



Google Cloud

Customer Awards Winners 2022

Celebrating innovation

Google Cloud Customer Awards celebrate organizations around the world that adapt to the demands of today and tomorrow, turning inspiring ideas into exciting realities. From leading healthcare organizations like [Bayer](#), using digital transformation to delivery quality and products faster, to established global brands like [Vodafone](#), to environmental leaders like [Geotab](#) and [The Lufthansa Group](#), making data-driven solution that combine sustainability and cost effectiveness, to diversity, equity, and inclusion game changers like India-based startup [Spice Money](#), brining access to digital financial opportunities to rural communities, we are honored to celebrate the innovators of tomorrow, today.

We are particularly proud to introduce a [Sustainability category](#) for the first time to our Technology for Good Awards. With so much important work underway to address the pressing challenge of climate change, it's imperative that we celebrate, support and learn from customers who are using technology to help create a cleaner, healthier future for us all.

To discover why many of the world's leading companies are choosing Google Cloud to help them innovate faster, make smarter decisions, and collaborate from anywhere, contact our team.

Brian Hall
Vice President, Product and Industry Marketing
Google Cloud



Find out more at cloud.google.com/awards

[Read the blog](#)

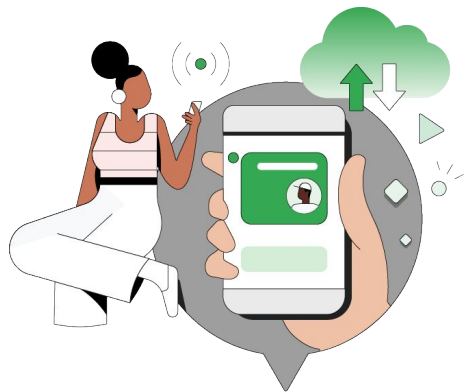
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Government	>	Sustainability	>
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Customer Awards | **Communications and Service Providers**



Communications and Service Providers



LumApps



Neustar, a TransUnion Company



TELUS



Virgin Media O2



Vodafone





The priority for any startup should be market fit. We chose to go with Google Cloud from the start because it took care of the infrastructure management, leaving us free to focus all our energies on our product.”

Elie Melois, Chief Technology Officer



Empowering employees by fostering productivity and collaboration

LumApps is a leading employee experience platform that unifies the modern workforce through improved access to information, communication, and overall engagement. With many prominent enterprise accounts and more than four million users worldwide, the company needed a reliable cloud platform to host and run its product. To be sustainable, the infrastructure had to guarantee high performance, competitive pricing, security, and continuous innovation. Google Cloud delivers all of this and more.

Enter Google Cloud

Productivity & Collaboration

LumApps integrated the full range of its digital apps into a single, streamlined platform. This has made work easier for employees through features such as data-driven personalization and deep integration with Google Workspace, in an infrastructure that supports millions of daily users. Running on GKE and leveraging App Engine, LumApps built a full SaaS solution from scratch. With minimal overhead management, it's capable of scaling to meet the needs of today's largest enterprises with exceptional standards of security. For data operations, LumApps uses Cloud SQL along with BigQuery for its data lake and analytics solution. With Google Cloud, LumApps was able to grow from a single enterprise account in 2015 to more than 400 global accounts in 2021.

Outcome



99.97% uptime for SLAs (over 6 years)



2 hours of downtime per year



97% renewal rate



New updates shipped every 6 weeks with GKE



From 1 enterprise account to 400+ customer accounts globally (2015–2021)



Poised to scale up by millions of active users in 2022



Our integration with Google Cloud Analytics Hub supports marketing and analytics teams resolving gaps in their consumer data sets.”

Michael Schoen, Senior Vice President and General Manager, Marketing Solutions



Serving better-quality data to businesses through unified identity solutions

During its growth as an identity recognition and analytics provider, Neustar has expanded its operations through a series of acquisitions and service expansions, leading to a mixed-technology environment across a range of applications and data silos. Serving multinational corporations in high-sensitivity industries, Neustar needed to consolidate multi-petabyte workloads into a single cloud solution to improve performance and cost efficiency. To find the best solutions, they worked with Google Cloud.

