Drive business growth with personalization

How AWS machine learning helps you create highly personalized, engaging customer experiences

Providing better customer experiences and improving business outcomes with personalization

Personalization offers your organization the ability to improve brand loyalty, grow sales, and increase efficiency by using data to create more sophisticated and individually tailored customer experiences. This allows you to delight and engage your customers by delivering the right experience at the right time and in the right place.

According to a 2019 McKinsey study,[1] organizations that have implemented personalized recommendations and triggered communications have realized a 5–15 percent increase in revenue and a 10–30 percent increase in the efficiency of their marketing spend.

As customers spend more time online, engaging with brands through new digital channels and across a growing range of devices, they are increasingly expecting real-time, highly personalized experiences. In fact, 63 percent of consumers see this type of experience as the standard level of service.[2]

However, many organizations are struggling to realize the benefits of personalization in meaningful ways. Irrelevant communications and recommendations frustrate customers, resulting in disengagement and, ultimately, lost sales.

In the next section, we'll review those challenges—and the reasons behind them—in greater detail. Then, throughout this eBook, we'll show how Amazon Web Services (AWS) machine learning (ML) is changing the game, powering solutions that can help you realize the full potential of personalization in the digital era.

1 https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/the-future-of-personalization-and-how-to-get-ready-for-it#

2 https://www.business2community.com/marketing/30-amazing-personalization-statistics-02289044

Challenges to succeeding with personalization

There are three key challenges to personalizing digital experiences:

1

Channel platform and systems integration

It's hard for organizations to create a seamless, personalized experience across multiple consumer channels and touch points and throughout their various internal systems. For example, an organization's website may be hosted on Magento, a web application on Symfony, and email communications on Marketo. Integrating a personalization solution across these disparate platforms can become overly complex. Many organizations are not in a position to completely overhaul their current infrastructure and instead seek solutions that are compatible with their current setup—creating even further disconnect between internal platforms and fracturing customer experiences.

2

Data volume, complexity, and maintenance

Most organizations maintain a wealth of customer data that could be used to support a personalization solution. This includes CRM, promotional, email, and third-party data that can help to paint a 360-degree view of an individual customer. However, ensuring the quality of each unique dataset and stitching together data from multiple sets is a challenge for many organizations. To deliver the right experience to the right customer at the right time, organizations must go beyond basic customer information—capturing and incorporating behavioral data in real time and at scale.

