



AWS FOR DATA

Maximizing business value with data: 6 essential data-driven use cases for leaders

Learn how organizations are putting their data to work to drive tangible results



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Leverage your most important asset—data

In today's ultra-competitive world, data is the golden ticket driving almost every aspect of innovation. Organizations are increasingly prioritizing data initiatives to solve their business problems and drive more value. In fact, a [2023 Global Study of Chief Data Officers](#) revealed that 41 percent tie their success to driving business value.

Data is the cornerstone of digital transformation—fueling new insights and experiences that can move your organization forward. It sits at the heart of business operations and can drive every application, process, and business decision, unlocking new insights and helping you deliver a more personalized and value-driven customer experience. It is the rocket fuel that will turbocharge your digital transformation, support emerging use cases such as generative AI, and propel you toward a more scalable and profitable future.

What are the key challenges to achieving data-driven success?

However, the central challenge is this: Organizations are sitting on a treasure trove of data but struggle to extract value from it. In 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.¹

Exactly what value you get from data will depend on your business and your specific business goals. On a global scale, more than 79 percent of business executives are looking to gain smarter business decision making from their data, while 61 percent are seeking a better understanding of their customer.²

How to use data to improve business outcomes

As the volume of data grows exponentially, organizations may feel overwhelmed with how to manage and connect data, while siloed data can hinder the ability to make fast, informed decisions. Businesses are increasingly looking to extract value with smaller and more focused datasets. Thirty-six percent of businesses believe that focusing on a small set of key analytics or artificial intelligence (AI) projects can deliver the most value.³

Eliminating department silos and aligning technical decisions and projects to tangible business outcomes can help ensure the right people can access the right data and can get the most out of that data.

This eBook explores critical use cases and showcases how you can transform your organization with the power of your data by leveraging the right people and putting the right processes and technology in place.



USE CASE 1

Data-driven decision making

Breaking down organizational data silos and providing access to critical data can empower employees to make better, faster decisions, enabling them to create more value and drive business outcomes.

The challenge

Decision making is complex, and there is a greater need for employees across an organization to have access to real-time insights to make critical business decisions. However, data alone is not sufficient to make informed decisions. Many organizations lack end-to-end visibility of their data, preventing them from deriving insights when they are needed most.

Priority industries

- Financial Services
- Healthcare
- Media and Entertainment
- Gaming
- Industrial and Manufacturing
- Healthcare and Pharmaceuticals

The solution

Foster a data-driven culture

Embed data at every level, embrace new architecture to capture it, and make it available for everyday actions. Build the capabilities to capture data and put it to use for everyday actions on the front line and provide partners with access to all the data needed to make strategic decisions.

“Creating a data-driven culture across the enterprise is essential to moving beyond just a few successful data initiatives and islands of excellence limited to certain business areas, you can make a tremendous investment in technology, tools, and data, but if you don’t have the right culture of transparency, decentralization, and empowerment on the front line, it’s like having a high-performing car with no one to steer it.”

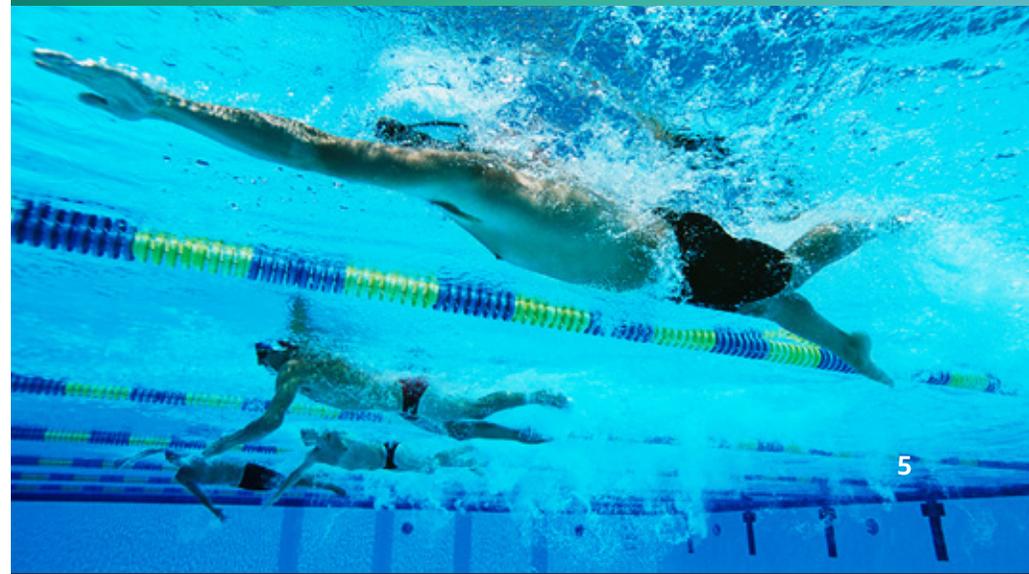
Ishit Vachhrajani,
Enterprise Strategist, AWS