Enter Google Cloud

Application Modernization | Databases | Infrastructure Modernization | Security

Working with Google Cloud Partner SADA, Neustar executed a migration to Google Cloud they called “Project Nebula.” Neustar implemented a layer-2 private network that ensures secure, high-speed migration, which meant staff and customers did not face any interruptions in service delivery throughout the process. While the company is still in the midst of moving all on-prem storage from some of its data centers, the new implementation continues to support data capture in a multi-cloud environment. Beyond time and cost savings, Neustar customers also enjoy improved data quality and increased marketing performance, thanks to access to unique datasets that are always synchronized within a rich and trusted data ecosystem.

Outcome



500,000+ files successfully migrated to Google Cloud at 30K files per hour



88%+ reduction in time required to execute weekly customer data tasks



3.5 hours to complete tasks that used to take up to 40 hours



\$3M+ saved in move to Google Cloud



40% reduction in customer data inaccuracies

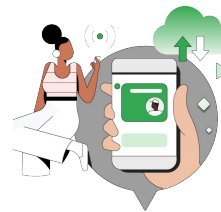


Up to 5x increase in total audience reach and 30% lift in conversions for customers



We have some of the largest datasets in the world. By strengthening our approach to management through cloud, we can enable our world-class data analytics professionals to unlock the value of information to devise more effective strategies to serve customers.”

Monty Hamilton, Chief Digital Officer



Capturing sentiment and intent to transform the customer experience

TELUS is a Canadian communications and information technology company with 15.2 million customer connections across services including wireless, data, IP, voice, and television. Understanding customers' evolving needs is key to improving products and services to enhance their experiences. TELUS worked with Google Cloud to analyze vast data sources and bring customers exactly what they want.

Enter Google Cloud

[Application Modernization](#) | [Databases](#) | [Smart Analytics](#) | [Infrastructure Modernization](#) | [Productivity & Collaboration](#)

TELUS undertook a phased project approach over five months to ease the integration of Contact Center AI (CCAI) Insights into its production environment. The solution architecture is broken into two components: telephony, with real-time processing and performing speech-to-text of customers' and agents' conversations, and Dialogflow to transcribe incoming audio streams and identify the sensitive information to remove. Meanwhile, BigQuery allows the extraction of analyzed data for further processing. Together, they help transform the customer service model by allowing TELUS to capture sentiment, highlights, and call intent accurately. TELUS is now able to meet their customers exactly where they are and improve the overall customer experience.

Outcome



20x faster data processing power



31,000 daily actionable intents generated across 23 unique journeys



From 16.1% to 14.5% reduction in repeat caller rates



Approx. \$5.5M cost reduction achieved



Eliminates laborious manual work to derive information and patterns from customer calls



From days to minutes to derive insights from customer conversations



We're quite ambitious here. What we're trying to do is turn the Virgin Media O2 business into a Tier 1 technology company, and migrating all of our data to Google Cloud Platform is the first step of that journey."

Richard He, Head of Data Services



Digital transformation sparks new ways of thinking and working in the cloud

Virgin Media, the UK's fastest major broadband provider, has partnered with O2, the country's favorite mobile-network operator, to become Virgin Media O2: a company whose mission is to give customers more choice and better value while helping realize the government's big ambition for the UK's digital future, including national gigabit broadband speeds by 2025. With more than 46 million broadband, mobile, phone, and home subscribers, and 18,700 employees, the companies had to think quickly about how to bring their two data estates together to increase business value and support the first of many joint projects. Virgin Media and O2 turned to Google Cloud to find the agile solutions they needed to unite their teams in the mission to connect more UK communities to gigabit fiber broadband and 5G.

Enter Google Cloud

Application Modernization | Databases | Infrastructure Modernization | Security | Productivity & Collaboration

As part of their Leapfrog project, Virgin Media and O2 wanted to consolidate heterogeneous data sources into one centralized hub in a way that made the business-critical incorporation of core datasets possible. They needed more accessible, secure-by-design cloud environments and unified spaces where teams from both companies could bring in and manage large datasets, enabling them to progress key data products. By migrating to Google Cloud, Virgin Media and O2 fast-tracked their data intelligence capabilities and business insights to deliver faster and more effective data-driven decisions and support the long-term success of their partnership.

