

Achieving transformative business results with machine learning

How seven leading organizations are using machine learning to resolve key challenges and reveal new opportunities

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INTRODUCTION

Business in the age of accessible machine learning

Thanks to the rapid adoption of cloud computing, the rise of compute power and data volumes, and the emergence of easy-to-use solutions that require little or no experience, machine learning (ML) is now more accessible than ever.

Leading organizations across nearly every industry are leveraging machine learning to achieve positive business results. For many, machine learning has become a core component of their operations. And those investments are paying big dividends: Gartner forecasts that AIderived business values are projected to reach \$3.9 trillion in 2022.¹

AWS is playing a pivotal role in the advancement of machine learning, empowering its customers to effectively use and derive the most benefit from the technology. These customers span healthcare and life sciences, finance, technology, retail, media and entertainment, manufacturing, and the public sector.

Categorizing machine learning objectives

By offering the broadest and most complete set of machine learning services, AWS is able to meet its customers wherever they are in their machine learning journey and help them achieve specific objectives. More than 100,000 customers use AWS machine learning services for everything from enhancing customer experience and predicting business outcomes to reducing fraud and accelerating innovation.

AWS helps its customers successfully leverage machine learning to drive innovation across three categories of critical business objectives:

- Improving customer experience
- · Optimizing business operations
- Accelerating innovation

This look book features success stories from AWS customers that have achieved transformative results across these three categories, demonstrating how AWS is enabling powerful machine learning capabilities across a variety of organizations.



1 Lovelock, John-David, et al. "https://www.gartner.com/en/documents/3868267/forecast-the-business-value-of-artificial-intelligence-w." Gartner, March 2018.

CATEGORY DEFINITION

Improving customer experience

Many organizations are turning to the intelligent, predictive powers of machine learning to improve customer engagement and enhance customer experiences. If customer services or support are challenges for your business, you're likely to find practical inspiration in the following three success stories. Read on to discover how Aramex, Discovery, Inc., and the Canadian government are demonstrating the transformative power of machine learning.



aws

aramex

Keeping customers moving intelligently

<u>Aramex</u> is a leader in the global logistics and transportation industry. A publicly traded company on the Dubai Financial Market, Aramex employs more than 18,000 people in 604 locations across 71 countries.

Opportunity

Aramex used AWS technologies via AWS Partner Inawisdom to support a digital transformation by enhancing the customer experience and digitizing the end-to-end shipment journey. "We are shifting increasingly to be an e-commerce company, and our vision is to be an innovative e-commerce provider that provides a revolutionary customer experience," says Mohammed Sleeq, chief digital officer at Aramex.



Inawisdom helped Aramex implement a solution that leverages Amazon SageMaker and other key AWS services for predictive analysis to analyze shipment transit times and provide a complete picture of live transit operations in real time. The solution's data pipeline ingests 1.2 million rows of customer data into Aramex's AWS-enabled data lake every 15 minutes and supports more than 1,500 requests per minute. Aramex also uses the solution to improve efficiency in its customer contract center operations.

Results

- **Eliminated 40 percent of inbound calls:** Aramex has lowered the average processing time for its transit time application from 2.5 seconds to under 200 milliseconds
- **Enhanced the customer experience:** By driving new efficiencies through machine learning, Aramex has improved and modernized the overall experience for customers ordering shipments
- **Increased shipping accuracy:** Aramex has automated transit time prediction for global logistics and increased accuracy in shipping date predictions by 74 percent

"Using the AWS-based solution, we are modernizing the entire customer experience by providing a seamless journey."

Mohammed Sleeq, chief digital officer, Aramex



Discovery

Helping viewers find their next favorite show

Discovery, Inc. (Discovery) is a multinational mass media television company based in New York City. Established in 1985, the company now operates multiple television brands, including the Discovery Channel, the Food Network, Home & Garden Television (HGTV), and The Learning Channel (TLC).

Opportunity

Viewer expectations for nearly endless content choices anytime, anywhere, and on any screen are driving business and operational changes for media companies. Discovery seized the chance to help its customers find curated content that matches their specific interests.

Solution

Discovery built a streaming service, discovery+, adding AWS machine learning capabilities to keep viewers engaged. The service uses <u>Amazon Personalize</u> to go beyond rigid, static, rule-based recommendation systems and deliver highly customized and relevant content to customers.

