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7 essential data use cases for startups

Maximizing business value with data

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INTRODUCTION

In an increasingly competitive landscape, startup founders are looking for innovative ways to secure a competitive edge and disrupt legacy markets. One of the most powerful tools at their disposal to drive innovation and achieve success is data. Data is at the center of every application, process, and business decision—it's the fuel for innovation and business growth. Advanced analytics, machine learning (ML), artificial intelligence (AI), and now generative AI have put a renewed emphasis on extracting value from data.

But harnessing the value of your data isn't easy. It requires thinking holistically and understanding how to make your data work together, so you can put it to work for your startup.

Amazon Web Services (AWS) can help your startup implement an end-to-end strategy that makes data management easier at every step of the journey—from ingesting, storing, and querying data to analyzing, visualizing, and running ML models. Build a data strategy that grows as your startup scales using the most comprehensive set of data capabilities for any use case or business outcome.

We encourage you to look first at the problem area you want to address and the outcomes you want to achieve. From there, work backward to understand how you can use data and AI to drive results in the targeted area. These seven solution areas offer prime opportunities to use your data to transform functions and capabilities across your startup.

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Mastering customer obsession with 360-degree data visibility

Today, customers have countless options to discover, browse, and engage with brands. And their expectations are at an all-time high.

To break through the noise and offer real value, you must first get a holistic view of your customers using data and AI—and then provide them with hyperpersonalized experiences across all channels.

Bottom line

Use data to gain a 360-degree view of each customer to drive audience segmentation, ad targeting, and attribution and offer personalization at scale. The more you can meet, anticipate, and exceed customer expectations, the greater loyalty and lifetime value you can generate.

Needs met

- **Comprehensive customer data platform (CDP):** Create a precise, real-time, and persistent view of your customer

- **Data partnerships:** Enrich customer profiles with second- or third-party data and collaborate effectively with data partners

- **Personalization:** Create competitively differentiated customer experiences

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Create unified customer profiles

Build your own CDP on AWS to unify first-party data along the customer journey—and create a 360-degree view of your customers. Continuous innovation in AWS services can further enhance the capabilities of your CDP, while comprehensive data governance and management tools help maintain data quality and consistency.

Collaborate using data clean rooms

Startups need a secure and effective way to share data and collaborate with their partners. AWS Clean Rooms helps customers and their partners easily and securely collaborate, analyze, and build ML models using their collective data sets—without sharing or copying one another's underlying data or revealing sensitive information to each other.

Offer personalized customer experiences

Improve customer engagement and conversion by creating personalized content and experiences with AWS. Amazon Personalize integrates personalized recommendations into existing websites, applications, email marketing systems, and more; and Amazon Bedrock allows you to build generative AI applications that personalize content and conversations based on your customer's needs.

According to a series of studies conducted by Adobe in 2023, "72% of global consumers say generative AI will improve their customer experiences, with eight out of ten millennial (80%) and Gen Z (83%) consumers expressing similar optimism."

