Contact center intelligence	Conversational AI
Intelligent document processing	Intelligent search	Media intelligence	ML modernization
AI for DevOps	Personalization	Identity verification	Automated content creation
Autonomous systems	Fraud Detection	Content moderation	Credit decisioning and underwriting
Cybersecurity	Digital twin/advanced digital simulation	AI for health	HR automation
AI for IT operations	Predictive maintenance	Quality control	Process automation
Supply chain optimization	Visual inspection	Workplace safety	+ Other use cases



AI Use Case Explorer

Easily find the most relevant AI use cases with related content and guidance to make them real

The screenshot shows the AWS AI Use Case Explorer landing page. At the top, there's a navigation bar with the AWS logo and a language selection dropdown. Below the header, the title "AI Use Case Explorer" is displayed. Three main call-to-action buttons are shown: "Explore Use Cases" (with a brief description), "Discover Success Stories" (with a brief description), and "Mobilize Your Team" (with a brief description). A large section below features the heading "Explore The Art Of The Possible In AI". It includes a search bar with placeholder text "Search by industry, business function, or desired business outcome" and three dropdown menus labeled "Industry", "Business Function", and "Business Outcome", followed by a prominent orange "Explore" button.

aiexplorer.aws.amazon.com

Our tool offers 3 main features



Explore curated list
of AI use cases for
your organization

**100+ use cases
and sub use cases**

Discover how organizations
across the world are using AI
to drive business outcomes

**400+ customer
success stories**

Follow our expert-curated action
plan to realize the power of AI

**50+ resources
(ebooks, videos, demos)**

AI Use Case Explorer x +

aiexplorer.aws.amazon.com/?lang=en

aws English ▾

AI Use Case Explorer

 **Explore Use Cases**
Explore curated list of AI use cases for your organization

 **Discover Success Stories**
Discover how organizations across the world are using AI to drive business outcomes

 **Mobilize Your Team**
Follow our expert curated action plan to realize the power of AI

Explore The Art Of The Possible In AI

 Search by industry, business function, or desired business outcome

Industry ▼ Business Function ▼ Business Outco... ▼ **Explore**

aws Contact Us | Privacy Policy

Today, we will do a deep dive on these use cases

AI/ML use cases

Forecasting	Anomaly detection	Contact center intelligence	Conversational AI
Intelligent document processing	Intelligent search	Media intelligence	ML modernization
AI for DevOps	Personalization	Identity verification	Automated content creation
Autonomous systems	Fraud Detection	Content moderation	Credit decisioning and underwriting
Cybersecurity	Digital twin/advanced digital simulation	AI for health	HR automation
AI for IT operations	Predictive maintenance	Quality control	Process automation
Supply chain optimization	Visual inspection	Workplace safety	+ Other use cases

A photograph of a woman with dark hair tied back, wearing a blue polka-dot shirt and a black headset with a microphone. She is looking down and to her left, possibly at a computer screen. In the background, another person in a blue shirt is visible, and there are office chairs and a window. The overall atmosphere is professional and focused.

Contact Center Intelligence & Conversational AI

Great customer experience is critical for growth

75%

stated that customer experience impacts purchasing decisions¹

40%

stopped doing business with a company due to poor customer service²

64%

Customers find information delivered via a conversational AI interfaces valuable³

1. Statista, "Importance of customer experience," bit.ly/3PGKciw

2. Statista, "Customers who stopped," bit.ly/3CtGe9T

3. Statista, "Advantages of using," bit.ly/3Rc8PF3



Contact Center Intelligence Use Cases



**Self-service bots &
virtual agents**

**Real-time call analytics
and Agent Assist**

**Post-call
analytics**

Conversational AI Use Cases



**Self-service bots &
Voice Assistants**



**Proactive help
based on usage
behavior**



Transactional bots

AWS AI services powering AWS CCI & Conversational AI solutions

Amazon
Lex



Conversational AI

Amazon
Polly



Text to speech

Amazon
Transcribe



Speech to text

Amazon
Comprehend



Natural language
processing

Amazon
Kendra



Intelligent
search

Amazon
Translate



Machine
translation



Conversational AI



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FAQ (Chatbot)



The image shows a mobile-style interface for a DMV Chatbot. At the top, there's a yellow circular icon with three horizontal lines, a dark blue header bar with the text "DMV Chatbot" in white, and a small question mark icon in a circle on the right. Below the header is a yellow rounded rectangle containing the text: "You can ask me for help. Just type a question or click on the mic and say it." Underneath this is another yellow rounded rectangle with the text: "Menu of Services. You can also type any question." At the bottom of the screen is a white input field with a blue underline and the placeholder text "Type here or click on the mic". To the right of the input field is a microphone icon. The background of the main interface is white.

You can ask me for help. Just type a question or click on the mic and say it.

Menu of Services. You can also type any question.

RENEW LICENSE PERMIT TEST @ HOME OCTANK TRAVEL ID

MOTOR VEHICLE RECORDS

Type here or click on the mic

Get answers to frequently asked questions.





FAQ

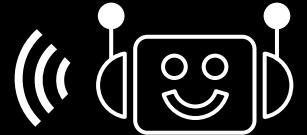
(Voice)



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Thank you for calling DMV.
How can we help you?



FAQ

(Voice)





FAQ (Voice)



Do you accept credit cards?



FAQ

(Voice)

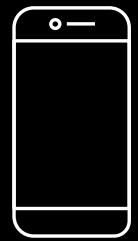
We accept Visa, MasterCard,
Discover and American Express.
Is there anything else we can
help you with?





Tasks

Capture, verify information and fulfill an intent, all without a live agent.



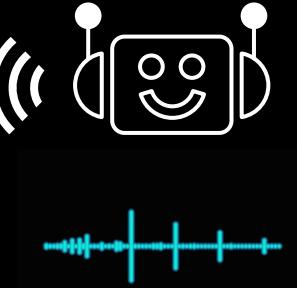
I need to renew my
driver's license.



Tasks



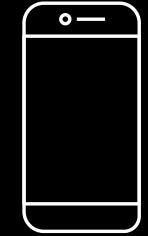
Do you want me to use the
credit card on file?



Tasks



Tasks



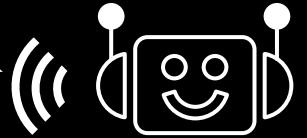
Yes.





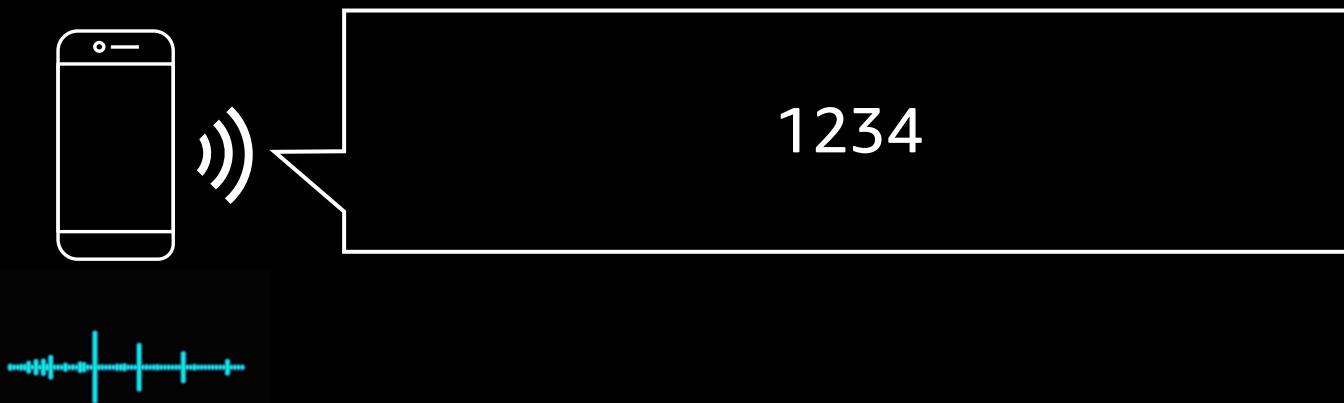
Tasks

Can you verify the last 4 digits of the card number?





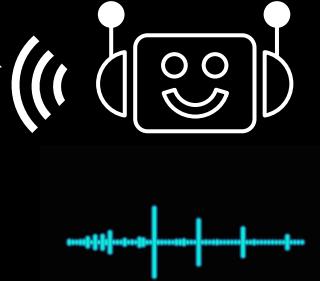
Tasks





Tasks

Ok. Your drivers license has been renewed, and will be mailed to you in 1 to 2 weeks.

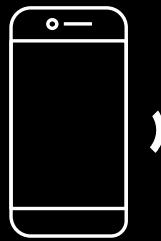




Smart Transfer

Verify information and get the customer to the right agent with the best fit.





I lost my car registration, and I
think it is due soon.



Smart Transfer





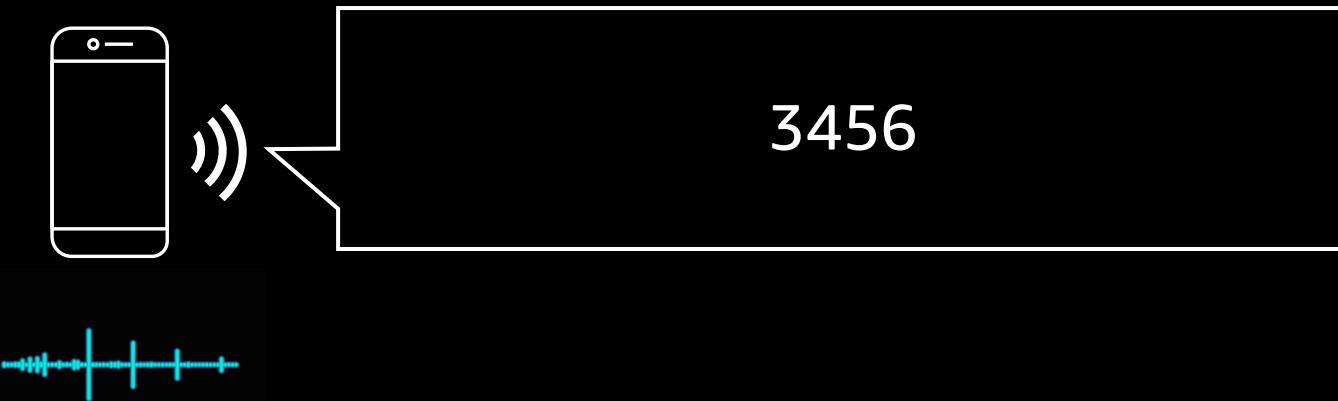
Smart Transfer

What is the last 4 digits of the vehicle's VIN number?





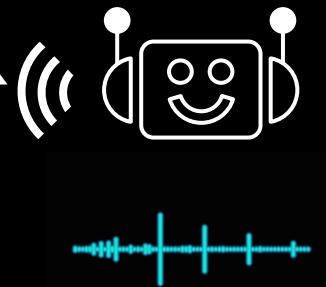
Smart Transfer





Smart Transfer

Thanks, I have verified that you are the owner and will transfer you to an agent. Your wait time is less than 2 minutes.