Outcome



16 minutes to deploy algorithm changes, down from 6 months



Enabled incorporation of core datasets



Consolidated multiple data sources into a centralized location



Made data accessible across multiple teams and organizations



The project enabled an organizational and cultural shift by bringing in multiple teams across various geographies and domains under a single umbrella.”

Alberto Marco Bahun, Head of Cloud Migration Services



Pioneering a faster, more cost-effective, and secure cloud infrastructure

As a leading telecommunications company serving Europe, Asia, and Africa, Vodafone's purpose is to keep society connected. To provide excellent service and exceed customers' expectations, the company needed to modernize its tech stack and operating models. The goal was to build a new devops framework and bring developers from 26 countries into one platform, while also decommissioning legacy systems. This is where Google Cloud came in.

Enter Google Cloud

Application Modernization | AI/ML | Business Application Platform (BAP) | Databases | Smart Analytics | Infrastructure Modernization | Security | Productivity & Collaboration

Vodafone is accelerating its transformation journey and reducing costs by building a self-service, hybrid data integration platform called Dynamo. This unified solution is deployed on Anthos, which provides the backbone needed to ingest and process Vodafone's complex data pipelines. Dynamo will make it easier and faster for Vodafone to migrate from several on-premises data centers around the world to Google Cloud, enabling the company to offer its customers new, personalized products and services across multiple markets more quickly.

Outcome



4x performance improvement for data transfer compared to previous solution



5,000 data feeds supported per day (equivalent to 50 terabytes per day, and growing)



70% reduction in data ops and engineering costs



Hours vs. weeks for data insights to go to new, personalized products and services



50% increase in the speed at which new data pipelines are built



Accelerates the data transformation journey from 5 to 3 years

Customer Awards | **Cross-Industry**



Cross-Industry



Camanchaca



Compass IoT



Crux Informatics



Geotab



HD Supply



Lendlease

Lufthansa Group



Palo Alto Networks



Pearson



SAP SE



Senex





They told us it would take about a month to install and test Google Cloud Cortex Framework. We did it in 38 hours, with immediate results. We reduced our time to market to build an analytic model from one month to five days.”

Andres Mora, Business Intelligence Lead and Architect



Digitizing fish farming operations with environmental care in mind

Camanchaca has over 55 years of experience in feeding the world from the sea, exporting fish and shellfish from the Chilean coast to more than 50 countries. In 2020, the company realized it needed to innovate its traditional technology platforms to meet ever-evolving connectivity, mobility, security, and sustainability needs. To initiate a digital transformation that would propel Camanchaca into the future, the team turned to Google Cloud.

Enter Google Cloud

AI/ML | Smart Analytics | Infrastructure Modernization | Productivity & Collaboration

Camanchaca began a digitalization process in 2020 to provide added value to its manufacturing operations, starting with the adoption of Google Workspace tools and migrating more than 1,500 user accounts. The next phase of their journey saw Camanchaca migrate SAP to Google Cloud, resulting in an infrastructure six times more robust than the company's previous platforms, without any service downtime that could affect production or the work of thousands of employees. Camanchaca also activated a new business intelligence platform based on BigQuery, generating a single corporate data lake from disparate sources, which produced key indicators, reports, and dashboards to improve data-driven decision-making in near real time. These steps have led to optimized operations, making Camanchaca products more accessible to the world, while forecasting inventory and farming needs help Camanchaca to be more sustainable as it aims to become carbon neutral by 2025.

Outcome



6x faster data processing time



1,500+ user accounts migrated



80% adoption rate for collaborative work tools in less than 3 months



Increased infrastructure availability to 99.99%

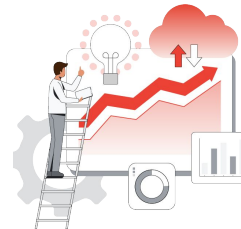


24+ tons of green carbon processed every year



To study road safety in the past, you needed to set up cameras and obtain location licenses. Our IoT solutions track Australia's entire road network in real time, with no hardware deployments. That's made possible by the autoscaling and unmatched data processing offered by Google Cloud."