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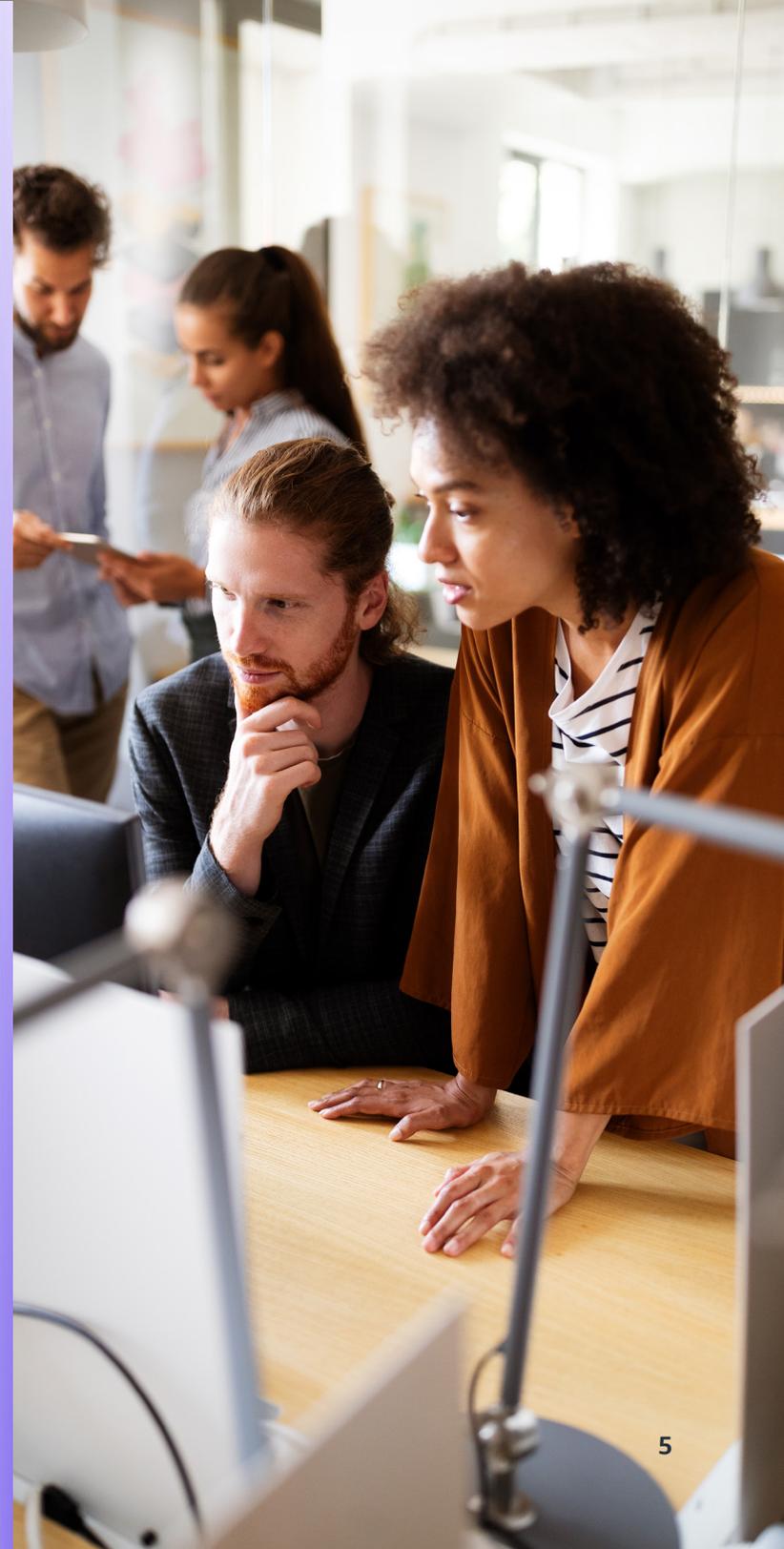
THRIVE
— MARKET —

Thrive Market needed a more agile, scalable, and secure data management platform to keep up with its growth and maintain a detailed view of its customer base.

With AWS, Thrive Market transformed its data handling capabilities. It implemented Tableau on AWS infrastructure and used Matillion ETL for Amazon Redshift, enabling Thrive Market to aggregate data hourly from multiple sources, including third-party platforms such as Facebook.

This shift resulted in remarkable growth, with revenue escalating from $0 to $100 million in 14 months. The new system not only enhanced its enterprise data warehouse, processing 10 million records per hour, but also streamlined operations by consolidating vendor fees into a single bill—exemplifying the power and efficiency of AWS in driving business scalability.

"We chose AWS for the simple reason that it was scalable and we knew that it works for both small businesses and huge businesses. We knew from the beginning that we were going to grow fast. We didn't realize how fast...and we're just really happy that we made that decision that enabled us to seamlessly transition from a zero-size business to over a hundred million dollar run rate."

Nick Green
Co-Founder and Co-CEO, Thrive Market

Watch the full customer story >

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Improving long-term environmental, economic, and societal impact

Startup founders face increasing pressure from employees, customers, and investors to act decisively on environmental issues—and for some businesses, sustainability has become a core pillar of their operations. Data is a key driver of responsible business practices—and can help you lower greenhouse-gas emissions, reducing waste. Insights from sustainability data can power positive change while increasing profitability.

> *International Data Corporation (IDC) forecasts that "spending on environmental, social, and governance (ESG) business services will grow from $37.7 billion in 2023 to nearly $65.0 billion in 2027."*

AWS offers tools and resources to optimize workloads, share carbon footprint insights, and support AI-driven sustainability solutions, empowering startups to design and operate their applications with a focus on environmental responsibility.