3

Limited scale and ROI from rule-based recommendation systems

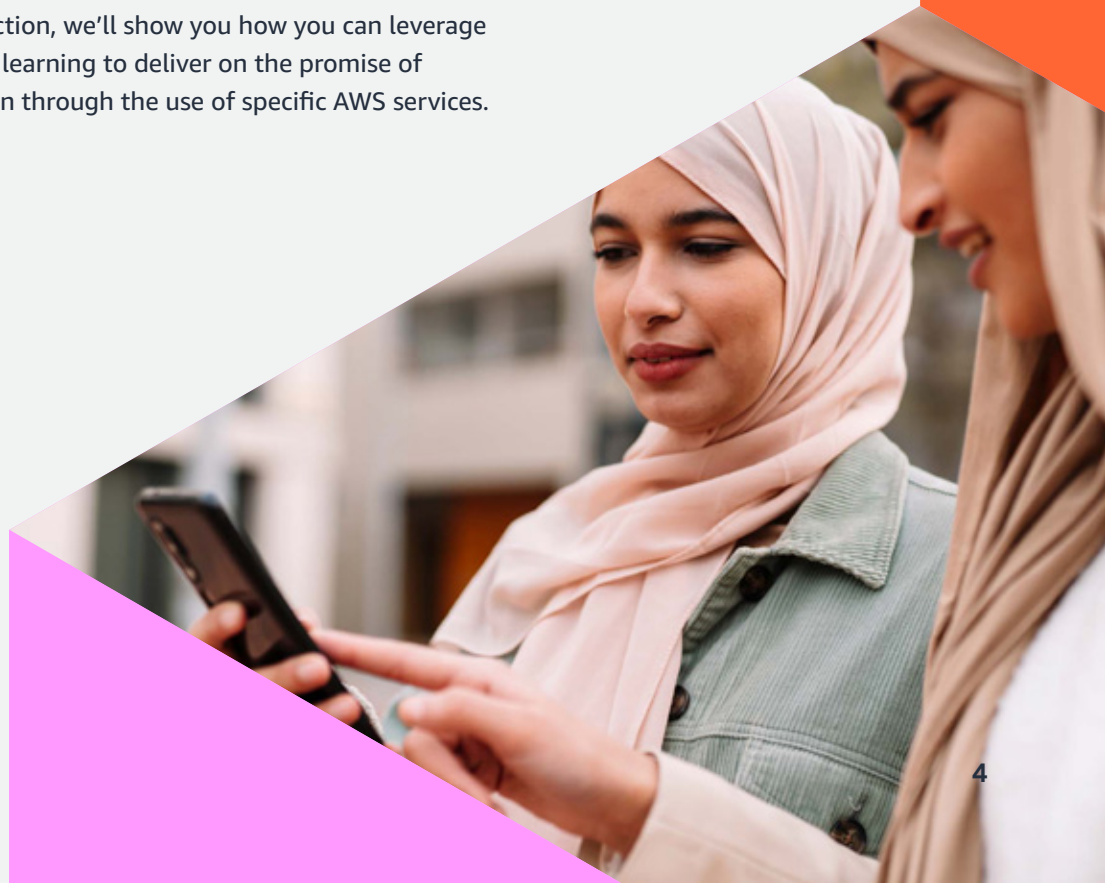
Most existing systems for personalization provide recommendations based on simplistic, pre-defined rules (e.g., "if you are X, you will see Y"). These systems are static and require significant manual maintenance. While they are easy to use and understand, it is challenging to define rules that are specific enough to consumer segments to offer meaningful personalization. Also, human effort to maintain these solutions increases as needs scale, causing performance to diminish as the solution expands or the company grows. This results in poor customer experiences and decreased ROI.

Overcoming personalization challenges through machine learning

Machine learning is powering a new class of personalization solutions that are no longer held back by modern and legacy challenges. Through greater scalability, automation, and intelligence, these solutions can incorporate behavioral data and inferred preferences to deliver highly relevant, enticing experiences that are truly tailored to an individual customer—rather than generic segments of people. Machine learning can do this by helping to process customer data and then selecting the right algorithms to dynamically present the most relevant products or content to each and every customer at the right time.

Machine learning solutions are easier to manage and integrate into your existing workflow, allowing you to address real-time customer needs by creating more relevant experiences at scale. They can also address common problems like “popularity bias” (merely showing a customer the most popular products) and “cold start” (where no user history exists), helping customers find more relevant items and discover new products that are relevant to their interests—even when those products are not particularly popular or information on that customer is limited.

In the next section, we’ll show you how you can leverage AWS machine learning to deliver on the promise of personalization through the use of specific AWS services.



AWS machine learning services for personalization

Amazon.com pioneered personalization in 1998 when it introduced an array of features to better serve book buyers, including instant recommendations from its large catalog. Since then, Amazon has leveraged decades of research in personalization to enhance the customer experience across Amazon.com, Prime Video, Amazon Music, Kindle, and Alexa through recommended items and content widgets. AWS customers can take advantage of these decades of experience to enable developers to build applications with machine learning (ML) techniques used by Amazon.com for real-time personalized recommendations—with no prior ML expertise required.

AWS offers organizations two approaches that can be used to implement an ML-based solution to personalizing customer experiences, depending on the stage of your personalization journey, business landscape, and desired business outcomes.