Emily Bobis, Co-founder



Driving innovation and safety on Australian roads

Compass IoT works with local governments in Australia to improve the safety of their roads. To help them save time and public funds on physical surveys, Compass IoT leveraged Google Cloud's solutions to analyze safety levels, volume and speed of traffic, and travel time and built Pavement, a road intelligence platform that analyzes cloud-connected vehicle data to produce a "Roughness Index" for all roads nationwide.

Enter Google Cloud

Smart Analytics

With the computing and data processing power of Pub/Sub, BigQuery, Google Kubernetes Engine, and Cloud Run, Pavement has been exponentially increasing the number of cars monitored every year, from 200,000 to over 1.5 million. The platform receives and analyzes in real time more than one million data points from connected vehicles daily and is able to provide states, territories, and the federal government with actionable insights on road conditions and safety. Google Kubernetes Engine enables automatic scaling up or down according to traffic volume. Working with Google Cloud, Compass IoT took just three months to create a solution to rebuild, repair, and maintain road networks and protect people on Australian roads.

Outcome



Just 3 months to build Pavement platform



1.5M+ datasets processed daily from connected vehicles



Real-time road monitoring with data pipeline latencies under 100 milliseconds



Actionable data insights leveraged to improve road quality and safety



Automatic scalability to support exponential growth in vehicle monitoring



Being able to very quickly and efficiently load our data into BigQuery allows us to build more product offerings, makes us more efficient, and allows us to offer more value-added services. Having BigQuery as part of our toolkit enables us to think up more products that help solve our customers' challenges."

Ryan Haggerty, Head of Infrastructure and Operations



Unlocking efficiency and cost savings for confident business growth

Turning data into business intelligence is a challenge for the average company. This is where Crux comes in, helping organizations tackle the preparation and integration of external data across a wide range of use cases and industries, and leveraging third-party datasets to unlock unique insights and real value. As Crux grew tenfold over two years and saw its data warehousing demands grow, the company found in Google Cloud the right platform to modernize its infrastructure and scale efficiently.

Enter Google Cloud

Smart Analytics

Already 100% cloud-native, Crux was confident that using BigQuery would deliver a range of advantages to improve its customer services offering while addressing their concerns about data management and cost. For example, Crux can easily supply their customers with the data they need without having to perform a series of complex operational tasks. Working with Google Cloud Partner SADA, Crux found BigQuery delivered faster load times, live data ingestion and streaming options, and cross-region replication without any additional costs to make global hosting of datasets a powerful value add for Crux customers. All while removing data loading charges to add confidence to its ongoing business growth.

Outcome



25,000 datasets from
265+ sources under management



3.5 petabytes of data with free
cross-region replication



10x faster load times
after shift to BigQuery



We made a strategic decision to go with a cloud platform that would continue to grow with us. By going with the Google Cloud stack, we can stay hyper-focused on our customers' challenges instead of diverting valuable internal resources to manage a complex IT infrastructure behind the scenes."

Mike Branch, Vice President, Data and Analytics



Empowering business growth and safety with data-driven insights

Geotab is one of the world's leading commercial telematics providers and offers advanced web-based analytics to businesses worldwide so they can better manage their transport fleets. The company processes billions of data points every day from more than three million connected vehicles, ranging from GPS location to engine RPM. Insights gathered from these diverse sources help businesses optimize the efficiency of their fleet. When Geotab recognized the need for transportation networks to adapt to changes in traffic flows, they worked with Google Cloud to build a platform that would offer the flexibility and capability to scale seamlessly that public organizations and businesses need.

Enter Google Cloud

Application Modernization | AI/ML | Databases | Smart Analytics | Infrastructure Modernization | Security | Productivity & Collaboration | Google Maps Platform

Geotab built its new line of business, Geotab Intelligent Transportation Systems (ITS), on Google Cloud. At its core is Altitude, a transportation analytics platform hosted on App Engine. Altitude provides governments, transportation consultants, and businesses with actionable, real-world insights that can improve the efficiency, sustainability, and safety of their transportation networks. Every single data point processed by Geotab is now ingested into BigQuery, allowing Geotab to provide artificial intelligence (AI)-driven recommendations, benchmarking, and performance assessments, while simultaneously allowing customers to optimize and scale their fleets' data. Key metrics such as traffic congestion, vehicle idling, and freight movement are analyzed to uncover opportunities that cities, regions, and states can use to create smarter, more sustainable transportation systems.