Bottom line

Using data to cut waste can go a long way to reducing costs and boosting productivity at the same time.

Needs met

- **Measure your responsible operations and sustainability efforts:** Ingest, analyze, and manage sustainability and responsible operations data, such as carbon tracking, energy conservation, and waste reduction

- **Build sustainability solutions:** Use your data to proactively achieve sustainability goals with a broad, deep set of capabilities in AI, ML, and data analytics

- **Share environmental, social, and governance (ESG) data with customers:** Quantify, understand, and improve your sustainability efforts with greater transparency

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Get a better grasp of your own data use

The customer carbon footprint tool follows greenhouse gas protocol standards and provides easy-to-understand data visualizations to report on emissions from your use of AWS. You can also analyze changes in your emissions to plan and forecast over time as you migrate workloads to AWS, rearchitect applications, or deprecate unused resources.

Build and plan your sustainability strategy with ESG data

Integrate climate risk into your portfolio, align with emerging ESG disclosure requirements, reduce your startup's carbon footprint, and define your renewable energy transition. With AWS Data Exchange, you can find, subscribe to, and use third-party sustainability-related data from the Amazon Sustainability Data Initiative and the AWS Open Data Sponsorship Program, which includes public, weather, air quality, and satellite imagery data.

Design a sustainable, cloud-based data architecture

The AWS Well-Architected Framework sustainability pillar shares design principles, operational guidance, best practices, potential trade-offs, and improvement plans that you can use to meet sustainability targets for your AWS workloads.

rise
gardens

Green technology startup Rise Gardens makes consumer indoor hydroponic gardens, and it has built its infrastructure on AWS. Check out the AWS Fix This podcast with Rise Gardens Chief Technology Officer Dan Kuhn to learn how the startup uses Amazon Alexa and Internet of Things to power its indoor hydroponic gardens and a mobile app that alerts users when to water their plants and when to harvest.

Check out the podcast >

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Creating faster, smarter decision-making across your entire team

The power of data is undeniable. But your data alone is worthless.

As the volume of data surges across industries, the need for real-time insights to drive critical business decisions is more important than ever.

According to PwC, highly data-driven organizations are three times more likely to report significant improvements in speed and quality of decision-making than those who rely less on data.

To extract value from your data, you must be able to transform it into clear, accurate—and easily accessible—business insights. Drive confident decision-making across your startup using AWS to gather, manage, use, and act on your trove of data.

Bottom line

Give people and applications across your startup the data they need to make informed decisions that create value and drive business outcomes.

Needs met

- **No more data silos:** Give your team the power to quickly access, share, and collaborate on data, with unified data accessible across your startup on AWS

- **Real-time business intelligence:** Empower business users to make decisions with data, right when they matter most

- **End-to-end data governance:** Govern and share data more broadly across your business, using cloud-based tools to catalog, discover, share, and govern data stored across AWS, on-premises, and third-party sources

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Eliminate data silos

Facilitate flexible, seamless data sharing and access across business units by unifying data across your business with AWS. When the right people have access to the right data, you can align business outcomes with data-driven insights.

Propel real-time decision-making

Free your team from the heavy lifting required to create data pipelines. AWS has built zero-ETL integrations between our services to make it easier and faster to do analytics, business intelligence, and ML without the need for individuals to delve into the complexities of ETL.

Strengthen data security and governance

Move faster and empower users with the right information at the right time. Gain precise control over where your data sits, who has access to it, and what can be done with it at every step of the data workflow using Amazon DataZone.

Empower business users with BI

Make data-driven decisions on a larger scale and at a faster pace. Give employees easy access to the insights, analytics, reporting, and visualizations they need to make data-driven decisions using Amazon QuickSight, a unified cloud-based BI service.

Foster a data-driven culture

Drive data literacy across your business and embrace new architectures using AWS trainings and guidance on best practices to make actionable insights easily available for everyday actions. Unlock the full potential of your data by expanding data-driven decision-making across all corners of your business.