Conversational AI case studies



Chatbot handle three million conversations a year

Languages supported: English, Italian, French, Spanish and German



Chatbot handled up to 14.2 million messages a day across social media platforms

13.5 million grant applications processed



Contact Center Intelligence

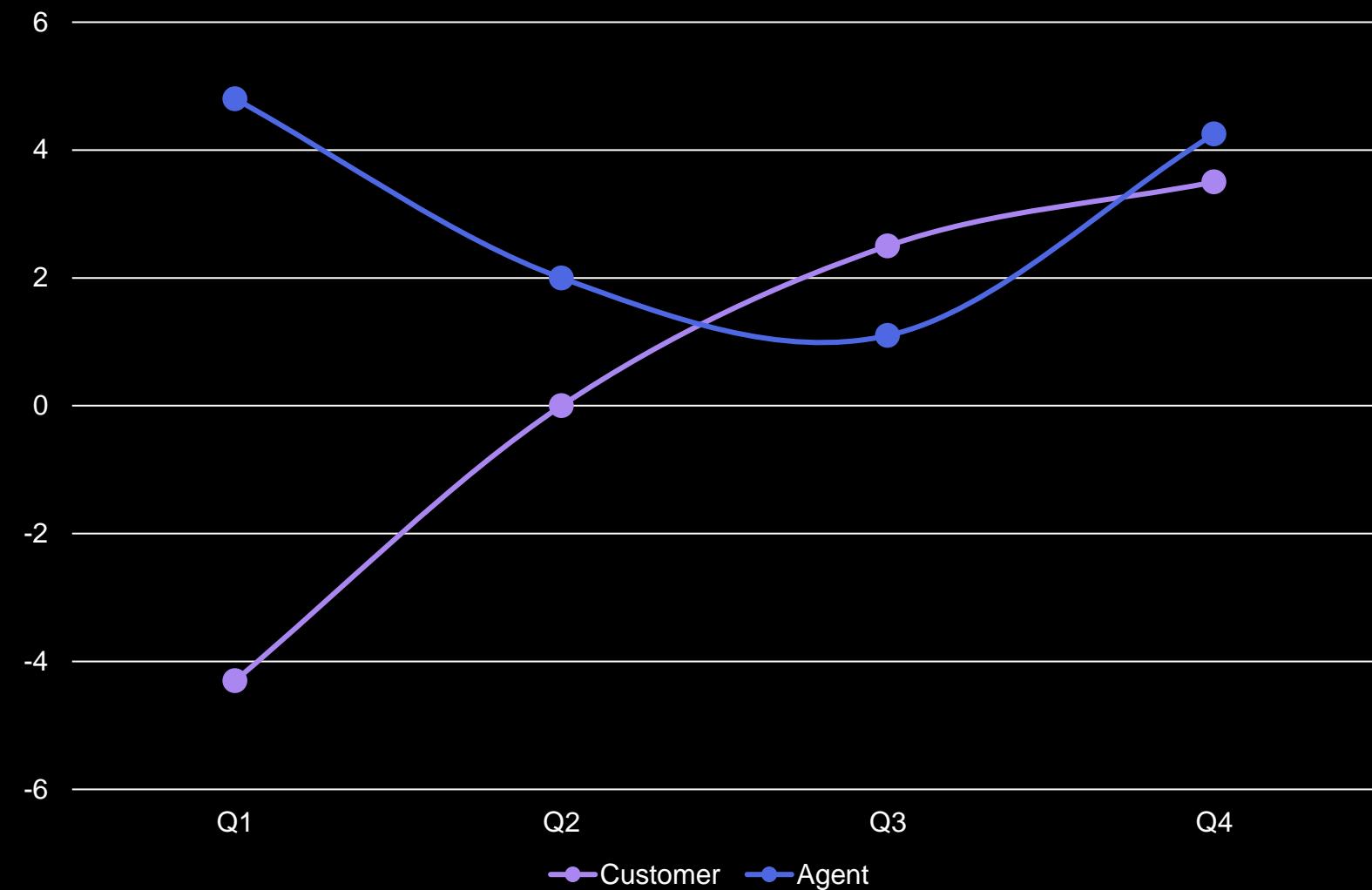
Post Call Analytics





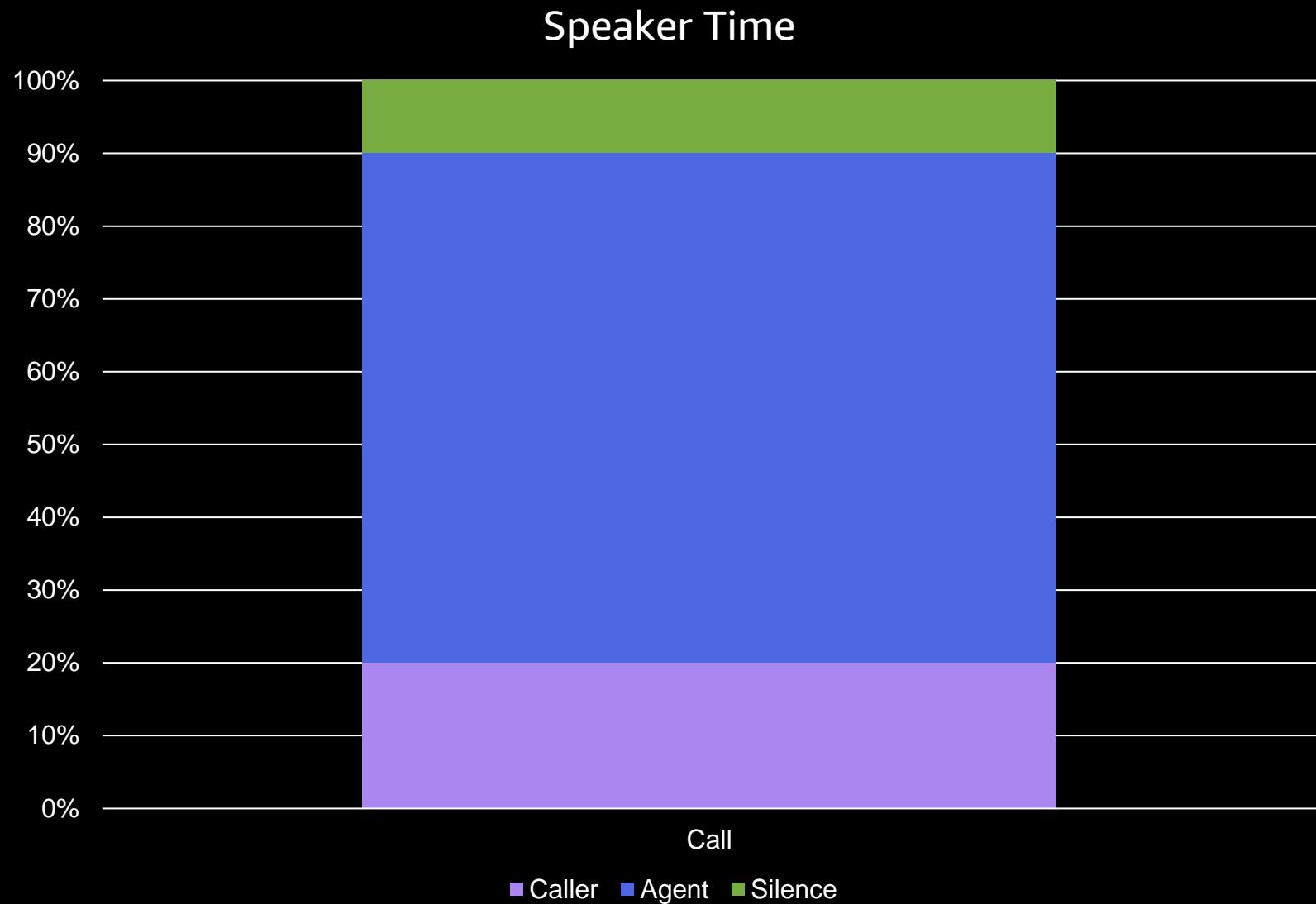
Sentiment by quarter

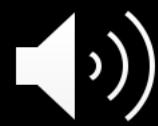
Sentiment by Quarter





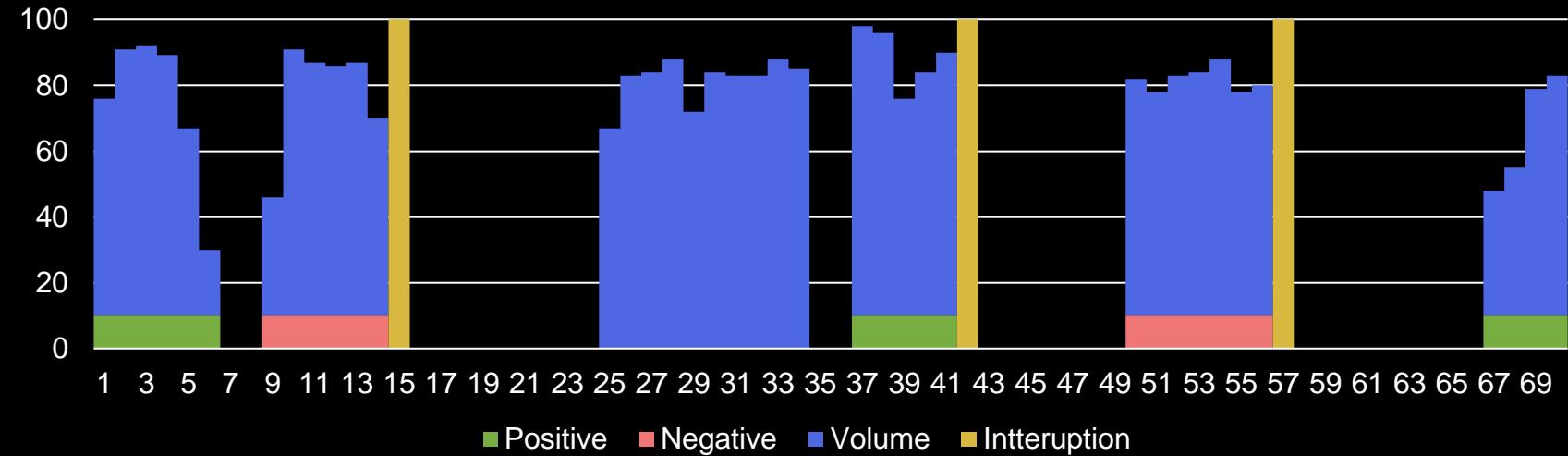
Speaker time



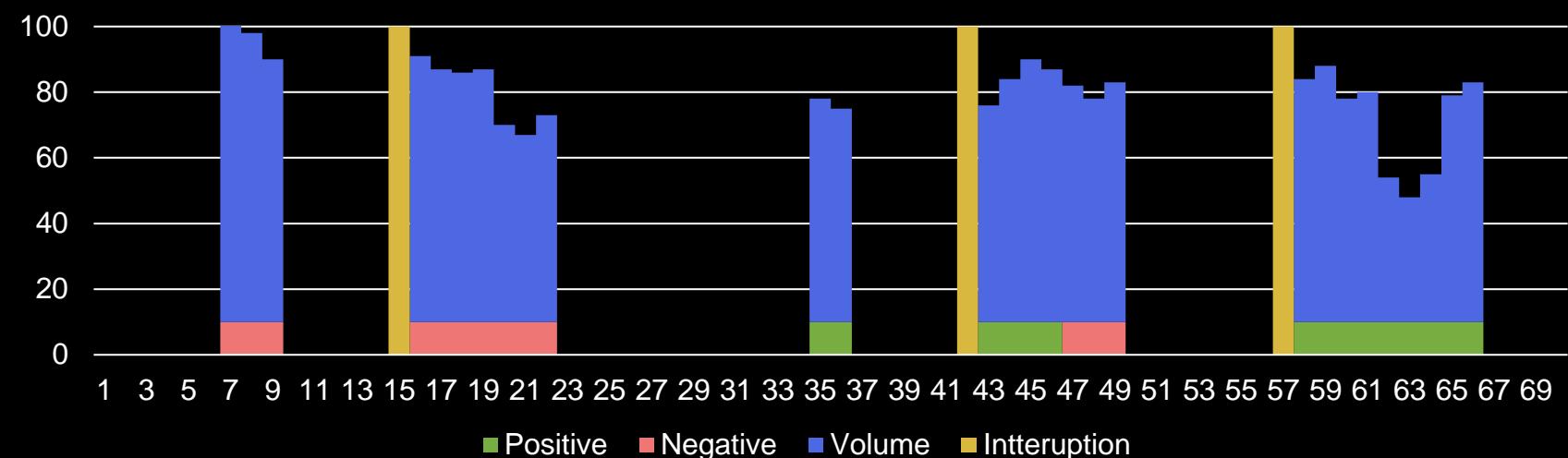


Volume, Sentiment, Interruptions By Speaker

Agent Volume and Sentiment



Caller Volume and Sentiment





Call Summarization

Issue:

[Caller] I dropped my credit card into the water.

Action Items:

[Agent] Ok, I'll have a new one sent to you.

Outcomes:

[Agent] Your card will arrive in 1-2 days.