For Swimming Australia, creating a unified view of data was essential to optimize the athlete performance at the Tokyo Olympic games—and bring home 9 gold medals.

“With the help of the Solutions Architects at AWS, we are able to pull all our data in one place, and now that the data is talking to each other, the potential for it is huge. At the end of the day, it is how you use that data information, how the coaches understand it and apply it—information, data, and knowledge is power.”

Jess Coronas,
Performance Solutions Manager,
Swimming Australia



Make insights accessible

Providing employees with quick and easy access to business intelligence (BI) tools and the insights most relevant to them strengthens their ability to make better, faster decisions. Fostering data literacy and proficiency initiatives is imperative to data being viewed as an asset and utilized to its fullest potential by all stakeholders.

Services like Amazon QuickSight make access to valuable insights by allowing all users to meet individual analytic needs from the same source of truth through interactive dashboards, paginated reports, and embedded analytics.

Additionally, you can make organizational data more accessible by building a generative AI application that can help customers and stakeholders find information and answer questions using natural language prompts based on your data. Amazon Bedrock enables you to privately customize and scale generative AI applications with foundation models (FMs).

Share data easily with security and governance

With end-to-end governance, employees can quickly find, access, and share data when they need it. Services such as Amazon DataZone, make it easy for data users of all skill levels to access data stored across Amazon Web Services (AWS), on premises, and third-party sources so they can discover, use, and collaborate with data to derive insights.





USE CASE 2

Customer 360

Customer expectations are at an all-time high and continue to grow. To meet these expectations, organizations need to provide a personalized and seamless experience to each individual customer across the entire customer lifecycle. A customer 360 approach provides a holistic, unified view of the customer that is the foundation for organizations to understand and provide the best possible customer experience.

The challenge

Modern customers have countless options to discover, browse, and engage with the brands—the customer journey is no longer linear. Customers use many different, disparate channels—from social media, websites, and email campaigns to targeted ads and brick-and-mortar locations—when shopping and engaging with a brand. On average, organizations use 25 different sources to gain insights on customer engagement.⁴ To help organizations gain a better understanding of customer behaviors and preferences, they need a 360-degree view of their customers so that they can tailor experiences along the purchase journey.

Priority industries

- Retail
- Media and Entertainment
- Financial Services
- Healthcare
- Travel
- Hospitality

⁴ “How to win on customer experience,” Deloitte Digital, May 2022

The solution

Achieving a 360-degree view of your customers is all about connecting the different interactions and linking customers into one profile. Here are some of the ways you can do this with AWS.

Create a unified customer profile with CDPs

A customer data platform (CDP) creates a persistent, unified customer database that is accessible to other systems. Building a unified customer profile using a CDP is one of the top ways of implementing customer 360. Customer 360 solutions on AWS enable organizations to build their own CDP on AWS and unify first-party data to create a 360-degree view of their customers. AWS also partners with leading CDPs and customer 360 technologies, including Salesforce CDP, Twilio Segment, Amplitude, Amperity, Tealium, and others.

Add personalized recommendations into existing websites, applications, email marketing systems, and more with Amazon Personalize and leverage generative AI to analyze your customer data, preferences, behavior, and past purchases to create highly personalized conversations, recommendations, content, and promotional offers.