Amazon Personalize is the fastest and easiest way to start leveraging the power of personalization today. It's a service that allows you to create real-time, personalized user experiences at scale, making it possible for you to implement a sophisticated recommendation system in days, not months. Amazon Personalize enables you to build applications based on the same personalization technology used by Amazon.com. And it easily integrates into your existing websites, apps, SMS, and email marketing systems to expand personalization across all channels and devices.

If you want to create your own machine learning models for personalization, **Amazon SageMaker** provides you with all the tools you'll need in one place. Amazon SageMaker is a fully managed service that helps your data scientists and ML developers build, train, and deploy machine learning models quickly. For recommendation engines, Amazon SageMaker offers built-in algorithms such as factorization machines, hundreds of pre-trained models, and algorithms available through the **AWS Marketplace**, as well as the option to develop your own algorithms.

In the next section, we'll outline the primary use cases for personalization. We'll show how these and other AWS machine learning services can power and generate dynamic solutions to excel the performance of each sample use case. Then we'll take a look at how AWS machine learning can deliver results for personalization across specific industries.

Personalization use cases

User personalization

"User personalization" refers to the products, services, or content that a user sees in a "recommended for you" widget generally found on your company's website and/or app. While many existing solutions offer this feature, these systems are often only informed by the interest information provided by users during initial account creation, most commonly with static, rules-based techniques. AWS machine learning can power solutions that extend far beyond this, enabling dynamic recommendations that are informed by user behavior, real-time changes in intent, and purchases.

With AWS machine learning, you can also add user personalization to new engagement channels, enabling you to feature personalized recommendations in digital marketing deliverables such as display ads, emails, app notifications, social media, and SMS/texting.

Content can be curated to match unique customer behavior across these channels. For instance, if a user of a content streaming site tends to watch TV shows on their mobile device and full movies at home, a machine learning-powered solution can automatically recognize and adjust the recommendations generated within each channel based on that information.

Similar items

Through “similar items,” customers who are browsing products, services, and/or content on your websites or apps can be offered items related to the ones they’re currently viewing. “Similar items” is a widely available feature, but most existing solutions base the populated items solely on attributes of the item itself or user preferences. AWS machine learning helps you to go beyond static datasets to provide recommendations based on behavior data to closely align with the user’s intent. This enables experiences where the customer sees recommendations in the form of “users who watched X also watched Y.”

Adding this layer of true personalization to similar items creates trust between you and your customers by helping them with product discoverability, thus demonstrating that you understand who they are and what they like. “Similar items” also enables you to quickly build demand for new products and content in your catalog that your customers may otherwise not be aware of as they shop for or view their standard, go-to items.

Personalized rankings

“Personalized rankings” refers to the continuous re-ranking of search results on your website or app to reflect a user’s activity and preferences within your business rules—as well as the more common application of category-based recommendations. For instance, if a user who typically only stays at four- or five-star resorts were to search for “Chicago hotels” on a travel site, personalized ranking features would place prestigious hotels at the top of the user’s results page. Many existing approaches to recommendations don’t offer this capability, and of those that do, most cannot adapt to real-time changes in user intent.