Entities

Product Names:

Checking account, savings account, money market account, 401k

Organizations:

Anchor Credit Union, Credit Bank

Locations:

Seattle, San Francisco, Boston

Persons:

Bank teller



Turn-by-turn Transcriptions

Agent [0:00]

Thank you for calling Anchor Credit Union, the number one choice for captains world wide, how can I help you?

Customer [0:06]

Hi, so I was at the fisherman's terminal.

Agent [0:07]

Yes, mmhm

Customer [0:11]

I'm trying to dock up my ship and my credit card fell into the water, so I'm hoping I can get it replaced.



Integrates with Business Intelligence Tools



Amazon Athena



Amazon QuickSight



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Contact Center Intelligence

Live Call Analytics



Sentiment & Issue Detection



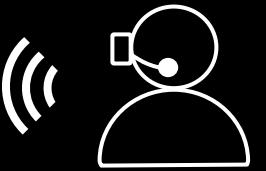
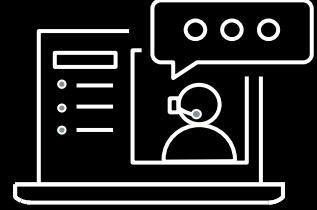
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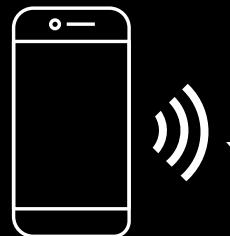
Sentiment & Issue Detection

Agent Assist: Incoming call
Subject: lost registration
Vin: *3456

Hello, thank you for calling the DMV. I see you are calling about a lost car registration, for the VIN # that ends in 3456.



Sentiment & Issue Detection



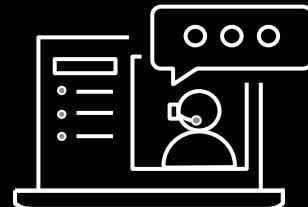
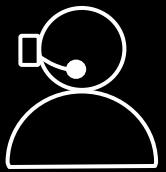
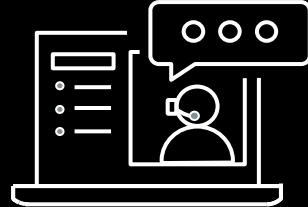
Agent Assist: Incoming call
Subject: lost registration
Vin: *3456

Hello, thank you for calling the DMV. I see you are calling about a lost car registration, for the VIN # that ends in 3456.

Yes, I'm so angry that I lost my registration paper. I need to sell my car ASAP.



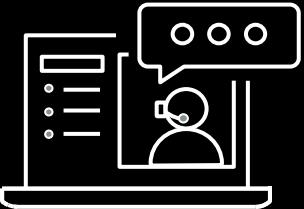
Issue Detected: Lost Registration Papers



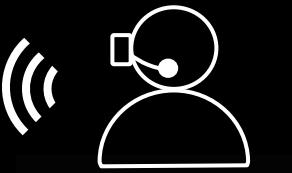


Agent Assist

Agent Assist: Lost Registration
Verify mailing address.
Should be 555 main street.



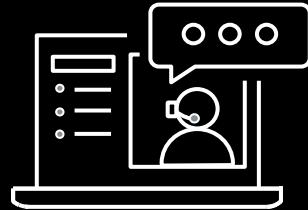
I am very sorry to hear you're frustrated. Don't worry, we can get this resolved. Can you please verify the mailing address where we will send the new registration?



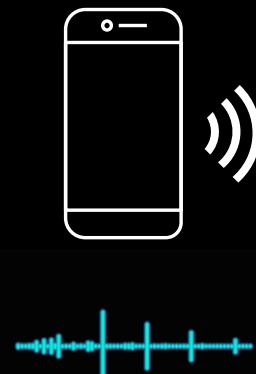
Agent Assist



Agent Assist: Lost Registration
Verify mailing address.
Should be 555 main street.

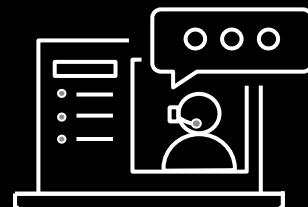


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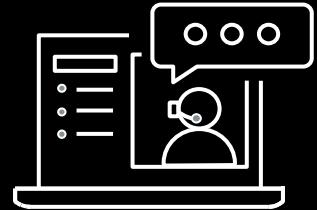


555 Main Street

Agent Assist: Address detected.



Agent Assist: Registration request received,
will be mailed in 1-2 weeks.

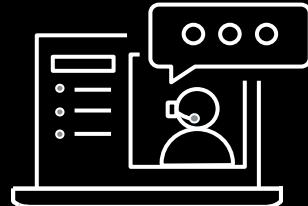


Task Fulfillment



Task Fulfillment

Agent Assist: Registration request received,
will be mailed in 1-2 weeks.



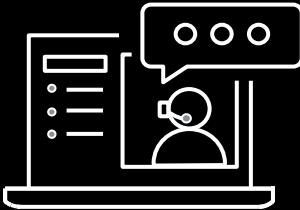
Ok, your new registration is
being sent and you will receive
it in 1-2 weeks. Is there
anything else I can help
you with?



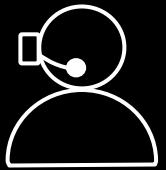


Task Fulfillment

Agent Assist: Registration request received,
will be mailed in 1-2 weeks.



Ok, your new registration is
being sent and you will receive
it in 1-2 weeks. Is there
anything else I can help
you with?



No, thank you so much, I am
so relieved. Have a nice day.





Live Call Analytics with Agent Assist

8 ▾



Time

Time



— AGENT — CALLER

— AGENT — CALLER

Call Transcript Info

Auto scroll



AGENT 00:00.0 - 00:04.6

Hello, thank you for calling the DMV. I see you are calling about a lost car registration, for the VIN # that ends in 3456.



CALLER 00:09.9 - 00:12.1

Yes, I'm so angry that I lost my registration paper. I need to sell my car ASAP.

AGENT_ASSISTANT 00:09.9 - 00:12.1

Lost Registration Detected. Verify mailing address, should be 555 Main Street.



AGENT 00:47.6 - 00:48.1

What is your address?



CALLER 00:25.5 - 00:26.9

555 Main Street.

AGENT_ASSISTANT 00:25.5 - 00:26.9

Registration request received, will be mailed in 1-2 weeks.



Contact Center Intelligence case studies



Derived key insights from millions of calls made to CSRs using Amazon Transcribe, used to help CSRs better address calls from customers and to improve its web application. Would have required **8-10 employees** to extract the same insights from **5,000 claims calls per week**.



Expanded customer sentiment visibility to **100%** of the calls.

Intelligent Document Processing



IDP across industries



Financial services

Accurately extract data and insights from loan applications, tax forms, driver's licenses, and other documents quickly and cost effectively



Healthcare & life sciences

Process insurance claims and quickly get to clinical insights faster from healthcare and patient intake forms



Manufacturing & retail

Analyze invoices, bills of materials, contracts, licenses, warranties, and other agreements

Go beyond OCR with accurate, versatile information extraction

Accuracy of forms and tables allows customers to reach 80–90% automation levels on documents that previously needed manual processing.

INPUT

I. TYPE OF MORTGAGE AND TERMS OF LOAN					
Mortgage	<input type="checkbox"/> VA	<input checked="" type="checkbox"/> Conventional	<input type="checkbox"/> Other (explain):	Agency Case Number	Lender Case Number
Applied for:	<input type="checkbox"/> FHA	<input type="checkbox"/> USDA/Rural	<input type="checkbox"/> Housing Service	ABC1234	XYZ6543
Amount	\$ 552,500	Interest Rate	3.5 %	No. of Months	Amortization Type: <input checked="" type="checkbox"/> Fixed Rate <input type="checkbox"/> Other (explain): <input type="checkbox"/> GPM <input type="checkbox"/> ARM (type):
II. PROPERTY INFORMATION AND PURPOSE OF LOAN					
Subject Property Address (street, city, state, & ZIP) 123 Any Street, Anytown, USA, 12345				No. of Units	1
Legal Description of Subject Property (attach description if necessary) Single Family Home				Year Built	2015

Gross Monthly Income	Borrower	Co-Borrower	Total
Base Empl. Income*	\$ 85,000	\$ N/A	\$ 85,000
Overtime	10,000	N/A	10,000

OUTPUT

Raw Text

Borrower	Co-Borrower	I. TYPE OF MORTGAGE AND TERMS OF LOAN	Mortgage	VA	Conventional
Other (explain):	Agency Case Number	Lender Case Number	Applied for:	FHA	USDA/Rural
ABC1234	XYZ6543	Housing Service	Amount	Interest Rate	No. of Months
Fixed Rate	Other (explain):	\$ 552,500	3.5 %	360	GPM ARM (type):

Forms

Lender Case Number	VA
XYZ6543	NOT_SELECTED
Conventional	Other (explain):
SELECTED	

Table Recognition

Column 1	Column 2	Column 3	Column 4
Gross Monthly Income	Borrower	Co-Borrower	Total
Base Empl. Income*	\$ 85,000	\$ N/A	\$ 85,000
Overtime	10,000	N/A	10,000



Analyze documents and send key insights to downstream systems and workflows

Redaction of sensitive data

Hi, my name is John Doe. For verification, the last 4 digits of my social are 6789 and my DOB is 01/01.



Hi, my name is [NAME]. For verification, the last 4 digits of my social are [SSN] and my DOB is [DATE_TIME].

Classify type of document



- Appeal
- Medical record
- Disputed invoice
- Provider contract v1
- Provider contract v2

Recognize medical entities or those specific to your business

Document text:

Mr. Smith is a 63-year-old gentleman with coronary artery disease and hypertension. CURRENT MEDICATIONS: taking a dose of LIPITOR 20 mg once daily.

Output:

Category of entity:	MedCondition
Type:	Dx name
Entity:	Hypertension
Confidence:	0.99

+

← → ⌂

 AWS Intelligent Document Processing

Learn more ▾

☰

Insurance

Case Worker Portal



Insurance claims and the communication around each claim means documents come in various channels and formats with long paragraphs of text or forms with applicant information proving a

Mortgage

Loan Processor Portal



A mortgage packet can come with up to 20 different types of forms such as W-2's, bank statements, and deed information which makes it difficult to use traditional technologies to automat

Intelligent Document Processing case studies



Automated **90%** of their claims-processing workflow.



The Black Knight ML team worked with the AWS ML Solutions Lab to provide faster and more reliable processing behind Black Knight's mortgage origination solutions, allowing our lender clients to be **more competitive and efficient**, and providing operating leverage to further accelerate their growth.