Results

- **Personalized experience:** Discovery has achieved personalized content experiences for individual viewers and now offers a flexible and scalable solution in discovery+ that works with its existing infrastructure
- **Rapid time to market:** Discovery is able to deploy these solutions rapidly, supporting its desire to deliver content against time-to-market goals

"Our goal was to build a product with a very fast go to market and a flexible and scalable solution. Amazon Personalize was a really solid fit."

Haris Husain, vice president head of product and data science, Discovery, Inc.





Answering questions with intelligence

Canada's Public Services Health & Safety Association (PSHSA)

provides training, consulting, and resources to reduce workplace risks and prevent occupational injuries and illnesses for the 10,000 organizations in the health and community care, education, public safety, and government sectors, as well as over 1.6 million public sector workers in Ontario, Canada.

Opportunity

As populations continue to grow along with demand for public services, government departments and agencies around the world are exploring new ways to scale service delivery. PSHSA turned to an AI-powered chatbot to better serve clients by addressing their occupational health and safety training and consulting questions.

Solution

PSHSA worked with AWS Partner Qalius to implement the AI chatbot, which was configured using <u>Amazon Lex</u>, a service that allows for highly engaging user experiences and lifelike conversational interactions. The solution connects to other PSHSA systems to access up-to-date information. The chatbot directs website visitors to the information they need and allows PSHSA's client experience team to focus on highpriority requests.

Results

- Reduced customer wait times: By providing simple answers to common questions, PSHSA was able to significantly reduce wait times
- Provided critical info quickly: After the COVID-19 outbreak, the chatbot was able to efficiently respond to the growing number of incoming requests—resolving one of every three inquires

"The chatbot provides efficient support to our clients, but it has also been an exceptional help to our client experience team, whose workload has increased significantly since the onset of the pandemic."

Glenn Cullen, chief executive officer and chief operating officer, PSHSA



Use cases & solutions for customer experience

Personalization

Amazon Personalize Amazon SageMaker

Contact center intelligence

AWS Contact Center Intelligence (AWS CCI) Amazon Connect

Media intelligence

AWS Media Intelligence (AWS MI)

Build, train, and maintain machine learning models with Amazon SageMaker

Organizations that want to develop their own models can execute against any of the above use cases with Amazon SageMaker. The endto-end service provides pre-built models and purpose-built tools for every stage of machine learning development.

CATEGORY DEFINITION

Optimizing business operations

With its ability to process massive amounts of data quickly and intelligently, machine learning can help organizations streamline operations, automate processes, and predict business outcomes. This can help improve productivity and augment team capabilities. The following success stories from Anthem and ENGIE demonstrate how core business operations can be optimized by the power of machine learning.



Anthem.

Enabling intelligent claims processing

<u>Anthem</u> is one of the largest health insurance providers in the United States. The company's stated mission is to deliver better care to its members, provide greater value to its customers, and improve the health of communities.

Opportunity

Health insurance companies spend millions of dollars to extract sensitive information from claims forms and accompanying attachments to perform their business operations. At Anthem, it took an average of 20 minutes per claim to manually extract this information. To reduce manual labor, the company wanted to automate the process.

Solution

Anthem used <u>Amazon Textract</u>—a fully managed machine learning service that automatically extracts printed text, handwriting, and other data from scanned documents—to digitize and automate its claims process. Anthem chose Amazon Textract for its image processing capability, ability to detect tables and forms, and adherence to security and compliance standards.

Results

- **Faster claims processing:** Anthem can now extract and digitize data to quickly process thousands of claims each day
- Workflow automation: The solution automatically indexes and makes text available for batch processing from about 80 percent of forms, and Anthem expects to reach 90 percent automation or higher on AWS

"We hope these kinds of technologies will help us...move Anthem to a digital-first organization."

Reddi Gudla, senior vice president, Anthem





Achieving predictive maintenance for power plants

With a presence in more than 70 countries across five continents, **ENGIE** is a key player in low-carbon energy production, distribution, and services on a global scale.

Opportunity

ENGIE wanted to develop, train, and deploy predictive maintenance models in order to anticipate breakdowns and malfunctions of equipment within the group's power plants and for its customers—while keeping control over the allocation of resources and costs. It also wanted to be able to stay up to date and benefit from the latest technological innovations to guarantee the industrialization and scalability of its models.

Solution

ENGIE chose AWS architecture and <u>Amazon SageMaker</u> for their ability to scale, as the company needed to deploy predictive maintenance for several thousand pieces of equipment in operation, each with several dozen models.