Enrich customer profiles with third-party data partnerships

Enrich customer profiles with third-party data partnerships for additional content. AWS Clean Rooms is a new solution that allows collaboration with advertising and marketing partners to bring together disparate data from across engagement channels and partner datasets to form a 360-degree view of your customers—without sharing or revealing underlying data.

Create personalized experiences

AWS allows organizations to improve customer engagement and conversion by creating personalized web experiences tailored to individual customer preferences and behaviors across channels.

Amazon Personalize integrates personalized recommendations into existing websites, applications, email marketing systems, and more.



Salesforce unifies consumer data at exabyte scale and creates a single source of truth in the company's CDP. Launched in September 2022, Salesforce Genie, a hyperscale, real-time CDP, enables companies to turn data into customer magic by delivering highly personalized experiences that adapt to customer behavior and needs in real time. Genie is built on a variety of AWS Data services, including Amazon Relational Database Service (Amazon RDS), Amazon DynamoDB, and Amazon EMR, to provide marketers with a detailed view of their consumers and improve business outcomes.

“We’ve seen a broad adoption, from the largest pharmaceutical companies to banks to pizza stores,” he says. “We’ve even seen one pizza chain find a 30% uplift (ROI) in the coupons it sends—‘Oh, this person likes pepperoni? Let’s personalize their experience with our brand based on these real-time insights and send them what they most want and need.’”

Muralidhar Krishnaprasad,
EVP of Engineering, Salesforce



USE CASE 3

Modern applications

According to Gartner's 2023 Top 10 Strategic Technology Trends, 94 percent of CEOs want to maintain or accelerate pandemic-driven digital transformation.⁵ This presents an opportunity for forward-looking IT and application development leaders to better align with the business stakeholders by prioritizing application modernization initiatives started during the COVID-19 pandemic. They need to focus on building future-proof applications that are scalable, intelligent, agile, and relevant.

The challenge

As customer demands and the regulatory environment continue to evolve, it is important for organizations and data leaders to build applications and infrastructure that can keep up with these changes. This problem is twofold. First, organizations need to build customer experiences that can sustain growth and offer hyper-personalized experiences now and in the future. And second, these experiences need to meet with the current regulatory landscape and be flexible enough to be easily updated as regulations evolve.

This means investing in technology and systems that are flexible and scalable and that can be easily adapted or updated as needed. It also means building a robust and reliable infrastructure that can support the needs of customers now and in the future, even under changing regulatory conditions.

⁵ "Top Strategic Technology Trends," Gartner, 2023

The solution

By putting the right technical infrastructure in place today, businesses can improve customer experiences, reduce costs, drive operational efficiency, and support business growth.

Support business growth with scalable cloud-based data infrastructure

According to the Data and Analytics Leadership Annual Executive Survey 2023 by NewVantage Partners data executives identified data modernization, meaning the transfer of data from outdated or siloed legacy environments to cloud-based environments, as their top investment priority, with 82 percent of organizations planning to increase their investments in data modernization in 2023.⁶ AWS enables you to build a data infrastructure that is scalable, intelligent, agile, and flexible for the future.

Lower costs by migrating from a self-managed or on-premises database to a fully managed cloud database

By migrating from a self-managed or on-premises database to a fully managed cloud database, you can save money associated with time-consuming administrative tasks, such as provisioning infrastructure and software patching. AWS Database Migration Service (AWS DMS) is a managed migration and replication service that helps move your database and analytics workloads to AWS quickly, securely, and with minimal downtime and zero data loss. Trusted by customers globally to securely migrate over 800,000 databases with minimal downtime, AWS DMS supports migration between more than 20 database and analytics engines.



⁶ "Data and Analytics Leadership Annual Executive Survey 2023," NewVantage Partners, 2023

⁷ "The State of Privacy and Personal Data Protection," Gartner, September 2020

65%

By 2023, 65% of the world's population will have its personal data covered under modern privacy regulations.⁷

Priority industries

All, but especially those handling high data volumes and operating in highly regulated environments, including:

- Financial Services
- Healthcare and Pharma
- Advertising and MarTech
- Media and Entertainment

Improve customer experiences with AI and ML

If you have the right tools to generate insights from your data, you will be in a better place to understand customer behaviors. Leveraging AI and machine learning (ML), you can find new ways to increase the value you provide and transform the customer experience.