Personalization

Why personalization is so important

60% of consumers say they will be repeat customers after a personalized experience

Organizations that implement personalization realize a **10-15% lift in revenue**

It can cost **5 times** more to gain a new customer than to retain an existing customer

<https://www.invespcro.com/blog/customer-acquisition-retention/>

<https://www.twilio.com/blog/announcing-the-state-of-personalization-2021>

<https://www.mckinsey.com/business-functions/growth-marketing-and-sales/our-insights/the-value-of-getting-personalization-right-or-wrong-is-multiplying>

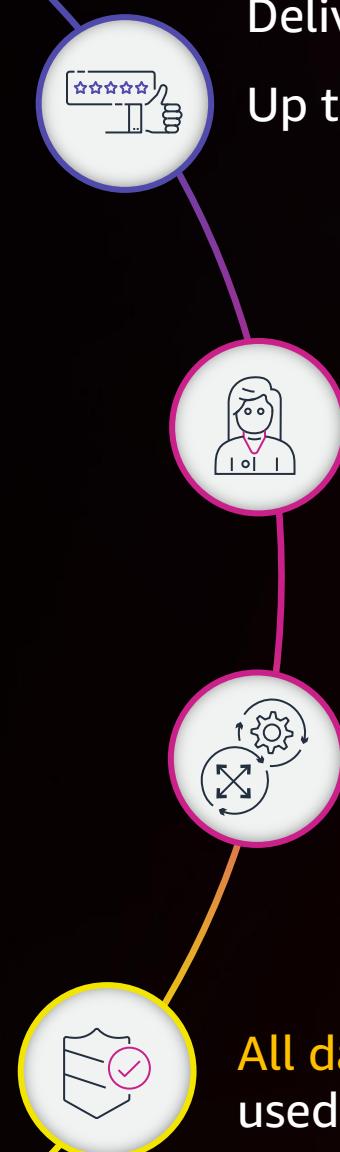


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ML-Powered Personalization

The benefits of Amazon Personalize



Deliver **high quality recommendations**

Up to **50% better recommendations** for fast changing catalogs

Personalize **every customer touchpoint**

Easy integration into your existing website, app, SMS, and email marketing systems

Reduce time to market

All data is encrypted to be private and secure, and is only used to create recommendations for your customers

Amazon Personalize Prebuilt Recommenders

Retail

- ☑ Recommended for you
- ☑ Customers who viewed this also viewed
- ☑ Frequently bought together
- ☑ Most viewed
- ☑ Best sellers

Media & Entertainment

- ☑ Top picks for you
- ☑ Promotions
- ☑ Because you watched X
- ☑ More like Y
- ☑ Most popular / trending now

Amazon Personalize case studies



56%

increase in product
page views



67%

increase in article reads
per fan

17%

increase in time
users spend on
the app



Intelligent Search

Intelligent Search

FIND ACCURATE INFORMATION QUICKLY AND EASILY

Traditional
search

The diagram illustrates the evolution of search from traditional to intelligent. On the left, a screenshot of a traditional intranet search interface shows a search bar with 'it support desk', a sidebar with search filters like 'Everything (21)', and a list of results. A large circular arrow points from this traditional search interface to the right, representing the transition to intelligent search. On the right, a screenshot of an intelligent search results page shows a search bar with 'Where is the it support desk?', a top result titled '1st floor' with a snippet about IT help desks, and a 'Frequently asked questions' section with links like 'Where do I get IT help?'.

Intranet Search

it support desk

Your recent searches ▾ Not finding relevant r

SEARCH IN:

- Everything (21)
- Wiki (17)
- Email List Archive (3)
- Show more...

REFINE:

CATEGORIES

- Service (1)
- Team (1)

CREATOR

- admin (1)
- abcde (1)
- it (1)
- corp (1)

Displaying results 1 - 10 of 21

[IT_Support_Training_Program.Web](#)
18px%"1 Linux desktop * (% style="fo
style="font-size:13.5px%"**)Afternoo
https://w.co.com/bin/view/IT_Suppor

[Com_Support_Wiki.Web](#)
Communication has three differ
Com sign-in flow>>url:[https://w.co.com/bin/view/Com/](https://c)

[OperationalBestPractices.EventM](#)
as a basic service. It is owned by [<https://w.co.com/bin/view/BestPracti>

[Corp_Wiki_Pending.Web](#)
Light~,sans-serif; font-size:9pt; heigh
Videoconference **desk** issues from Reg
<https://w.co.com/bin/view/Corp/Pend>

RESULTS PAGE

Where is the it support desk?

Kendra's suggested answer

1st floor

... our **IT help desk**, deskside, which are located all around our buildings and open for **support** at most hours. The one in **Seattle** is on the **1st floor** and is open from 12:30 to 5 p.m. daily.

WEB | <https://w.organization.com/bin/view/ILDRTEST/> Like Comment

What is Kendra's suggested answer? [Info](#)

Frequently asked questions

[Where do I get IT help?](#) ▶

[What are the IT support hours?](#) ▶

[Where can I get IT help corporate campus?](#) ▶

What are frequently asked questions? [Info](#)

Intelligent
search



Top intelligent search use cases



Customer experiences

- Agent Assist with accurate search
- Self-service chatbots
- Website search



Enterprise search

- Intranet search
- Domain-focused search (R&D, Compliance, HR, Legal, etc.)



Embedded search

- Add intelligent search to SaaS applications like CRMs, knowledge management systems, productivity apps, etc.

Amazon Kendra



what are less common COVID-19 symptoms ?

1-10 of about 94,600 Sort by Best match ▾

Top suggested answer

Optimal Control Measures to Combat COVID19 Spread in Sri Lanka: A Mathematical ModelConsidering the Heterogeneity of Cases

Common symptoms of COVID 19 disease have been fever, cough and fatigue. There are some less common symptoms including sputum production, headache, hemophiliacs, and diarrhea [3] . According to WHO, COVID 19 has spread for more than 210 cou... China where the disease is known to be emerged but now significantly controlled and stable. In numbers, currently more than 30 million people have been infected while there are 200 000 reported deaths worldwide [4].

▼ More suggested answers (2)

Suggested answer (1 of 2)

Long-Term Neurological Threats of COVID-19: A Call to Update the Thinking About the Outcomes of the Coronavirus Pandemic

While the most common symptoms of COVID-19 at the onset of illness include fever, fatigue, dry cough, myalgia, and dyspnea, other less common symptoms are headache, abdominal pain, diarrhea, nausea, and vomiting (10) . Furthermore, it's been recently reported that most patients also complain of impairment of both olfactory and gustatory perception (11) and those are being considered early markers of COVID-19 infection. Though there is longstanding evidence that human coronaviruses, such as SARS-CoV-2, can spread to the brain from the respiratory tract (5, 12, 13) , the occurrence of gastrointestinal symptoms

NLU and ML core



Where is the it support desk in kumo?

Kendra's suggested answer

1st floor

... our IT help desk, deskside, which are located all around our buildings and open for support at most hours. The one in Kumo is on the **1st floor** and is open from 12:30 to 5 p.m. daily.

WEB | <https://w.amazon.com/bin/view/ILDRTEST/>

What is Kendra's suggested answer? [Info](#)

Frequently asked questions

Where do I get IT help in Kumo?

What are the IT support hours in Dopler?

Where can I get IT help Seattle campus?

What are frequently asked questions? [Info](#)

1-10 of 486 Recommended documents

Sort: Relevancy ▾

AWS Kumo

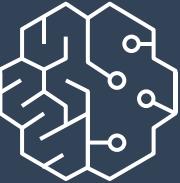
...this is how we're doing it. Access controls Access to this host is governed by the permissions associated with the AWS-SUPPORT-KUMO hostclass. Permissions to the aws-support-kumo group... [\(More\)](#)

WEB | <https://w.amazon.com/bin/view/kumo-support>

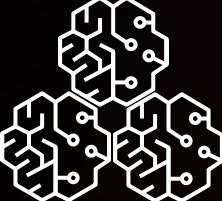
Domain expertise



Natural language queries



NLU and ML core



Domain expertise

Optimized for 14 major domains
IT, Financial Services, Insurance, Pharma, Industrial, Energy, Legal, Media and Entertainment, Travel and Hospitality, Health, HR, News, Telecommunications, and Automotive

what is the production increase in lithium carbonate? 

1-6 of 6 results

Amazon Kendra suggested answers

[Can Tesla Really Produce A \\$25,000 Self-Driving Electric Car?](#)

It's just like widely available " Related: The World's Most Expensive Crudes Get Expensive Again There are 63kgs of lithium carbonate in a Tesla 70kWh battery. So that's 18.9 million tonnes if everyone wants to trade in their clunker for a Model Y. Global lithium carbonate equivalent production last year was 365,000 tonnes. an increase of 32% from the year before. Just 32%?

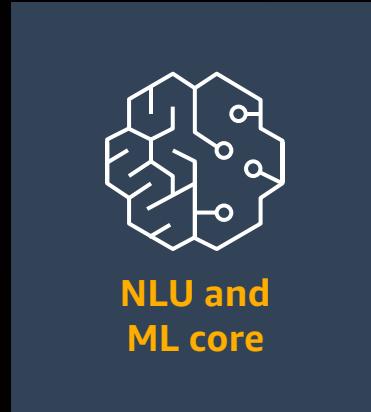
Clearly, the lithium mining industry simply hasn't even been trying. Salting away Musk solves difficult problems from a "first principle standpoint" which he frequently referred to on stage.

<https://s3.us-west-2.amazonaws.com/.../Can Tesla Really Produce A...?...>

What are Amazon Kendra suggested answers? [Info](#)

Incremental learning



how much amazon refund for postage? 🔍

1-10 of about 3,100 results

Amazon Kendra suggested answers

[Amazon.com Help: About Our Returns Policies](#)

up to \$20

Amazon will automatically refund up to \$20 for return postage costs on receipt of the item. If your return postage costs exceed \$20, you may contact our Customer Service Center to request a refund of the remaining postage cost. If you return a defective, damaged or incorrect item, you'll be refunded the full postage cost, as well as your Import Fees Deposit, once your return is processed. Amazon Alexa Voice Shopping Non-digital products purchased using Alexa are eligible for free returns. To return a product purchased using Alexa, process your return as normal in the Returns Center.

<https://s3.us-east-1.amazonaws.com/amazon-service.../201819200.html>

Like Feedback

What are Amazon Kendra suggested answers? [Info](#)

Sort: Relevance ▼

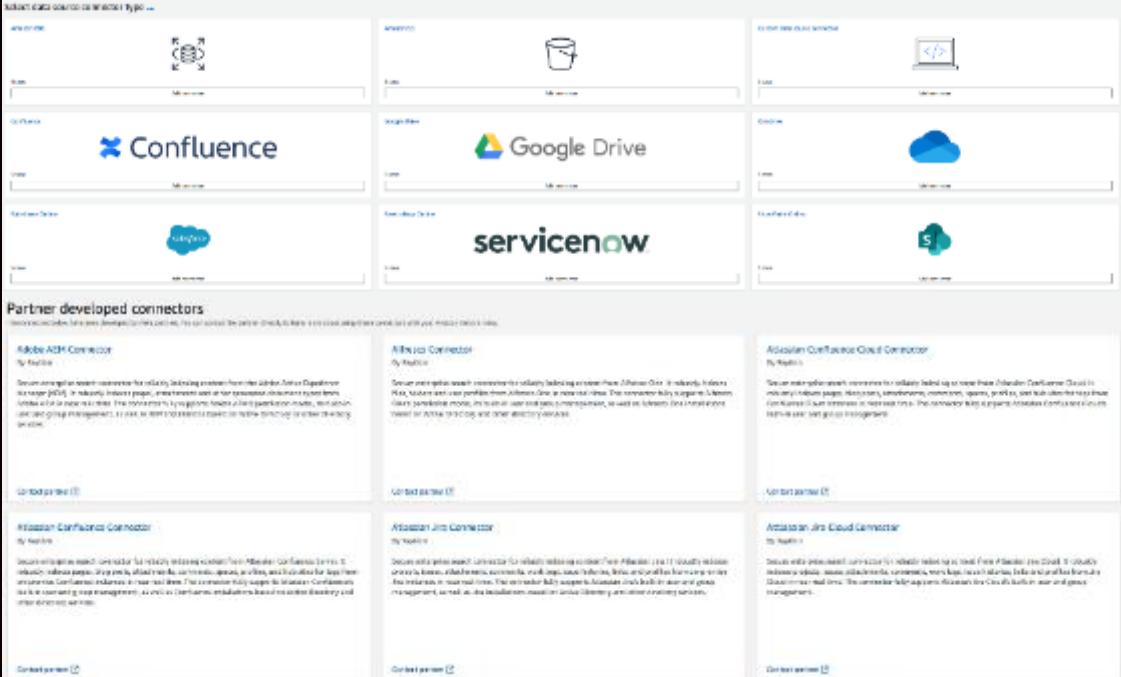
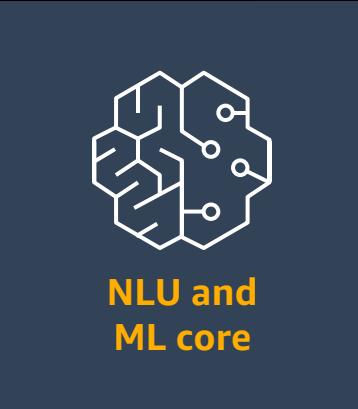
[Amazon.com Help: About Our Returns Policies](#)

Customer Service Center to request a refund of the remaining postage cost. If you return a defective, damaged or incorrect item, you'll be refunded the full postage cost, as well as your Import Fees Deposit, once your return is processed. Amazon Alexa Voice Shopping Non-digital...