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Postis

Postis, a fast-growing Romanian startup, provides a real-time digital platform for logistics automation, optimization, and tracking that ensures an excellent service experience across the entire consumer journey from ordering all the way through to receiving goods. The startup began using Amazon SageMaker to build, train, and deploy its ML model. Its databases scale automatically to meet variable demand using Amazon Elastic Compute Cloud (Amazon EC2), which offers secure and resizable compute capacity for any workload. Amazon Relational Database Service (Amazon RDS) allows Postis to set up, operate, and scale relational databases in the cloud. Postis now serves more than 200 customers in 25 countries across retail, ecommerce, logistics, and transportation—including big names, such as IKEA, Carrefour, Auchan, and Intersport.

"Our initial model ran too slowly on our on-premises resources, but the process was useful, because that's when we started to understand the different factors that affect deliveries. [...] Our customers can quickly get set up to accept orders from new countries[....] We have all of the infrastructure and data ready for them, so they just need to sign contracts with local couriers."

Florin Bulgarov
Former Chief Data Scientist, Postis

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Innovating faster with intelligent applications that evolve with customer needs

When it comes to creating innovative applications, these four objectives should be top of mind:

1. **Building experiences that better support customers**

2. **Creating new revenue streams**

3. **Gaining a competitive advantage**

4. **Optimizing costs**

For success, it's critical to build applications that are scalable, intelligent, high-performance, agile, and always relevant. Build a strong data foundation to power your data-intensive applications, including generative AI applications that drive revenue, cut costs, and improve customer experience.

Bottom line

Move your applications to the cloud, so you can innovate faster and evolve with customer needs.

Needs met

- **Cloud-first:** Build applications to run in the cloud, so they benefit from its scale, flexibility, reliability, and security

- **Composable:** Scale and independently deploy application components with a microservices architecture

- **Responsive:** Ensure an excellent user experience across various devices and interfaces with adaptive design

- **Interoperable:** Ensure compatibility and integration capabilities with other systems and platforms

- **Intelligent:** Use advanced technologies like AI/ML or generative AI to help make your applications smarter

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Modernize application infrastructure

Build applications with flexible, microservice-based architecture using AWS infrastructure. AWS offers eight purpose-built database engines, each uniquely designed to provide optimal performance for your applications. For instance, Amazon DynamoDB is a fully managed, serverless, key-value NoSQL database designed to run high-performance applications at any scale. It delivers applications with consistent single-digit millisecond performance, nearly unlimited throughput and storage, and automatic multi-region replication. Over a million customers use DynamoDB.

Develop new solution areas with low-code technologies

By 2025, Gartner predicts that "70% of new applications developed by organizations will use low-code or no-code technologies." Empower your team to generate accurate predictions without prior ML experience or coding. Use Amazon SageMaker Canvas, for example, to build a visual point-and-click interface for data preparation, analysis, and building ML models.

Build and power generative AI applications

Confidently build and scale applications with enterprise-grade security and generative AI capabilities using Amazon Bedrock—no coding required. Generative AI applications need databases that can store, index, retrieve, and search vector embedding or numerical representations of unstructured data, such as text, images, and audio. AWS offers vector capabilities into its popular databases, including Amazon Aurora, Amazon RDS, Amazon OpenSearch Service Serverless, Amazon Neptune, and Amazon DocumentDB (with MongoDB compatibility) to support generative AI applications.

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Immutable

Founded in 2018, Immutable built its infrastructure on AWS, leaning heavily on Amazon Elastic Kubernetes Service (Amazon EKS), a managed service to start, run, and scale Kubernetes. For its databases, the startup uses Amazon RDS. In less than a year, Immutable grew from 50 employees to nearly 300. To manage this increase, Immutable's growing engineering teams simultaneously needed to work on software and operate more independently. Immutable chose to transition to an event-driven architecture using Amazon EventBridge. It could then build on top of its existing architecture—including adopting AWS Lambda, a serverless and event-driven compute service for running code—without thinking about servers or clusters.

Read the full customer story >

Unlocking custom generative AI with an end-to-end data strategy

Generative AI is a type of AI that can create new content and ideas, including conversations, stories, images, videos, and music. AI technologies attempt to mimic human intelligence in nontraditional computing tasks like image recognition, natural language processing (NLP), and translation. Generative AI is the next step in AI.

Whether you're fine tuning or customizing existing foundation models (FM) or building your own, your data is your differentiator.

Successful generative AI initiatives begin with a strong data strategy that includes high-quality and relevant, readily accessible data. Data is the key to moving from generic applications to generative AI applications that create real value for your customers and your business.