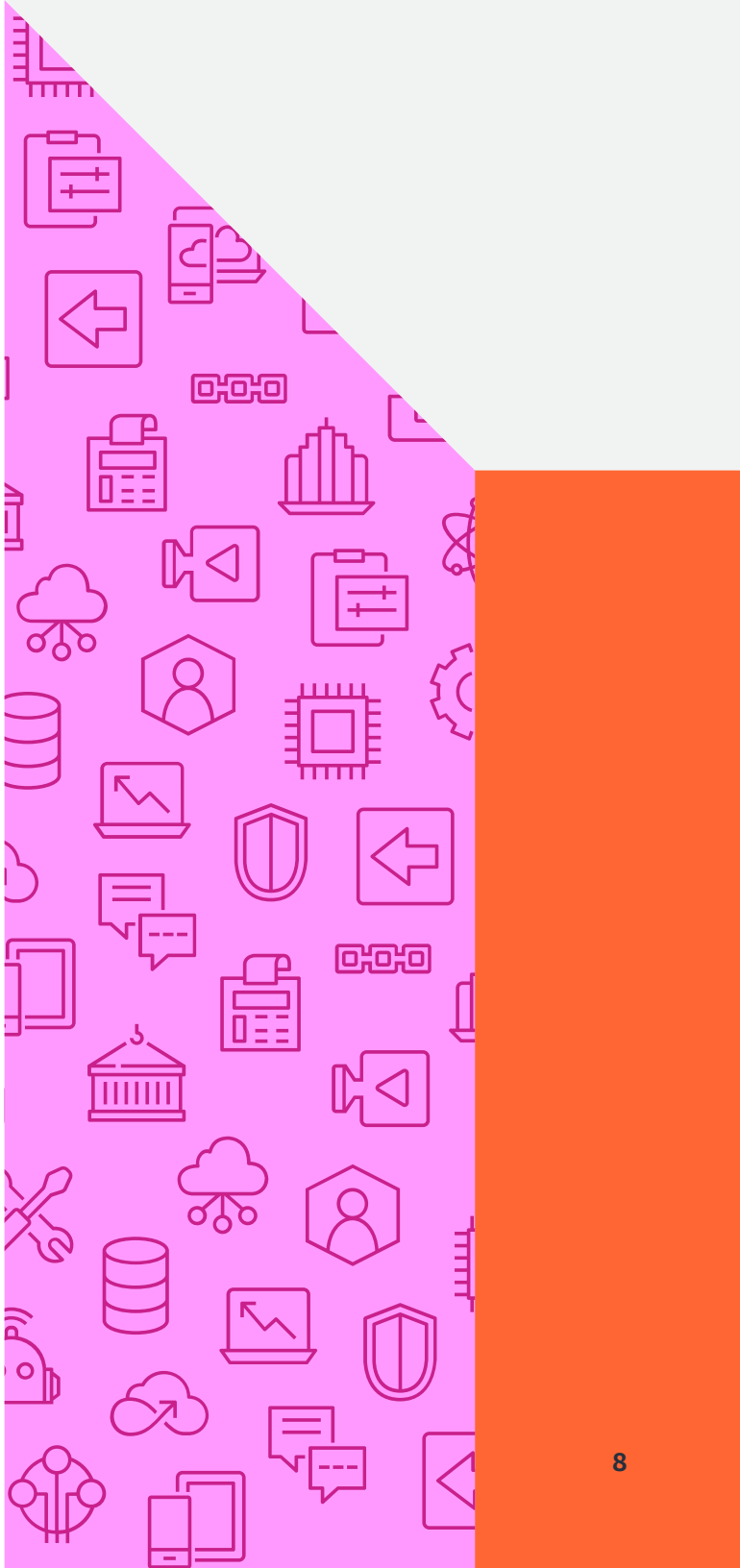
AWS machine learning can help you realize the deep functionality and wide scalability required to make truly personalized rankings a reality, guiding customers to items they are more likely to purchase and enjoy—while potentially exposing them to entirely new categories of your offerings.

AWS machine learning for personalization in retail

Today's retail companies, whose product catalogs can span hundreds of millions of offerings across multiple brands, must adapt to pricing pressures, market disruption from emerging players, and the ever-evolving expectations of customers. Those challenges, combined with the prevalence of legacy technology stacks, are making it difficult for the retail industry to gain a holistic understanding of their customers' behavior.

In order to overcome the demands of an ever-changing shopper and technological landscape, retailers of the future will need to systematically harvest structured and unstructured data across multiple sources. This data can be applied to advanced, predictive algorithms that turn AI-driven insights into foresight and recommended actions. Investment in adaptive data platforms, advanced analytical tools, and AI/machine learning capabilities will allow retailers to turn data into a strategic advantage. AWS machine learning can be used to power solutions that combine interaction data with customer and item data from multiple systems to make more accurate predictions about customer purchase intent and behavior. With these insights, your retail business can start engaging customers with relevant experiences across channels to drive awareness, consideration, and purchase.