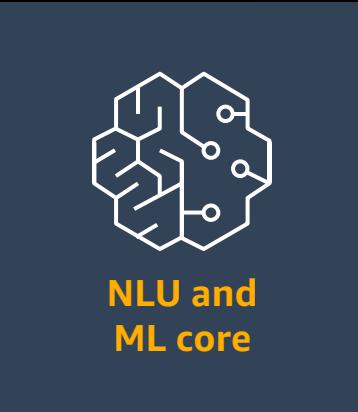
<https://s3.us-east-1.amazonaws.com/amazon-service.../201819200.html>

Like Feedback

Native connectors



Secure search



Highly secure

A screenshot of the Amazon Kendra search console. At the top, there's a search bar with the placeholder "What is Serverless?". Below the search bar, there are fields for "Username" (set to "james") and "Groups" (set to "AWS-Sales"), both of which are highlighted with a yellow box. Underneath these, there are buttons for "Edit" and "Remove". The main search results area shows "1-10 of 26 results" and a section titled "Amazon Kendra suggested answers" with a link to "serverless-application-model". The page URL is "Amazon Kendra > Indexes > aws-ssm-demo > Search console".

Amazon Kendra > Indexes > aws-ssm-demo > Search console

What is Serverless?

Test query with an access token [Info](#) Token applied

Username: James Groups: AWS-Sales

Edit Remove

1-10 of 26 results

Amazon Kendra suggested answers

[serverless-application-model](#)

The AWS Serverless Application Model (AWS SAM) is an open-source framework that you can use to build serverless applications on AWS. A serverless application is a combination of Lambda functions, event sources, and other resources that work together to perform tasks. Note that a serverless application is more than just a Lambda function—it can include additional resources such as APIs, databases, and event source mappings. You can use AWS SAM to define your serverless applications. AWS SAM consists of the following components:

- AWS SAM template



Data encrypted in transit and at rest
Token-based user access control

Intelligent Search case studies



Uses Amazon Kendra to help scientists find the information they need by handling natural language queries quickly and accurately.



AWS helps to reduce agent training by 3–5 days and increases agent call handling volume. Magellan Rx was able to lower the average call time by 9–15 seconds, which saves over 4,000 hours on over 2.2 million calls per calendar year.

A young man with dark hair, wearing a white dress shirt and a dark tie, stands in a city street at night. He is holding a blue smartphone in his right hand, looking down at it. The background is filled with blurred lights from city buildings and street lamps, creating a bokeh effect. A strap from a bag is visible over his left shoulder.

Identity Verification

Costs, risk, and liability from fraud-based events are on the rise

74%

Organizations target of scams in excess of \$50K ¹

140%

Increase in fraud attacks since 2020 ²

282%

Growth in account takeover fraudulent activities ³

¹ LexisNexis True Cost of Fraud 2020

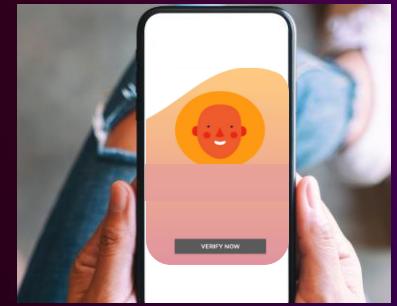
² Sift Digital Trust and Safety Index, 2020

³ JPMC Payments Fraud Control Report 2021



Identity verification use cases

ENABLE SECURE AND COMPLIANT DIGITAL EXPERIENCES



Customer
onboarding &
verification

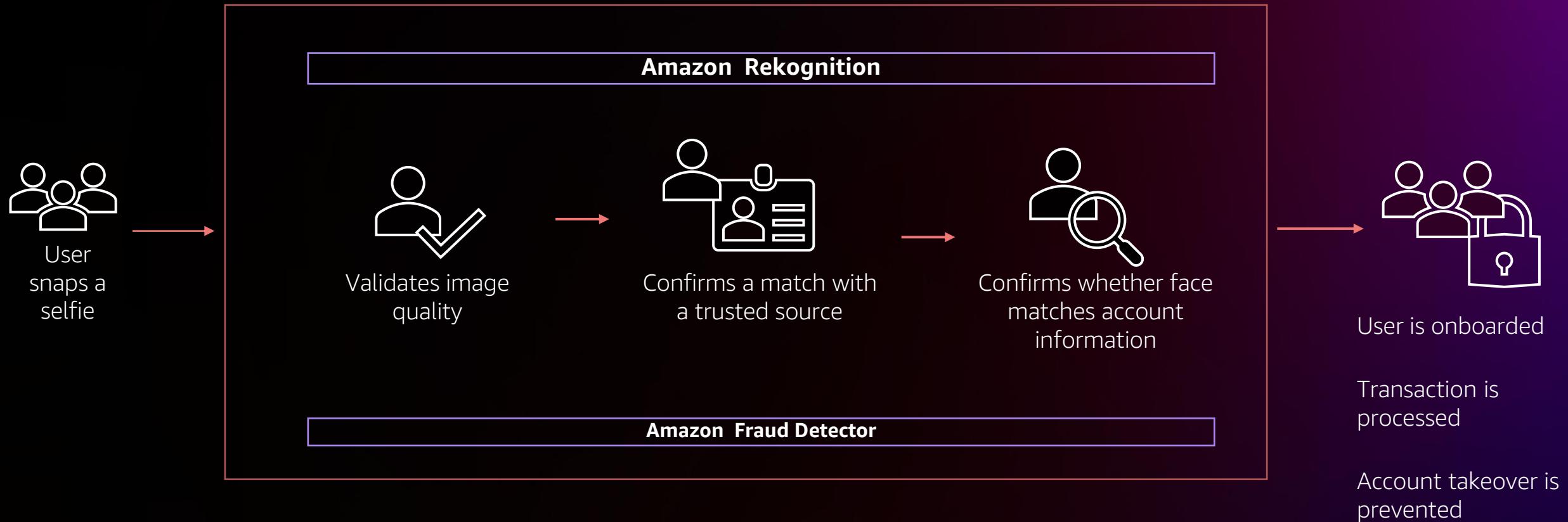
Online
proctoring

Gig economy
verification

Event &
airport
check-ins

User
challenges

Identity verification on AWS



Identity Verification case studies



Image analysis to verify an individual's identity in real-time without human intervention for **instant** loan approvals.



**Bachpan
Bachao
Andolan**

Online image and information match against reports of abandoned and missing children.

Lower false-positive rate and daily interception of **63,000** images and videos.

A photograph of a person with long dark hair, wearing a yellow hoodie, sitting at a desk and typing on a silver laptop keyboard. Five floating speech bubbles in blue and teal colors are overlaid on the image, each containing three white dots, symbolizing communication or moderation. The background is slightly blurred.

Content Moderation

Customers expect inclusion and safety

50%

of people create content at least once daily¹

40%

of consumers disengage after one exposure to toxic UGC²

70%

of consumers agree that brands are responsible to moderate UGC²

¹ Stackla, [Customer Survey](#)

² BusinessWire, [Customer Survey](#)



Content Moderation

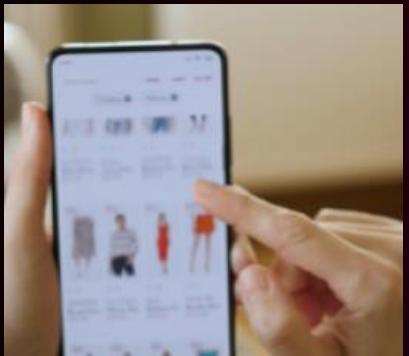
CREATE SAFE ONLINE ENVIRONMENTS, PROTECT YOUR BRAND, AND MINIMIZE MODERATION COSTS



Gaming



Social media

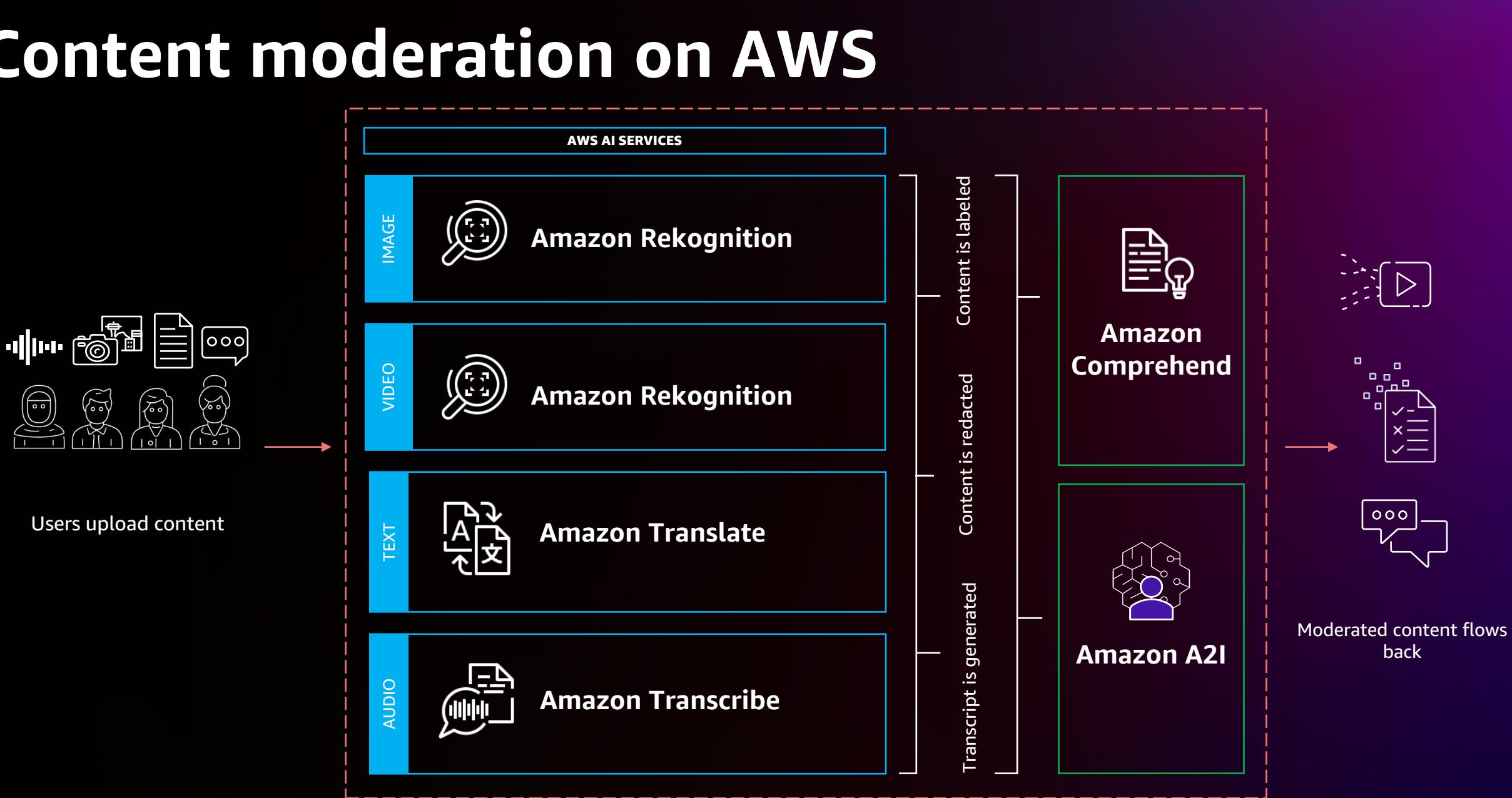


E-commerce



Advertising

Content moderation on AWS



Content Moderation case studies

DeNA

Pococha voice community

Identification and redaction of words not recognized by standard speech-to-text services

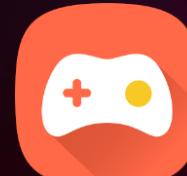
Higher detection accuracy and faster moderation response times