With an end-to-end data strategy in place, you can create generative AI applications that increase the value of your data across your startup—to better know your business, understand your customers, and make data-driven decisions.

AWS helps you at every step of the way with your generative AI journey—from building the right infrastructure and data foundation to choosing and customizing FMs to setting the right guardrails for responsible use.

Bottom line

Explore new frontiers of innovation and efficiency by engaging generative AI's transformational capabilities with a modern data strategy.

Needs met

- **Ideate and develop new products:** Facilitate ideation and product design by rapidly generating diverse and innovative concepts and discovering novel solutions to design challenges with generative AI

- **Enhance content customization:** Streamline generative AI content ideation and production using your data and AWS services to achieve personalization at scale

- **Elevate customer experiences:** Create intelligent automation, such as chatbots, virtual assistants, and content moderation tools, to revolutionize customer interactions

- **Amplify productivity:** Boost employee and developer productivity with generative AI applications, such as conversational search, content creation, text summarization, and automated coding

- **Optimize business operations:** Use data-driven insights and generative AI to enhance model training and identify patterns for operational improvements

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Fast-track innovation and product design

Accelerate and augment product creation, ideation, prototyping, and bring innovative products to market faster. Generative AI services, such as Amazon Bedrock, can automate the manual aspects of product development—including routine design, analysis, and writing tasks—while reducing physical prototyping and testing costs.

## Generate marketing and sales content

Streamline and scale content creation—and reduce time and effort—while ensuring consistency in brand voice and format with generative AI. Jumpstart your generative AI journey using Amazon Bedrock to access top-performing FMs. Experiment with different FMs for your use case, and upgrade to the latest model versions with minimal code changes.

Enhance customer operations

Use chatbots, virtual assistants, personalization, and content moderation to improve customer experiences. Generative AI–powered chatbots can provide immediate and personalized responses to complex customer inquiries, regardless of language or location. Improve the quality and effectiveness of automated interactions by fine-tuning FMs and Retrieval Augmented Generation to allow generative AI applications to access contextual business data.

Speed up employee and developer productivity

Use generative AI to automate routine tasks—and empower your developers to focus on more creative aspects of coding. Generative AI services, such as Amazon CodeWhisperer, help improve productivity by generating real-time code suggestions.

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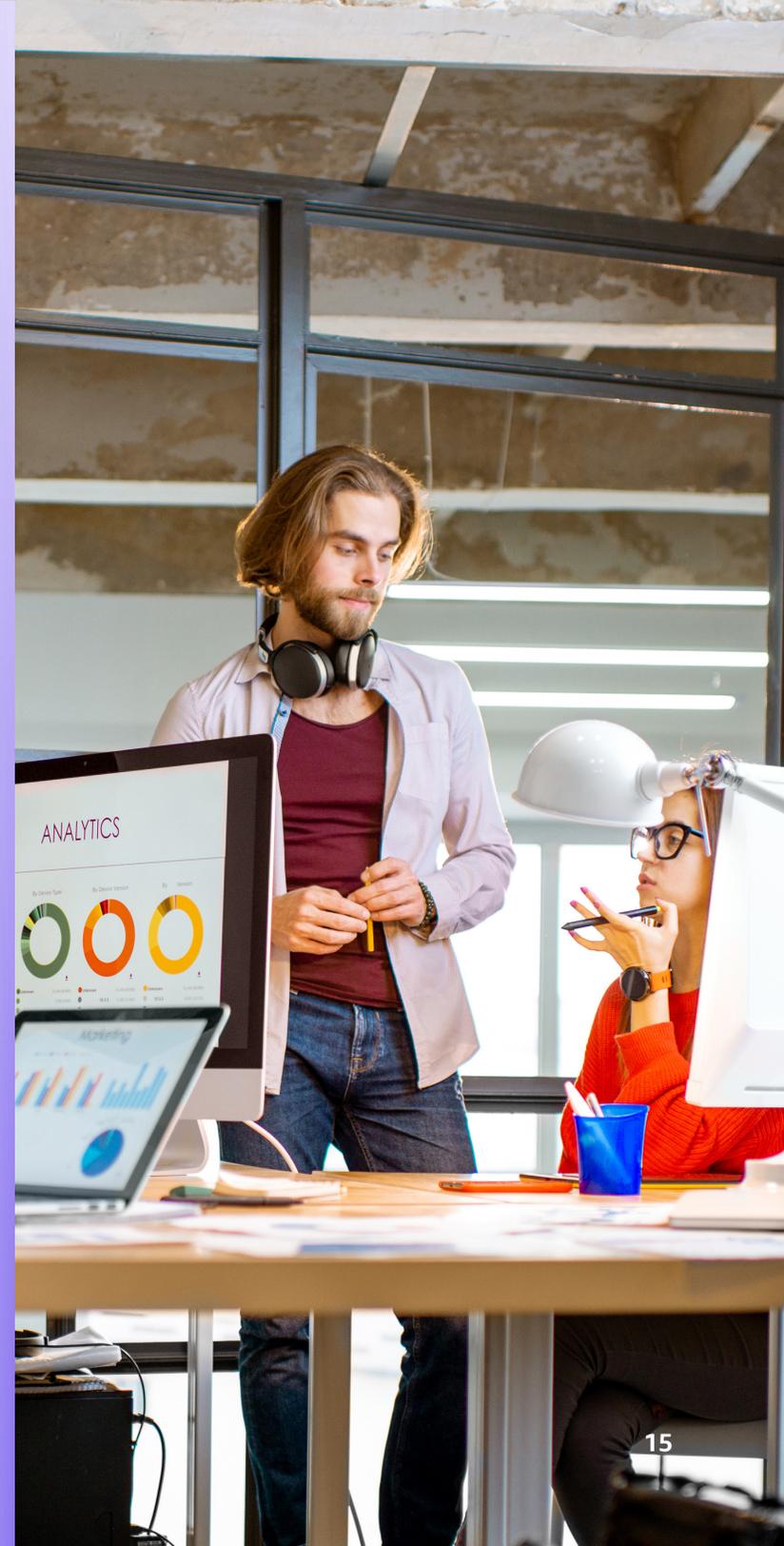
Improve business operations