Let's take a closer look at common personalization use cases for the retail industry—and how AWS machine learning can help bring them to life and enhance their benefits.



Retail use cases

1

Deliver unique homepage experiences

Personalize users' homepages with product recommendations based on their shopping history

2

Help customers discover products faster

Help users quickly find relevant, new products, deals, and promotions

3

Enhance marketing communication

Personalize push notifications and marketing emails with individualized product recommendations

4

Refine product recommendations

Recommend similar items on product detail pages to help users easily find what they are looking for

5

Relevant product rankings

Easily re-rank relevant product recommendations to drive tangible business outcomes

6

Boost upsell and cross-sell

Provide relevant, enticing, personalized offers at the point of purchase or checkout

Customer focus

MECCA

MECCA, an Australian beauty retailer, has successfully translated its trademark in-store beauty consulting services to its digital outlets using Amazon Personalize to imbue its email marketing communications with individually tailored recommendations. Since implementing Amazon Personalize, email click-through rates are up 65 percent, and sales of recommended products have increased.[3]

zalando

Zalando, Europe's leading online platform for fashion and lifestyle, uses Amazon SageMaker to steer marketing campaigns, generate personalized outfits, and deliver better experiences for its customers. Among other positive results, this has helped the company improve the productivity of its data science team by 20 percent.[4]

3 https://aws.amazon.com/cpg/personalize/

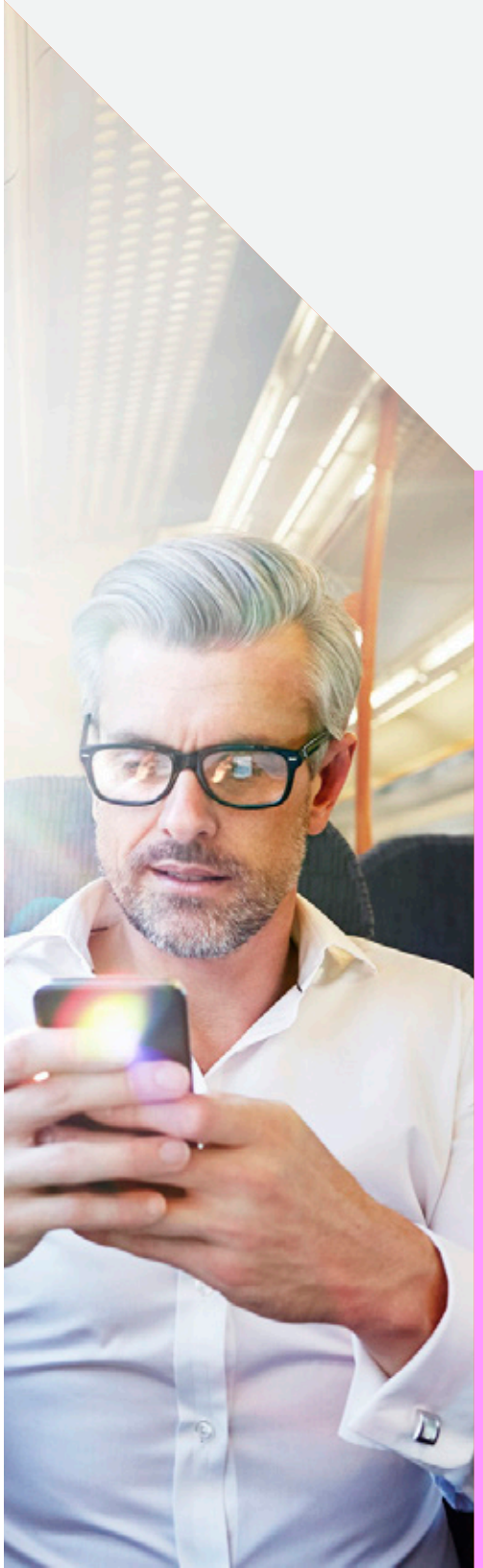
4 https://www.linkedin.com/pulse/building-ml-workflows-zalando-zflow-s%C3%A1nchez-fern%C3%A1ndez/