FLIPBOARD

Content recommendation platform

Automatically detect content violations in 1.2 billion images and videos yearly

Lower false-positive rate and daily interception of 63,000 images and videos



MOBISOCIAL

Gaming and streaming platform

Flagging of non-compliant images and videos

Manual moderation reduced by 95% with increased accuracy and scalability

Making it real

AWS

AWS Professional Services

Amazon ML Solutions Lab

AWS Partner

System Integrators

ISVs

Amazon SageMaker

AI Services

SageMaker Canvas

SageMaker Jumpstart

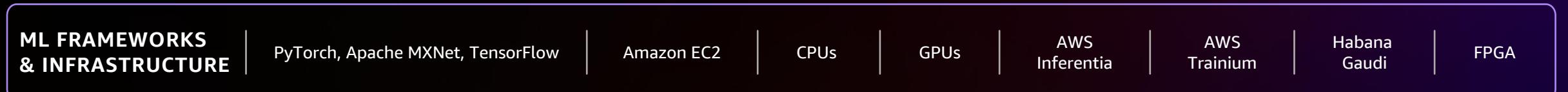
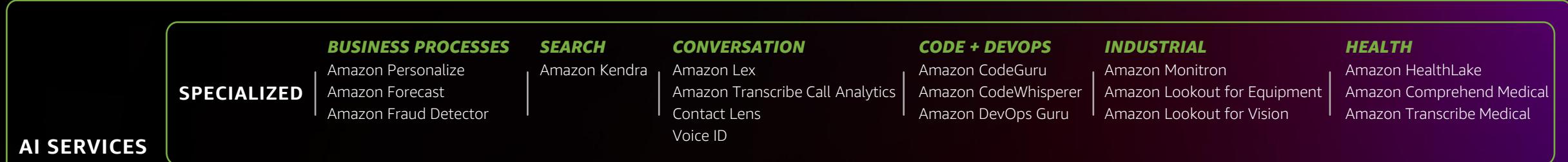
AI/ML Solutions

Do it yourself



The AWS AI/ML stack

BROADEST AND MOST COMPLETE SET OF MACHINE LEARNING CAPABILITIES



AI Services

EASILY ADD INTELLIGENCE TO YOUR BUSINESS APPLICATIONS

SPECIALIZED

BUSINESS PROCESSES

Amazon Personalize
Amazon Forecast
Amazon Fraud Detector

SEARCH

Amazon Kendra

CORE

TEXT

Amazon Translate
Amazon Comprehend

INDUSTRIAL

Amazon Monitron
Amazon Lookout for Equipment
Amazon Lookout for Vision

CONVERSATION

Amazon Lex
Amazon Transcribe Call Analytics
Contact Lens
Voice ID

HEALTH

Amazon HealthLake
Amazon Comprehend Medical
Amazon Transcribe Medical

CODE + DEVOPS

Amazon CodeGuru
Amazon CodeWhisperer
Amazon DevOps Guru

VISION

Amazon Textract
Amazon Rekognition
AWS Panorama



AWS AI/ML Solutions Library - Solutions

Document Understanding Solution [Overview](#) [Resources & FAQ](#)

AWS Solution overview

The diagram below presents the architecture you can automatically deploy using the solution's implementation guide and accompanying AWS CloudFormation template.

The diagram illustrates the architecture of the Document Understanding Solution. It starts with a user interacting with a Browser, which connects to Amazon CloudFront. The user can upload files directly to Amazon S3 or through a Cognito user pool. Both paths lead to an AWS Lambda function (Authenticate) in the 'AWS Lambda (event-driven)' layer. This function interacts with an Amazon API Gateway API. The response goes to another AWS Lambda function (Sync mode) in the same layer, which then connects to an Amazon DynamoDB table. The table triggers a second AWS Lambda function (Sync processor) in the 'AWS Lambda (batch processor)' layer. This function processes the document and stores it in an Amazon S3 bucket. The process then moves to the 'Assets' layer, where an AWS Lambda function (Sync processor) triggers an Amazon Comprehend Medical API. The API returns results to the 'Sync mode' Lambda function, which then updates the Amazon DynamoDB table. Finally, the table triggers a third AWS Lambda function (Sync processor) in the 'AWS Lambda (batch processor)' layer, which marks the document as successful and sends the results to the 'Data storage layer'. The 'Data storage layer' contains various AWS services: Amazon Kendra, Amazon OpenSearch Service, Amazon DynamoDB, and Amazon S3. A fourth AWS Lambda function (Sync processor) in the 'AWS Lambda (batch processor)' layer triggers an 'Assets' Lambda function, which then updates the 'Data storage layer'.

Document Understanding Solution architecture

The AWS CloudFormation template deploys a static web application hosted in an Amazon S3 bucket and served by an Amazon CloudFront distribution. Users are authenticated using Amazon Cognito. The web application interacts with the backend using an Amazon API Gateway API, supported by an AWS Lambda function. Documents are uploaded using either the web application, or directly to a dedicated Amazon S3 bucket for bulk processing. Document processing is initiated by the API, which initiates a Lambda function to add an entry to an Amazon DynamoDB table. The table initiates a second Lambda function that supervises the processing.

Document Understanding Solution

Version 1.0.4
Release date: 08/2022
Author: AWS

Estimated deployment time: 30-60 min

[Estimated cost](#) [Source code](#) [CloudFormation template](#)

[View implementation guide](#)

[Launch in the AWS Console](#)

Additional resources

[Download implementation guide](#) [Resources and FAQ](#)



<https://aws.amazon.com/solutions/ai-ml/>

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OnABot on AWS

[Improving Forecast Accuracy with Machine Learning](#)

[Content Localization on AWS](#)

[Content Analysis on AWS](#)

[Document Understanding Solution](#)

[MLOps Workload Orchestrator](#)

[Media Insights on AWS](#)

[Discovering Hot Topics Using Machine Learning Media2Cloud](#)

[Maintaining Personalized Experiences with Machine Learning](#)

[Streaming Data Solution for Amazon MSK](#)

[Streaming Data Solution for Amazon Kinesis](#)

AWS AI/ML Solutions Library – Guidance

Fraud Detection Using Machine Learning [Overview](#) [Resources & FAQ](#)

Fraud Detection Using Machine Learning

[Free AWS Training | Focus on the cloud skills most relevant to you—choose from 500+ digital courses across 30+ AWS solutions »](#)

Fraud Detection Using Machine Learning deploys a machine learning (ML) model and an example dataset of credit card transactions to train the model to recognize fraud patterns. The model is self-learning which enables it to adapt to new, unknown fraud patterns.

Use this Guidance to automate the detection of potentially fraudulent activity, and the flagging of that activity for review. Fraud Detection Using Machine Learning is easy to deploy and includes an example dataset but you can modify the code to work with any dataset.

Overview

Fraud Detection Using Machine Learning allows you to run automated transaction processing on an example dataset or your own dataset. The included ML model detects potentially fraudulent activity and flags that activity for review. The diagram below presents the architecture you can build using the example code on GitHub.

[Click to enlarge](#)

Fraud Detection Using Machine Learning
Version 2.0.0
Last updated: 01/2022
Author: AWS
[Example code on GitHub](#)

Additional resources
[Resources & FAQ »](#)
[Contact us »](#)

Did this Guidance help you?

Fraud Detection Using Machine Learning architecture
The code deploys the following infrastructure:

[Guidance for Contextual Intelligence for Advertising on AWS](#)

[AI Powered Speech Analytics for Amazon Connect](#)

[Photo Search on AWS](#)

[Liveness Detection Framework](#)

[Serverless Bot Framework](#)

[Text Analysis with Amazon OpenSearch Service and Amazon Comprehend](#)

[Predictive Segmentation Using Amazon Pinpoint and Amazon SageMaker](#)

[Predictive Maintenance Using Machine Learning](#)

[Fraud Detection Using Machine Learning](#)

[Predictive User Engagement](#)

AWS AI/ML Solutions Library – Partner Guidance

REFERENCE DEPLOYMENT

Providence Health Care IPAC-CLABSI on AWS

Scale and expedite reviews of central line-associated bloodstream infection cases

[View deployment guide](#)

This Quick Start deploys Providence Health Care Infection Prevention and Control (IPAC) for central line-associated bloodstream infections (CLABSl) to the Amazon Web Services (AWS) Cloud. It is for health care organizations that want to improve their surveillance of CLABSls.

This deployment retrieves patient data in Microsoft Excel format from an on-premises source. AWS Lambda functions transform data into individual infection cases that are displayed to case reviewers using Amazon SageMaker Ground Truth. Infection control practitioners review cases and label those that meet clinical criteria as confirmed CLABSls.

[What you'll build](#) | [How to deploy](#) | [Cost and licenses](#)

This Quick Start sets up the following:

- AWS Storage Gateway to retrieve bulk patient data from an on-premises source and deposit it into an Amazon Simple Storage Service (Amazon S3) bucket.
- Four Amazon S3 buckets to store the following artifacts.
 - Bulk patient data.
 - Partitioned data.
 - Output data from Amazon SageMaker Ground Truth.
 - Confirmed infection cases for reporting.
- Three AWS Lambda functions
 - A function to retrieve and partition bulk data into individual review cases and save them to an S3 bucket.
 - A function to process the input manifest for GroundTruth. It retrieves data from the partitioned data S3 bucket and transforms it into the JavaScript Object Notation (JSON) format required by Ground Truth.

The diagram illustrates the data flow from an on-premises data source into the AWS Cloud. It shows the data being processed by AWS Storage Gateway, which then feeds into Lambda functions. These functions handle bulk data, partitioned data, and process input manifests. The resulting data is stored in Amazon S3 buckets, including Bulk patient data, Partitioned data, and Process output data. The Amazon SageMaker Ground Truth component then processes the data, leading to Confirmed cases and Output data. Finally, the User interface allows a Reviewer to access the information.

[Enlarge image](#)

[View deployment guide for details](#)

[View the source code for this Quick Start](#)

[Amazon SageMaker Autopilot for Snowflake](#)

[Darktrace vSensor](#)

[DataRobot AutoML 7.1](#)

[Providence Health Care IPAC-CLABSI](#)

[Quantiphi Real-Time Call Center Analytics](#)

[Amazon SageMaker for Tableau](#)

[Industrial Machine Connectivity](#)

[InterSystems IRIS](#)

[Amazon SageMaker with Guardrails](#)

[IBM Cloud Pak for Data](#)

[Utility Meter Data Analytics](#)

[Amazon Lex Chatbot With Amazon Kendra](#)

[Hail](#)

[NVIDIA Clara Train SDK](#)

[Deloitte TrueVoice](#)

[Axomo](#)

[Data Lake with SnapLogic](#)

[Predictive Data Science with Amazon SageMaker and a Data Lake](#)

[eGain Solve](#)

SageMaker Canvas Use Cases

VAST ARRAY OF USE CASES ACROSS DIFFERENT BUSINESS FUNCTIONS, OR VERTICALS



Sales and Marketing

1. Sales conversion
2. Sales forecasting
3. Propensity to churn
4. Customer lifetime value prediction
5. Marketing mix modeling



Finance and Accounting

1. Credit risk scoring
2. Delayed payments prediction
3. Fraud detection
4. Portfolio optimization
5. Account payables automation