AWS offers a suite of pretrained AI services, providing ready-made intelligence for applications and workflows for common use cases such as modernizing contact centers, reducing fraud, adding personalized messaging, computer vision (CV), and intelligent document processing. They use the same deep learning (DL) technology that powers Amazon.com and all of its ML services. Moreover, building these requires no ML experience.

Organizations can also build with generative AI on AWS to reinvent customer experiences and applications. Amazon Bedrock is the easiest way to add generative AI to your applications. With Bedrock, you can use your own data to easily and securely customize Amazon Titan FMs and models from AI21 Labs, Anthropic, and Stability AI via an API to create new content and ideas, including conversations, stories, and images.

Enable new use cases with low-code solutions

Amazon SageMaker Canvas is a visual point-and-click interface to connect, prepare, analyze, and explore data for building ML models and generating accurate predictions. It provides business analysts with a no-code interface that allows them to generate accurate predictions on their own—without requiring prior ML experience or having to write a single line of code.

Amazon CodeWhisperer, an AI coding companion that uses generative AI foundation models under the hood, provides application developers with real-time code suggestions based on developers' comments in natural language and prior code. This radically improves developer productivity and accelerates modern application development.

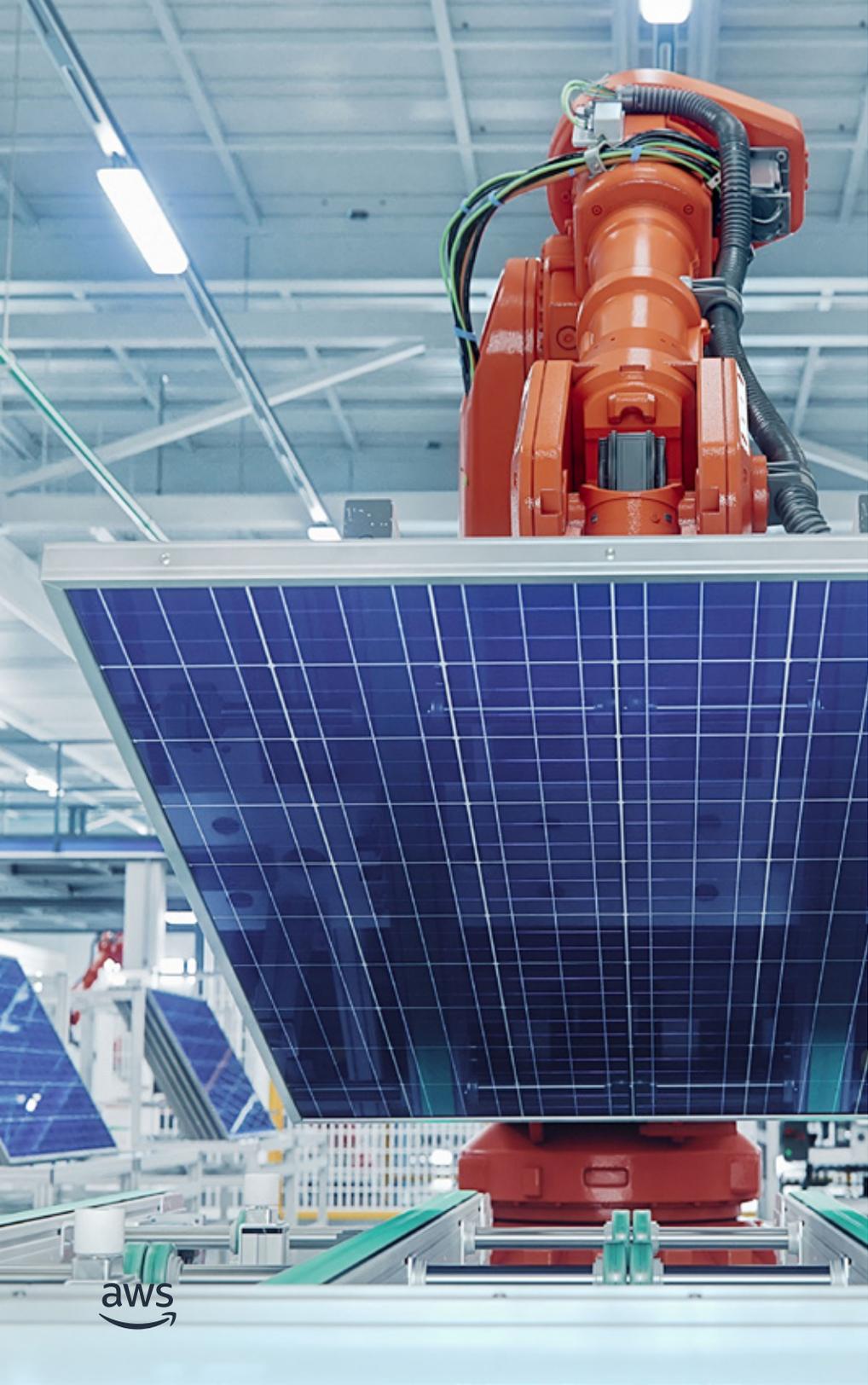


INTUIT

Intuit is a business and financial software company that develops and offers financial, accounting, and tax preparation software and related services for its 160 million small business, accountant, and individual customers. After migrating from Microsoft SQL Server to Amazon Redshift to support a tenfold increase in data volume, Intuit realized improved data processing timelines, delivered insights to decision makers faster and more frequently, and increased productivity for value-add development without any performance bottlenecks.

“The same architecture has scaled to over 7X data volume we had it at the initial migration time with no additional effort on our end. We don’t have to go back and write code. What that means for business outcomes is by freeing up people to not have to be caring and feeding for the system, those people are free to develop new features. We have over 90% reduction in time to insight.”

Jason Rhoades, System Architect, Intuit



USE CASE 4

Supply chain transformation

The modern supply chain is a global network dealing with the complexity of changing customer demands and growing customer bases. To alleviate the pressure, a unified view of data is needed across the entire network for analysis. Organizations are also seeking to take advantage of innovations in ML to build supply chains that can anticipate capacity and demand changes and automatically find ways to work around them.