Streamline document tasks, automate categorization, and improve workflow efficiency with generative AI on AWS. Use data-driven solutions that incorporate ML to identify patterns in data for smarter operations. With unified data on AWS, you can enrich your datasets for better model training.

Amazon Q is a new type of generative AI–powered assistant that's tailored to your business. It supports virtually every area of your business by connecting to your data for the context of your role, internal processes, and governance policies. Ask Amazon Q questions in natural language to get actionable information that can help you manage your data and eliminate heavy lifting from common or repetitive data-related tasks, regardless of your job function.

SmugMug ☺

"Distractions are a constant challenge while coding, especially when it's necessary to switch context to look up code samples and documentation on the web. Amazon CodeWhisperer keeps me focused on the code by automatically offering helpful suggestions right when I need them, so I never have to leave my editor."

Ryan Grove
Staff Software Engineer, SmugMug

AI21labs

AI21 Labs, a front-runner in generative AI and large language models, equips businesses with cutting-edge AI applications and models. The company initially introduced two models: a 7-billion-parameter model and a more extensive 178-billion-parameter one. Recognizing a market need, AI21 developed an intermediate 17-billion-parameter model. This new offering effectively fills the gap in its lineup. With Amazon SageMaker, AI21 efficiently trained this foundation model in less than 20 days, supported by the fully managed infrastructure and streamlined workflows from SageMaker.

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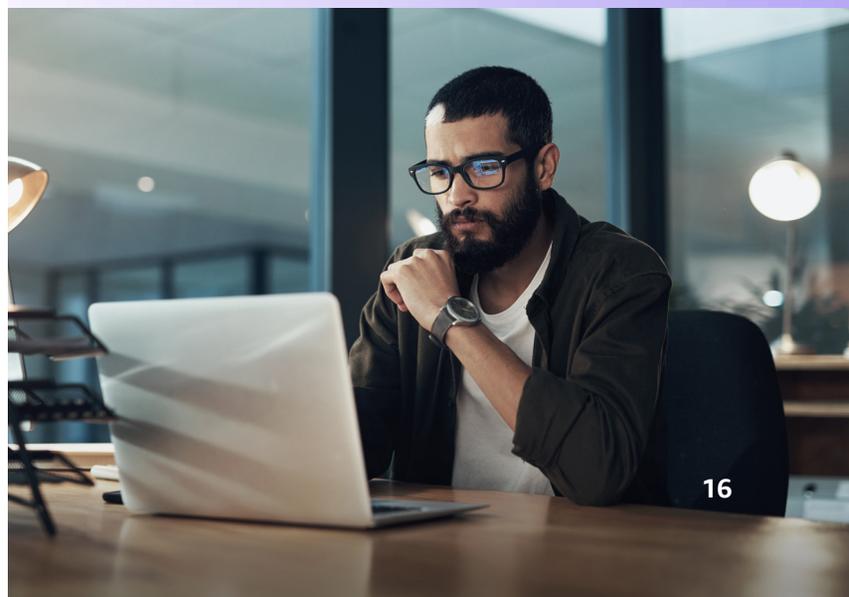
Reducing and preventing fraud with data-driven insights