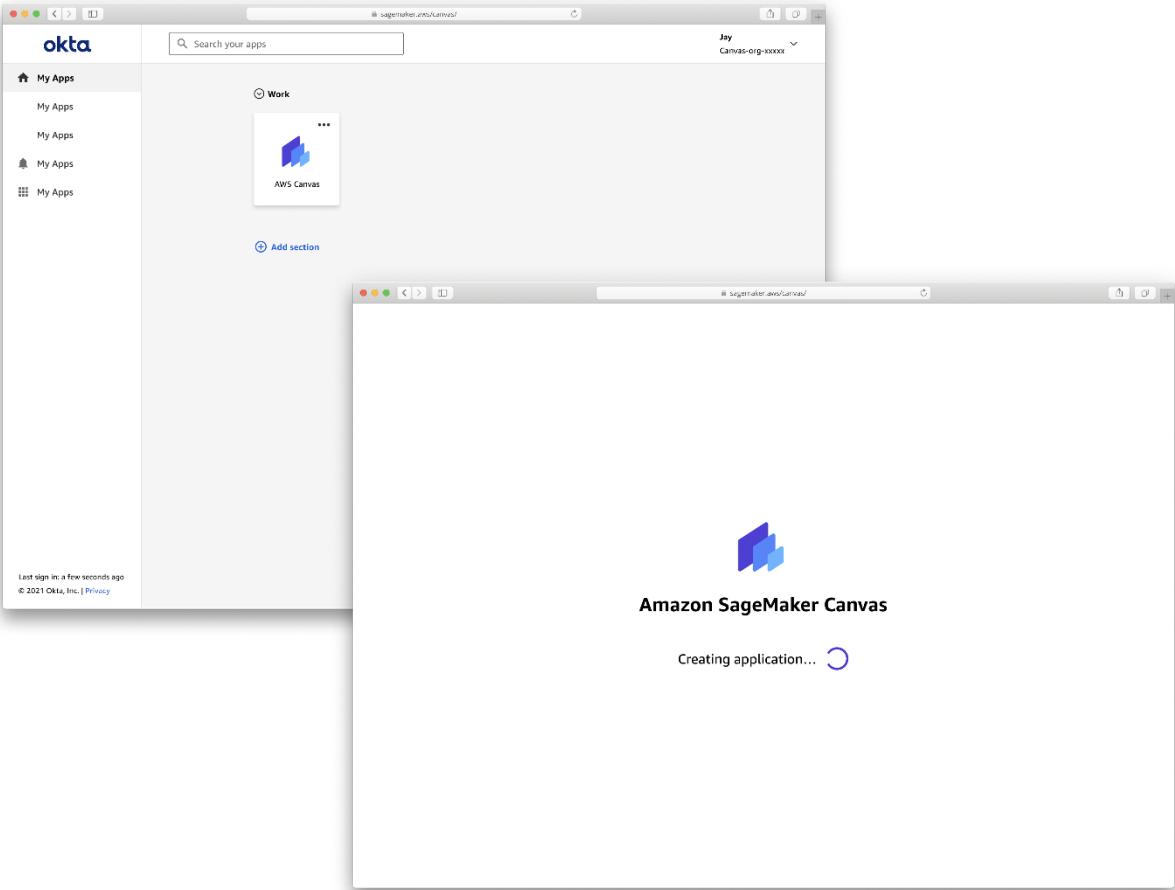


Operations and Logistics

1. Demand forecasting
2. Inventory planning and scheduling
3. Delivery time forecasting
4. Predictive Maintenance

and many more...

Self-service access to a business-friendly tool for Machine Learning, outside of the AWS console



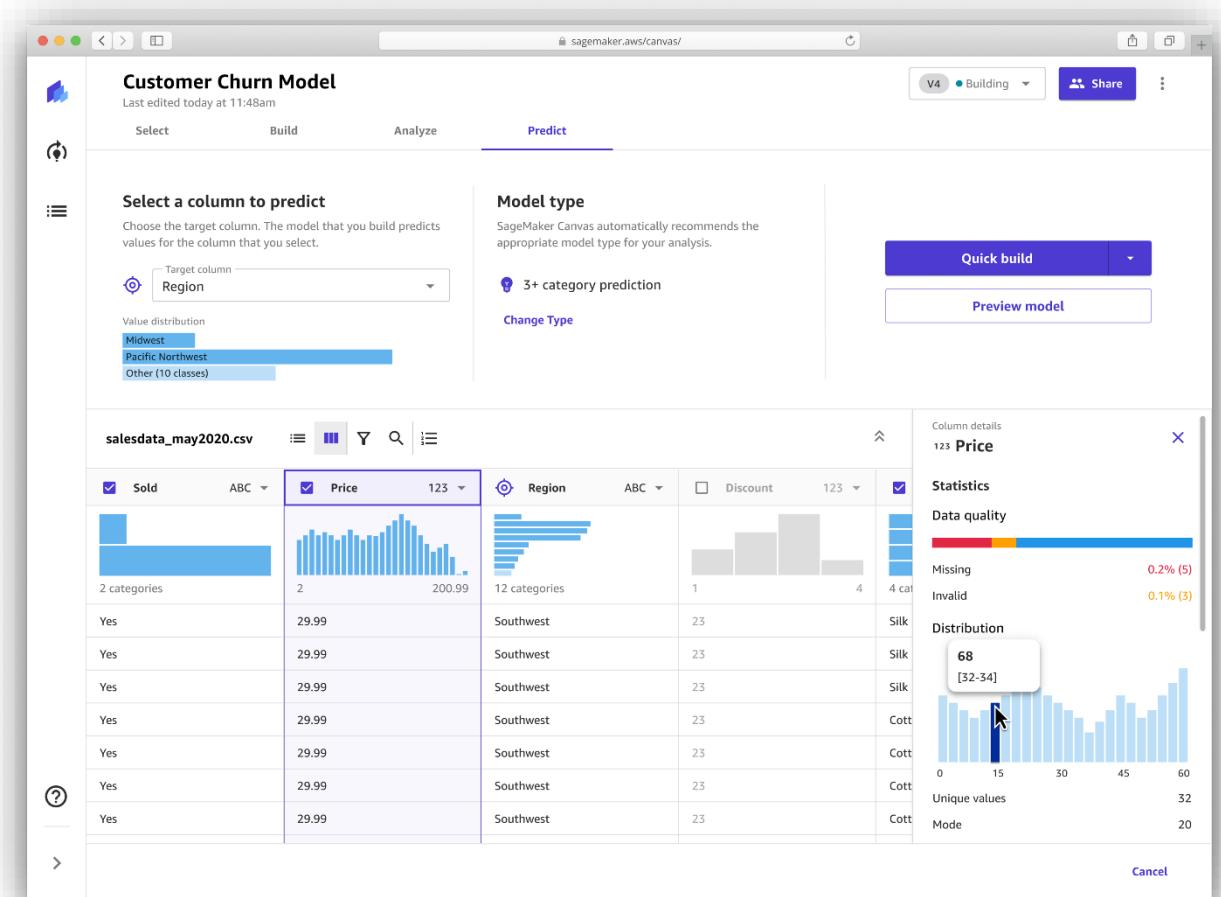
Combine datasets from various sources like local disk, Amazon S3, Amazon RedShift, and Snowflake

The screenshot shows the AWS SageMaker Canvas interface for importing data. At the top, there are connection options for Upload, S3, Snowflake, and Redshift. Below that, the 'Import Data' section has a 'Connection name' dropdown set to 'Context'. On the left, a tree view shows databases database1, database2, database3, database4, schema1, and schema2, with 'table1' selected under schema2. On the right, a diagram shows two tables: 'table1.csv' (green) and 'table2.csv' (pink) connected by a join operation (indicated by a circle with a line). Below the diagram is an 'Import preview' table:

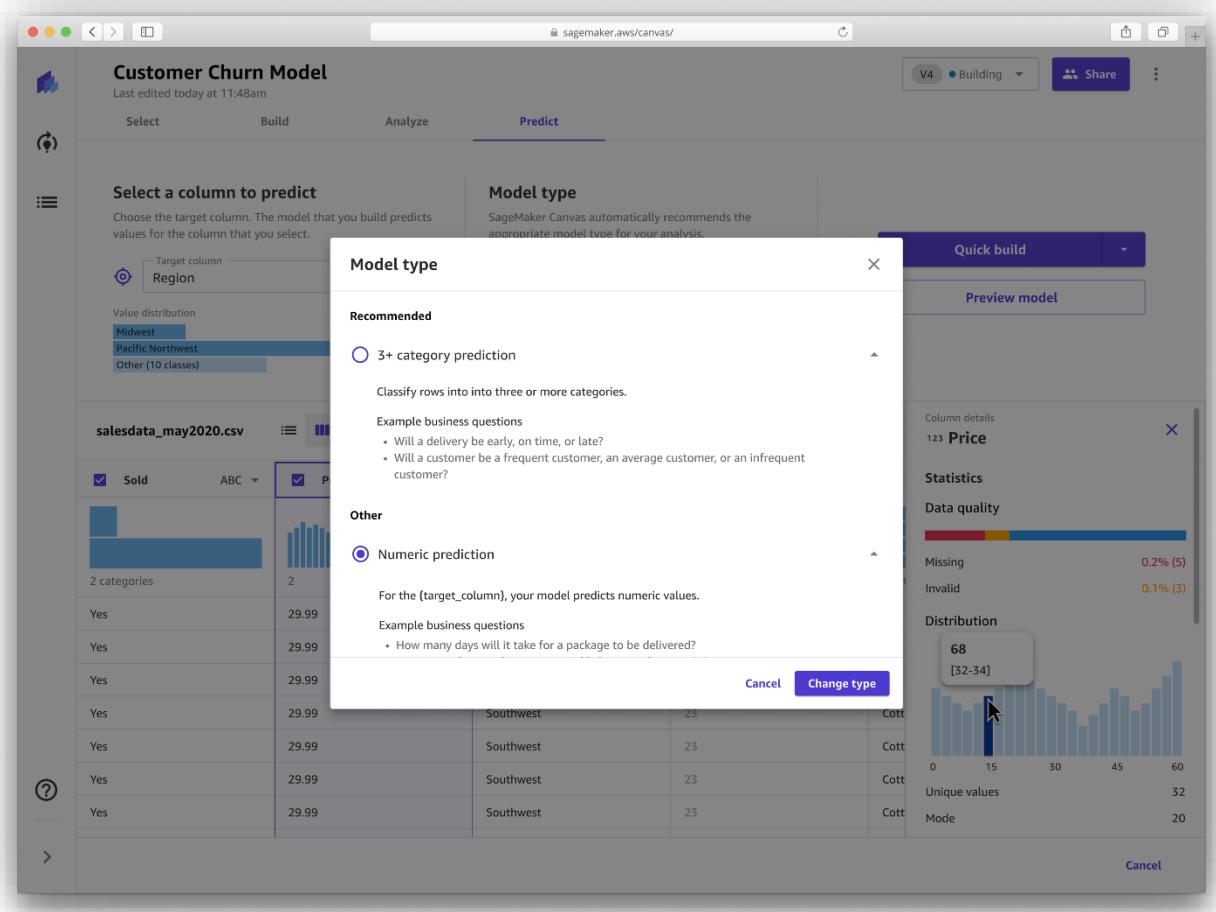
Sold	ABC	Price	Region	ABC	Discount	Fabric	ABC	Age
Yes	ABC	29.99	Southwest	ABC	23	Cotton	ABC	27
Yes	ABC	29.99	Southwest	ABC	23	Silk	ABC	35
Yes	ABC	29.99	Southwest	ABC	23	Silk	ABC	32
Yes	ABC	29.99	Southwest	ABC	23	Silk	ABC	32
Yes	ABC	29.99	Southwest	ABC	23	Cotton	ABC	30

At the bottom, it says 'Previewing the first 100 rows' and has 'Close' and 'Import data' buttons.