AWS machine learning for personalization in media and entertainment

The business model of the media and entertainment (M&E) industry has changed. The distinctions between print and digital, video games and sports, pay TV and over-the-top (OTT), and social and traditional media are blurring. Audience expectations for nearly endless content choice anytime, anywhere, and on any screen are driving substantial business and operational changes. M&E companies need to be able to deliver content directly to an audience that is engaged with the brand—and do so in a cost-effective manner.

M&E organizations are transitioning from a one-to-many distribution to a direct, one-to-one relationship with their viewers. As organizations realize they need to build closer relationships with viewers, they must build more personalized direct-to-consumer models. AWS machine learning gives M&E organizations the ability to build strong, direct connections with consumers and deliver innovative viewing experiences. It helps you create personalized, channel-curated content recommendations across multiple devices and platforms, empowering your business to deliver seamless entertainment for customers as they jump between their desktops, mobile devices, and smart TVs. And AWS machine learning can power solutions that scale across millions of products and titles, remaining resilient as content is added and removed.

Let's take a closer look at common personalization use cases for the media and entertainment industry—and how AWS machine learning can help bring them to life and enhance their benefits.



Media and entertainment use cases

1

Increase content consumption

Deliver highly relevant, individualized recommendations for videos, music, eBooks, and other content

2

Highly curated content carousels

Create personalized content carousels for every user based on their content consumption and history

3

Highlight new content offerings

Help users find fresh, new content based on their unique tastes and preferences

4

Create highly personalized ad placements

Personalize pre-roll, mid-roll, and post-roll ad placements within audio and video content

5

Improve marketing communication

Personalize push notifications and marketing emails with individualized content recommendations

6

Enhance genre-based recommendations

Add individualized recommendations to genre-based content carousels and lists

Customer focus

Pulselive

Pulselive, a digital media sports technology company, successfully integrated Amazon Personalize into its digital media sports offerings in just a few days, despite limited experience with machine learning. Now armed with a more sophisticated recommendation engine, Pulselive has enabled one of its clients—a premier European football club with millions of global fans—to increase video consumption by 20 percent across its website and mobile app.[5]

iHeartMEDIA

iHeartMedia, the #1 audio company in the US, uses Amazon SageMaker to recommend relevant radio stations to new users of the iHeartRadio app in the form of messages directly after registration. In a 10-day A/B test, the model hosted on Amazon SageMaker had an 8.7 percent higher click-through rate, driving more users to start listening—while still maintaining equally strong listening time.[6]

5 https://aws.amazon.com/blogs/machine-learning/increasing-engagement-with-personalized-online-sports-content/

6 https://aws.amazon.com/blogs/machine-learning/real-time-music-recommendations-for-new-users-with-amazon-sagemaker/

Start realizing the power of machine learning personalization today

There are several ways to get started with AWS machine learning for personalization. In addition to using **Amazon Personalize** or **Amazon SageMaker**, you can leverage the **AWS Professional Services organization**, a global team of experts that can help you deploy personalization and other services to realize your desired business outcomes when using the AWS Cloud.

You can also **train your developers and data scientists** to build custom personalization models and gain a stronger understanding of machine learning in general. Our training initiatives use the same curriculum we use at Amazon, and many courses are available on demand and at no cost. We can help everyone in your organization—executives, developers, and data scientists alike—become more proficient in machine learning.

Finally, you can **contact us** directly for more information on personalization and other AWS machine learning solutions.

Any of these choices can help you use machine learning to bring the power of personalization to life—so you can create experiences that delight your customers, grow your business, and differentiate your offerings in today's highly competitive digital world.

Find out more ›