No startup is immune to growing fraud threats. With the increase in digital transactions, the potential for online fraud has grown, making it crucial to efficiently prevent, detect, and remediate fraudulent activity. Identifying suspicious activities early can minimize the risk of financial loss and help maintain the integrity and trustworthiness of online systems.

Traditional, rule-based fraud detection methods are no longer sufficient to guard against the ever-evolving, sophisticated attacks.

Taking control of your data is essential to an effective fraud prevention strategy. By using data-driven fraud prevention tools from AWS, you can mitigate fraud losses and protect your brand's reputation.

Bottom line

Use tools powered by advanced analytics and ML to effectively predict, detect, and prevent fraud.

Needs met

- **Reduce fraud losses:** Spot and stop potentially fraudulent activity in real time using AWS services powered by ML

- **Safeguard your brand reputation:** Avert potential brand damage by using AWS data insights to adapt your fraud prevention strategy to evolve with the latest fraud trends

- **Keep customers happy:** Create secure and convenient online experiences with seamless fraud risk integrations

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Detect fraud patterns

Model relationships between people, places, and transactions with Amazon Neptune, a serverless graph database, to discover relationships that might not be obvious. Amazon Neptune Analytics makes it easier and faster for data scientists and application developers to quickly analyze large amounts of graph data and find insights in graph data up to 80 times faster by analyzing their existing Neptune graph database. Use ML to identify fraudulent activities with fully managed services like Amazon Fraud Detector.

Identify and prevent suspicious online activities

Apply ML models to proactively detect potentially fraudulent activity. Identify and prioritize possible threats with Amazon GuardDuty, and flag suspicious transactions with Amazon Fraud Detector. Generative AI helps reduce digital fraud by employing advanced algorithms to detect patterns and anomalies in vast datasets, enhancing fraud detection systems' accuracy and responsiveness.

ICONY

ICONY, a white-label dating platform based in Germany, relied on abuse reports to identify fake users and scammers, and then added internal rules and had members of the team review sign-ups. ICONY decided to take a more sophisticated approach to fraud detection by using ML and Amazon Fraud Detector. Combined with other AWS services, ICONY created a bespoke fraud detection solution that didn't require in-house ML expertise. After implementation, the ICONY support team saw the time they spent dealing with fake users and spam accounts fall by 77 percent. This freed up the team to deal with individual user checks, which improved quality on the platform and caused fraud reports from the community to drop by 63 percent. Moreover, the number of registered users returning to the platform has increased by 4.13 percent.

Read the full customer story >

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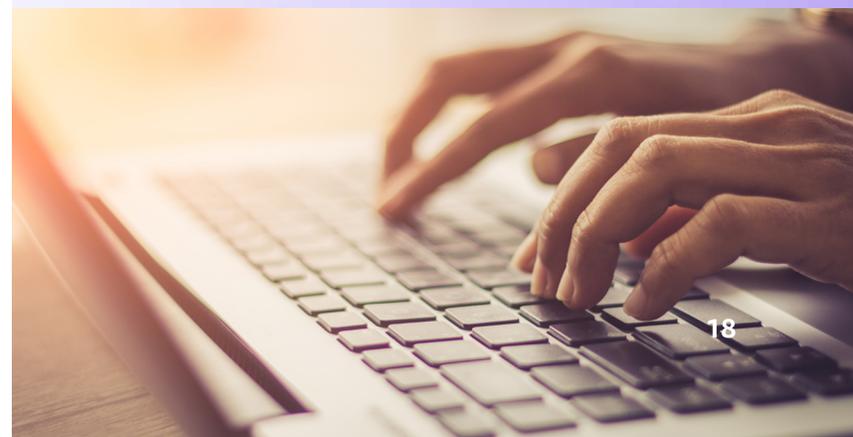
Enabling sustainable, high-performance innovation with strategic cost optimization

The growth of generative AI is expected to drive data center infrastructure and operating costs to over $76 billion by 2028, according to Tirias Research reported by Forbes.