The challenge

The global supply chain is a network of manufacturers, suppliers, logistics teams, and retailers. They are all managing an increase in complexity and disparate expansion while facing an increase in customer demands ranging from diversity of selection to on-demand delivery of goods.

According to McKinsey's & Company's 2022 study of global supply chain leaders, 45 percent of respondents said that they either have no visibility into their upstream supply chain or that they can see only as far as their first-tier suppliers.⁸

Priority industries

- Industrial and Manufacturing
- Automotive
- Energy
- Retail

⁸ "Taking the pulse of shifting supply chains," McKinsey & Company, August 2022

The solution

AWS allows organizations to use supply chain data, advanced analytics, and ML to get end-to-end visibility, more accurate demand planning, intelligent buying, on-time in-full (OTIF) compliance, improved warehouse management, and supply chain resiliency. AWS is the most comprehensive, broadly adopted, and secure cloud platform that is used by Amazon.com and some of the world's largest supply chains.

Establish end-to-end visibility

Transform your supply chain and provide a unified view of data utilizing AWS data lake services. AWS Supply Chain allows you to get increased visibility into your supply chain, make more-informed decisions powered by ML, mitigate risks associated with overstock and out of stock, and lower operational costs. Unify data and access ML-powered actionable insights, built-in contextual collaboration, and demand planning.

Set up forecasting and operations planning

Forecasting can predict retail inventory demand and improve supply chain planning, such as workforce status, web traffic forecasting, and much more. Amazon Forecast uses ML to generate more accurate demand forecasts with just a few clicks without requiring any prior ML experience.

Improve productivity

Running supply chains is a time-consuming process; AI and ML can automate processes and hedge against risk, freeing up your teams to concentrate on the most important issues for your business.

Services such as AWS Panorama allow you to track and optimize operations and quickly identify the location of all items.



Create sustainable and responsible operations

The global supply chain is evolving toward a net-zero carbon footprint through renewable energy, clean fuels, electric delivery trucks, drones, reduced packaging, and optimal routing.

AWS enables organizations to measure their sustainability and responsible operations efforts, such as carbon tracking, energy conservation, and waste reductions, by helping them to ingest, analyze, and manage sustainability data.