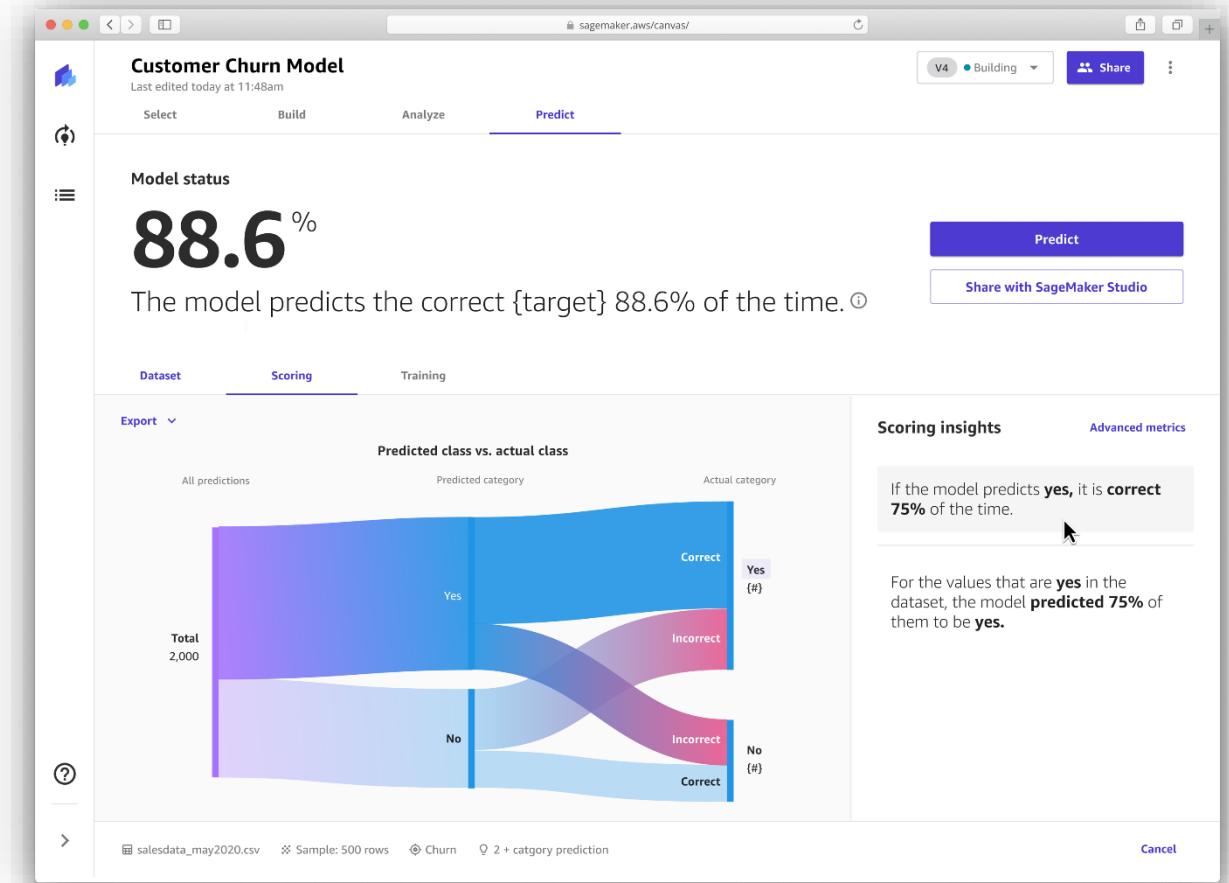
Quickly understand and prepare your data via a visual interface



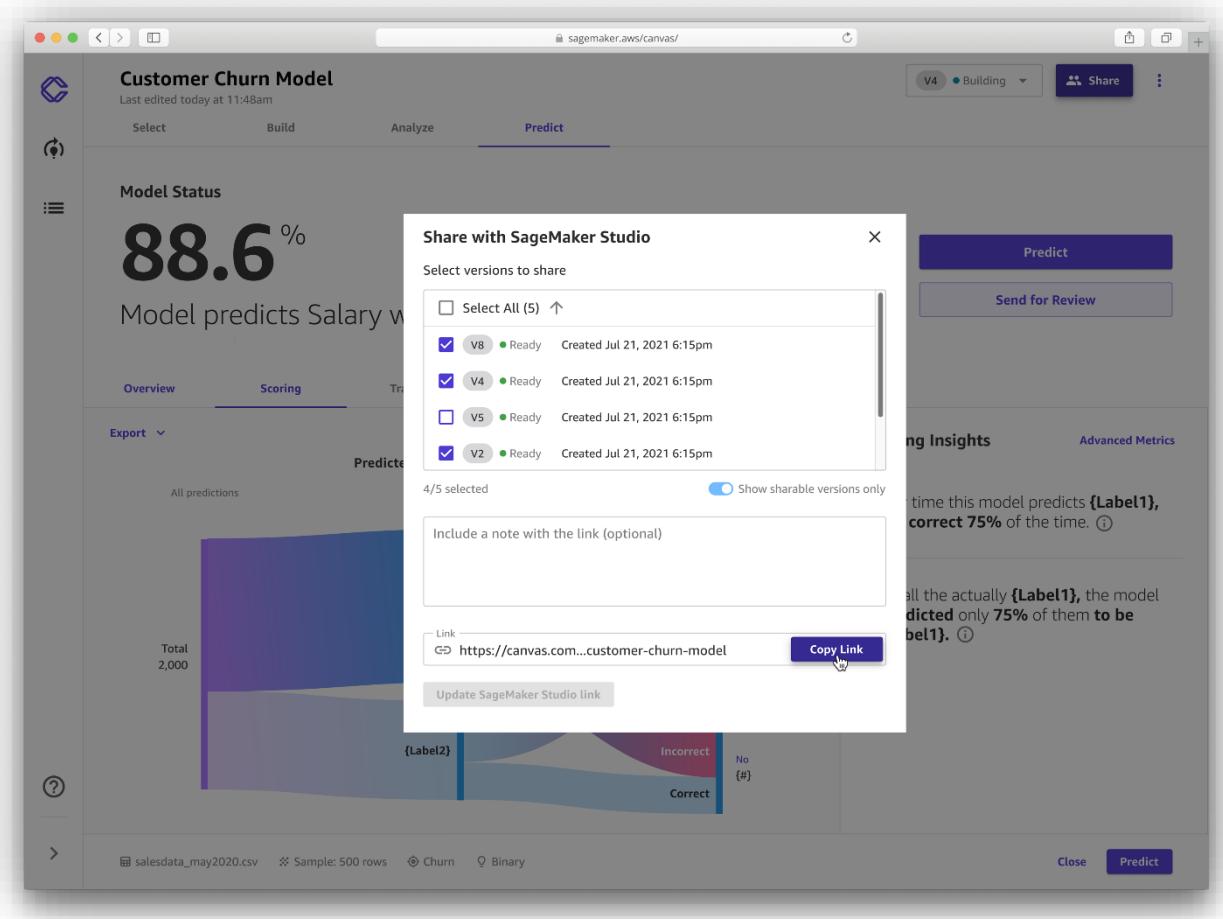
Automatically build an accurate ML model for your dataset



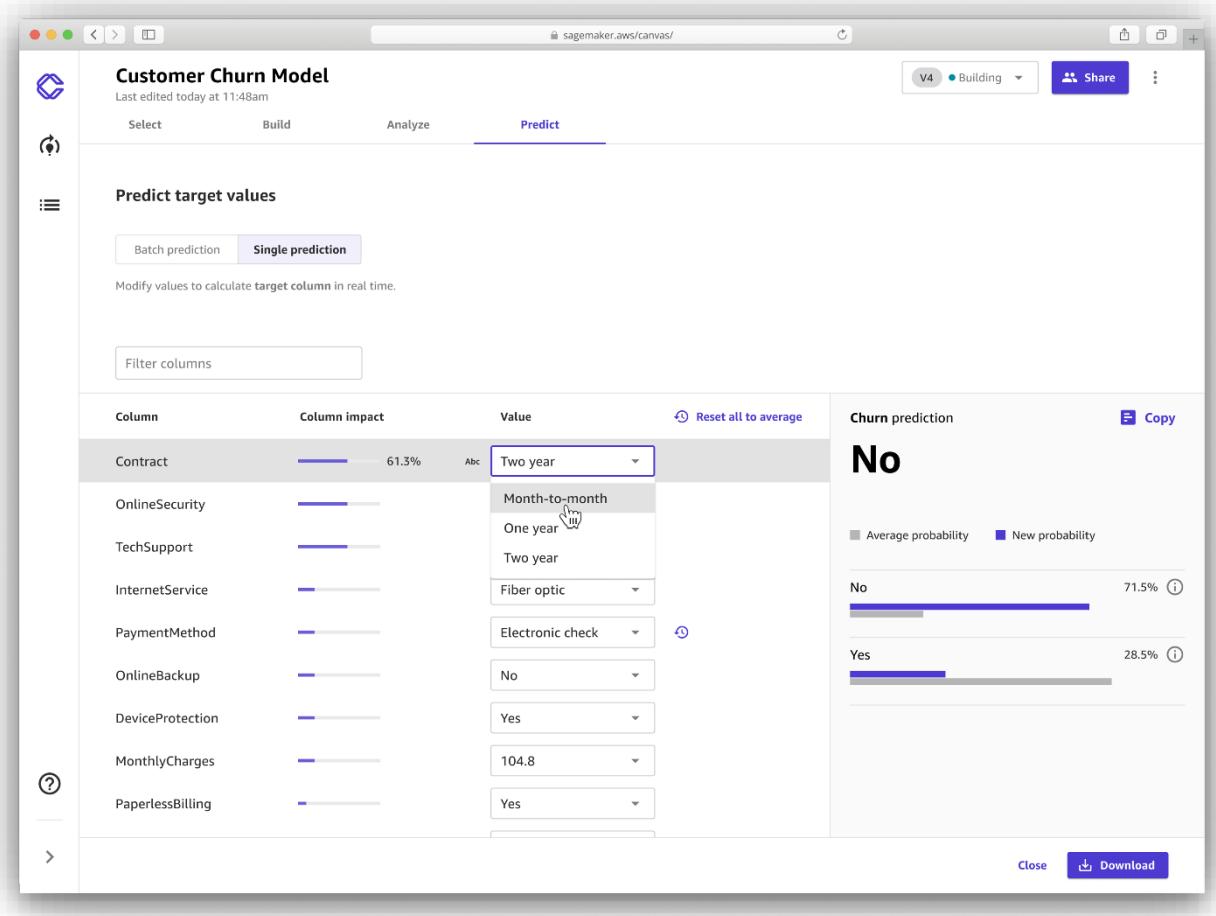
Get the first ML model in minutes. Review advanced metrics and feature importance to understand and explain predictions



Easily share your models with data scientists to get feedback



Run what-if scenarios, or get predictions on an entire dataset



Related sessions

KEYNOTES & LEADERSHIP SESSIONS

KEY003 – Swami Sivasubramanian Keynote – Wed 8:30AM

AIM217-L – Innovate with AI/ML to transform your business – Wed 1:00PM

INTELLIGENT DOCUMENT PROCESSING

AIM204 – Automate insurance document processing with AI – Mon 4:00PM

AIM334 – Using AI to process healthcare data with intelligent document processing – Mon 4:00PM

AIM311 – Use machine learning to automate and process documents at scale – Tue 2:00PM

AIM202 – Pennymac automates mortgage document processing using AI – Wed 9:15AM

AIM214 – Black Knight accelerates mortgage processing workflows with AWS – Wed 4:00PM

Related sessions

CONTACT CENTER INTELLIGENCE

AIM402 – Extract AI-driven customer insights using Post-Call Analytics – Mon 4:00PM

AIM317 – AI-powered contact centers are key for successful organizations – Tue 2:45PM

AIM307 – JPMorgan Chase real-time agent assist for contact center productivity – Wed 11:30AM

CONVERSATIONAL AI

AIM403 – Build human-like customer experiences with conversational AI – Tue 11:45AM

AIM332 – WaFd Bank delivers enhanced self-service with AWS conversational AI – Tue 1:15PM

Related sessions

INTELLIGENT SEARCH

AIM304 – Get the most out of your data with ML-powered search – Tue 5:00PM

AIM340 – Transform your business with intelligent search powered by Amazon Kendra – Wed 1:45PM

PERSONALIZATION

AIM203 – Boost user engagement with Amazon Personalize – Mon 11:30AM

AIM312 – Build a custom recommendation engine in 2 hours with Amazon Personalize – Mon 1:00PM

AIM318 – Taking personalization to the next level with Amazon Personalize – Tue 4:15PM

Related sessions

CONTENT MODERATION

AIM306 – Automate content moderation and compliance with AI – Mon 12:15PM

AIM316 – Build a content moderation workflow to protect users, brands & information – Tue 2:45PM

AI FOR CODING & DEVOPS

AIM309 – Transforming DevOps with AI - Mon 2:30PM

AIM325 – Build applications faster with an ML-powered coding companion – Tue 3:30PM

AI SERVICES

AIM001 – Introduction to AI Services (AWS Demo Theatre) - Wed 5:30PM



Start exploring AI/ML use cases today



Visit
aiexplorer.aws.amazon.com

Thank you!



Please complete the session
survey in the **mobile app**