As you work to make data-driven innovation and insights a core part of your startup's future, it's critical to prioritize cost optimization.

Technologies like generative AI are revolutionizing businesses across industries. But at the same time, the costs of managing data infrastructure are soaring as data volumes and use cases grow. Storing, processing, and analyzing large amounts of data require significant resources—including hardware, software, and personnel.

Cut costs on unnecessary heavy lifting and keep pace with innovation by migrating your data to AWS, where you can access the latest cloud technologies—without managing infrastructure.

Bottom line

Reduce the costs of putting your data to work by using best price performance services and data-driven insights to find cost optimization opportunities across your startup.

Needs met

- **Optimize costs at scale:** Choose the end-to-end data foundation that offers the most comprehensive capabilities at the greatest price performance for your use cases

- **Spend less time on data management:** Use built-in intelligence and automation

- **Find cost-saving opportunities:** Use AI and data to gain insight into your operations and identify areas for improvement

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Optimize infrastructure costs

Improve your business processes and reduce operational costs by moving from self-managed or on-premises data infrastructure to a fully managed, cloud-based, end-to-end data foundation. AWS provides the most comprehensive set of data capabilities to give you optimal price performance for any data workload or use case. This includes Amazon Aurora, which provides the performance and availability of commercial-grade databases at one-tenth the cost; Amazon Redshift, a fast, petabyte-scale data warehouse delivering up to six times better price performance than other cloud data warehouses; and Amazon Simple Storage Service (Amazon S3) Intelligent-Tiering storage class, which has saved customers $2 billion in storage costs since its launch in 2018.

Reduce or eliminate data integration costs

The data-driven insights that bring the most value come from getting a full picture of your business and customers. But connecting the dots between your different data sources across multiple departments, services, on-premises tools, and third-party applications typically requires complex extract, transform, and load (ETL) pipelines, which can take hours, if not days. AWS is investing in a zero-ETL future to help businesses accelerate decision-making. With direct integrations between AWS services, we are reducing and eliminating ETL for common use cases, so your team can move faster.

Uncover cost-saving opportunities with analytics and ML

Data analytics, BI, and ML can offer valuable insights into your operations by identifying areas for cost reduction and improved efficiency. You can reduce the cost of software by development, for example, by generating code suggestions in real time with Amazon CodeWhisperer.

Innovate efficiently

Put your data to work to enable generative AI applications that increase productivity and reduce overhead. With fully managed Amazon Bedrock, you can evaluate FMs for your generative AI use cases and customize FMs with your own data. You can also accelerate and augment your generative AI applications with a choice of FMs from leading AI companies like Anthropic, Meta, Cohere, Stability AI, and Amazon.

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ziwo

ZIWO transitioned to AWS for streamlined infrastructure, cost efficiency, enhanced scalability, and secure customer data management. As a provider of a cloud-based contact center solution, ZIWO focuses on enhancing business-customer communication. Prior to AWS, ZIWO managed its services across various cloud platforms, limiting its update capability to only 10 out of 350 customers at a time. With AWS, ZIWO has achieved a 50-fold increase in update speed and a 30 percent reduction in infrastructure expenses.

Read the full customer story ›

Data sets the foundation for startup success

Startups are sitting on treasure troves of data, but struggle to extract value from it.

According to [McKinsey & Company](#), "[i]n a survey of B2B companies, only 25 percent of respondents said they use data weekly to understand customer needs, while 9 percent admitted they never use data at all. An overwhelming 86 percent of respondents believed they could do much better with data."

With an end-to-end data foundation—one that's comprehensive, integrated, and governed—you can fuel innovation, elevate customer experiences, and optimize business performance.

Build yours on AWS, and propel your business into the future.

Visit the AWS Data for Startups resources page >

Additional resources

- [Data-driven decision-making](#)
- [Customer 360](#)
- [Application modernization](#)