Supply chain resilience

Analyze all data for better planning, risk analysis, and execution. Bringing in third-party data, such as economic indicators and travel restrictions, can help predict and mitigate disruptions.

AWS Data Exchange is the world's most comprehensive service for third-party datasets, with more than 250 data providers and over 3,000 public data products. AWS allows organizations to predict supply chain risk using planning and execution system data and external data sources.



Multi-company supply chains are complex webs of loosely connected providers and technologies that share little information or systems with each other. The Lynx digital platform, codeveloped by Carrier and AWS, is designed to provide customers with greater flexibility, visibility, and intelligence across the cold chain. It combines AWS Internet of Things (IoT), analytics, and ML services with Carrier's refrigeration and monitoring solutions to deliver Carrier's customers in the transport, food, and pharmaceutical industries the capabilities for end-to-end tracking of cargo and real-time alerts about cargo and equipment conditions.

“Carrier is committed to powering a healthy, safe, and sustainable cold chain. Through this collaboration with AWS, we are building on our experience to develop a powerful tool that gives Carrier customers greater flexibility, visibility, and intelligence across the cold chain.”

David Appel,
President, Carrier Refrigeration



USE CASE 5

Fraud and risk reduction

Alongside the rise in digital technology, there has been a dramatic increase in fraud. Data is a valuable asset in the fight against fraud because it can be used to identify patterns and anomalies that might not be apparent to a human analyst. By leveraging the power of data, advanced analytics, and ML, it is possible to more effectively detect and prevent fraud.

The challenge

All organizations are vulnerable to fraud, with online businesses being more susceptible. Criminals are exploiting all sorts of strategies, such as creating fake accounts, hacking into payment instruments, or compromising existing accounts, in an effort to get past defenses. Traditionally, most companies are using rule-based fraud detection, making it more difficult to defend against increasingly sophisticated attacks.

By taking control of data, you can develop a proactive strategy to detect and prevent online fraud to avoid revenue loss and damage to your reputation. For that, you need the latest set of tools and technological capabilities.

Priority industries

Industries with significant online business, including:

- Financial Services
- Media and Entertainment
- Gaming
- Travel

The solution

AWS offers a range of tools and services that can be used to detect and prevent fraud, including ML-powered services that can identify fraudulent activity in real time and security tools that can help protect against a range of threats.

Detect fraud patterns

Fraudulent activity often follows a detectable pattern. Using the latest tools can bring those patterns to the surface, making it easier to detect and prevent attacks.

Use the Amazon Neptune graph database to model relationships between people, places, and transactions to discover relationships that might not be obvious, and detect fraud patterns in real time. Amazon Fraud Detector provides a fully managed service that uses ML to identify fraudulent activity in real-time. It can be used to detect a wide range of fraudulent activities, including payment fraud, account takeover, and fraudulent account creation.

Identify suspicious payment

Reduce online payment fraud by flagging suspicious online payment transactions before processing payments and fulfilling orders using Amazon Fraud Detector.

Prevent new account fraud

Certain accounts will come with a higher or lower risk profile. You can accurately distinguish between legitimate and high-risk account registrations so you can selectively introduce additional checks—such as phone or email verification.

RDS Protection in Amazon GuardDuty protects your data using tailored ML models to accurately detect suspicious logins to Amazon Aurora databases.



⁹ Tang, W., et al., "Empowering fraud detection at Delivery Hero with Amazon Neptune," AWS Database Blog, October 2022



Delivery Hero

Delivery Hero faced the problem of customers abusing the acquisition vouchers, causing financial losses. With the insight that voucher abuse is a graph problem, and our solution architecture based on Amazon Neptune and DynamoDB, the platform security team was able to bring value to the business by increasing the amount of blocked fraudulent purchases by 32%.⁹



USE CASE 6

Cost optimization

Data management can be a significant expense for many businesses. Storing, processing, and analyzing large amounts of data can require significant resources, including hardware, software, and personnel. Optimizing data costs can help businesses reduce these expenses and improve their bottom line.

The challenge

Going into 2023, some of the biggest reasons for optimizing cost are the increasing importance of data in the digital economy, growing data volumes and customer expectations, and economic uncertainty.