Results

- **Security:** The compartmentalization of training tasks enables ENGIE's customer data to remain isolated, leading to higher levels of security
- **Cost control:** Training its models on Amazon EC2 has helped ENGIE save up to 90 percent on its compute costs
- **Predictive maintenance:** ENGIE plans to implement predictive maintenance for more than 1,000 pieces of equipment by 2023

"Amazon SageMaker is a key service for us. The advantage of using it is that we don't have to reinvent the wheel and can rely on a service that works and provides us with stability."

Bastien Murzeau, chief technology officer and tech lead, ENGIE



Use cases & solutions for optimizing business operations

Intelligent search

Amazon Kendra

Intelligent document processing

Amazon Textract Amazon SageMaker Amazon Comprehend Amazon Comprehend Medical Amazon Augmented AI (Amazon A2I)

Fraud detection

Amazon Fraud Detector Amazon SageMaker

Business metrics analysis

<u>Amazon Forecast</u> <u>Amazon SageMaker</u> Amazon Lookout for Metrics



CATEGORY DEFINITION

Accelerating innovation

Organizations also leverage machine learning to help accelerate innovation across their products, services, and applications. This can enable your team members to accomplish more—regardless of their machine learning skill level—while driving efficient resource management and helping to keep costs low. Read on to discover how Intuit and Amazon Robotics are leveraging machine learning to achieve transformative results across their organizations.





Intuit

Saving customers thousands of hours of time

<u>Intuit</u> is a global financial platform company that helps customers manage personal, business, and tax finances through products like TurboTax and QuickBooks.

Opportunity

Intuit wanted to apply AI/ML to revolutionize its business and further its goal of helping consumers and small businesses improve their financial lives.



Solution

Cloud-based machine learning has been instrumental in accelerating development of the Intuit platform, and <u>Amazon SageMaker</u> has been a core element of its machine learning strategy. Intuit uses AWS services for model development, training, and hosting and integrates its own capabilities for orchestration and feature engineering.

Results

- **More models developed faster:** Intuit has dramatically shortened its model development lifecycle, helping the company increase its number of models in production by 50 percent in just one year
- **Time savings for customers:** Intuit has saved its customers over 25,000 hours with AI-powered self-help and over 1.3 million hours of receipt processing
- Accurate forecasting: Intuit can now better predict the ability to pay back a loan, resulting in 10,000 approved loans to small businesses in need—65 percent of which were considered not lendable elsewhere

"Together with AWS, we've made great strides in driving AI/ machine learning innovation with speed, helping us deliver smarter products faster to more than 50 million consumers, small businesses, and self-employed customers around the world."

Marianna Tessel, chief technology officer, Intuit



Enabling machine learning inferencing at scale

<u>Amazon Robotics</u> develops sophisticated machinery and software to optimize efficiency in Amazon fulfillment centers.

Opportunity

As a purveyor of cutting-edge technologies, Amazon Robotics has long known that using artificial intelligence and machine learning to automate key aspects of the fulfillment process represented extraordinary potential gains—so in 2017, it devoted teams to accomplishing just that.

Solution

As the company iterated on its machine learning project, it turned to AWS and used <u>Amazon SageMaker</u> to create solutions. Looking to reduce time-consuming bin scanning, Amazon Robotics built the Intent Detection System, a deeplearning-based computer vision system trained on millions of video examples of stowing actions.

Results

- **Easier management:** Amazon SageMaker freed the Amazon Robotics team from the difficult task of standing up and managing a fleet of GPUs for running inferences at scale across multiple regions
- **Cost savings:** The solution saved the company nearly 50 percent on machine learning inferencing costs
- **Greater productivity:** Using the machine learningpowered solution, Amazon Robotics unlocked a 20 percent improvement in productivity
- **Scalability:** Amazon SageMaker enabled the system to scale horizontally during its rollout, and the team is confident it can handle peak inference demands

"Amazon SageMaker doesn't just manage the hosts we use for inferencing, it also automatically adds or removes hosts as needed to support the workload."

Eli Gallaudet, senior software manager, Amazon Robotics



Use cases & solutions for accelerating innovation

Modernizing machine learning applications

Amazon SageMaker





Start realizing your machine learning objectives today

AWS offers the most comprehensive selection of machine learning solutions and use cases to solve the most challenging and important business problems. More than 100,000 organizations use AWS to accelerate their machine learning journey.

Explore machine learning services that fit your business needs—and learn how to get started today.

Accelerate your machine learning journey with AWS >