According to the 2023 NewVantage Partners survey of data executives, looking ahead to 2023, 93.9 percent of organizations are planning to increase their investments in data in the wake of potential economic uncertainty, reflecting the continued perception that data is an essential business asset to organizations.¹⁰

The solution

AWS allows you to break free from legacy systems and optimize the cost of data infrastructure at scale by choosing storage, databases, and analytics services that offer the best price performance and reduce the time and effort spent on data management with built-in intelligence and automation.

Optimize the cost of your information architecture

Business leaders everywhere are trying to balance keeping up with growing data needs and optimizing costs in light of economic uncertainty. Data and analytics leaders must prioritize cost optimization as they work to make data-driven innovation and insight essential to their organization's future.

Optimize the cost of data infrastructure at scale by choosing storage, databases, and analytics services that offer the best price performance, and reduce the time and effort spent on data management with built-in intelligence and automation. This includes services such as Amazon Macie, which uses ML to automatically secure data, Amazon DevOps Guru for RDS, which automatically detects and diagnoses database performance and operational issues, and Amazon Simple Storage Service (Amazon S3) Intelligent-Tiering, which automates data lifecycle management, placing less frequently accessed data into storage classes optimized for longer-term retention and lower costs based on the infrequent use, which has saved users \$750 million in storage costs since 2018 compared to Amazon S3 Standard.



Optimize the cost of data integration

Many organizations approach data integration in a fragmented or siloed manner, often ending up with duplicated approaches and staffing. Duplicated processes, siloed data sources, and complex extract, transform, and load (ETL) pipelines can result in data professionals spending 40–60 percent of their time on data preparation and management tasks—losing time they could be using for more value-adding activities that help push the organization forward.

AWS is investing in zero ETL, meaning you can connect data across ingestion, analytics, ML, BI, and third-party data, allowing you to act on all of your data faster. With direct integrations between AWS services, the undifferentiated heavy lifting of data preparation and movement is removed, resulting in higher productivity and more time for organizational teams to spend on activities that deliver business value.

Upskill your staff to improve productivity

To create an end-to-end data strategy that is scalable, secure, and optimized for cost and performance, organizations must invest in the skills training to properly implement and understand the solutions that support that structure. As organizations strive to lower costs, reduce undifferentiated heavy lifting, and enhance productivity, they are increasingly shifting their data infrastructure—storage, databases, analytics and AI/ML—to AWS.

AWS has more than 150 training offerings and certifications available to help you build an end-to-end data strategy that is **flexible, future-proof, and cost-effective**.



In the summer of 2018, Dropbox experienced a capacity crunch in its on-premises metadata store due to fast data growth in some of the partitions. Using Amazon DynamoDB, a fully managed, flexible NoSQL database that delivers single-digit millisecond performance at any scale, and Amazon S3, a cloud object storage service, Dropbox rapidly developed a new managed storage system called Alki. This made room for virtually unlimited user metadata and not only saved the company millions of dollars—because it would not have to increase on-premises storage—but also reduced the cost per gigabyte by a factor of 5.5.

“For important company metrics, we want to have trustworthy data and pipelines. We have a small engineering team, but on AWS, we are actually making really good progress on that front. On AWS, we have the freedom to move forward.”

Ashish Gandhi, Technical Lead for Data Infrastructure Teams, Dropbox

Conclusion

In helping more than 1.5 million customers solve some of the most complex business problems with data, analytics, AI, and ML, a common question we often hear is “Where do I start?” We hope this eBook answers that question and serves as a valuable resource by detailing the most effective ways you can maximize business value with data.

Leverage your data to transform your business outcomes—make informed decisions, optimize supply chains, and enable fraud and risk reduction. With effective data capture, management, and analysis, gain a 360-degree view of customer relationships and business operations.

As showcased in this eBook, with the right data strategy, the right skills, and fostering a data-driven culture, organizations can improve innovation, enhance customer experience, and allow for operational performance.

Ultimately, it’s all about having the necessary experience and the right cloud partner with the right tools and services to make it work. AWS has helped many organizations to transform, accelerating innovation and optimizing business outcomes. It all starts with an end-to-end data strategy. Build yours on AWS and take your business into the future.

[Learn more about AWS for Data ›](#)