Outcome



300,000 new subscribers worldwide



3M+ connected devices



55B+ data points processed daily



100M+ miles driven each day



With Google Cloud, we are now ideally positioned to fulfill our primary objective of staying ahead of our competitors.”

Long Lam, Director, Information Technology



Increasing agility and staying ahead of the pack

HD Supply is one of the largest industrial distributors in North America carrying proprietary products, with 44 distribution centers across 25 states. The business migrated from its on-premises data centers to Google Cloud so it could react faster to changing market conditions, access new technologies, and stay ahead of the competition. HD Supply is achieving these goals while running business-critical SAP and ecommerce systems on a lower-cost, more responsive infrastructure.

Enter Google Cloud

Infrastructure Modernization

Exceeding their own expectations, the team managed to move 1,500+ servers into Google Cloud in just nine months instead of one year. Google Cloud also enabled HD Supply to move to a modern SAP system running on a HANA in-memory database, with the capability to run advanced real-time analytics and complex calculations efficiently, even at high volumes. This benefit empowers the business to react faster to market conditions, resulting in improved response times by an average of 50% across hundreds of thousands of transactions per day. The migration also means that HD Supply is now able to stay innovative and agile with access to new technologies such as Snowflake, Terraform, and Splunk, which were previously difficult to integrate due to its on-premises environment.

Outcome



Build times reduced from days to minutes



\$24M saved in projected costs for new servers, storage, and network equipment over the next 4 years



\$1.1M saved in the first 2 years by retiring and decommissioning on-premises equipment



\$3.2M saved in annual software maintenance bill by moving to cloud-native solutions



\$8.2M saved in data center maintenance costs over 4 years



600 servers from SAP and 400 servers from the ecommerce system moved to multiple memory-optimized compute nodes



Running our platform, Podium, on Google Cloud means we can rely on the cleanest cloud in the industry to offer clients greater information about the life cycle of their building projects, spearheading digital transformation across the global property and construction industry.”

Harvey Worton, Global Co-Chief Information Officer



Digital transformation generates added value for property building

Lendlease aims to generate social, environmental, and economic value for urban communities by transforming the construction and building industry. To power this mission, Lendlease worked with Google Cloud to build Podium, its end-to-end digital platform that relies exclusively on Google Cloud for its data storage, network, and computing needs.

Enter Google Cloud

Application Modernization | Smart Analytics | AI/ML | Infrastructure Modernization

Lendlease’s digital transformation plan included migrating its infrastructure to the cloud and exiting all eight of its own on-premises data centers across four continents. Integrating new AI/ML and Smart Analytics capabilities from Google Cloud into Podium allows Lendlease to digitize products, services, and supply chains, so firms can plan construction projects with more accurate insights into energy use, human needs, pricing, and supply. Working together, Google Cloud and Lendlease continue to develop Podium products and services to give customers the needed intelligence to accelerate a development pipeline while also improving the quality and safety of their operations. This collaboration has been instrumental in enabling cloud-based building solutions to help the broader construction and real estate industry achieve their sustainability targets for safer and cleaner cities.

Outcome



24% reduction in electricity consumption for customers, thanks to Podium Property Insights



21% reduction in gas consumption in customers’ buildings



Supported safer and healthier buildings, aiming to increase workplace productivity by up to 12%



From 8 data centers across 4 continents to 1 scalable infrastructure on Google Cloud



On track for Absolute Zero Carbon by 2040



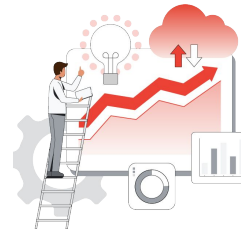
Quick global scalability leveraging the Google Cloud Platform footprint

LUFTHANSA GROUP



We can increase efficiency by replacing a larger plane with a smaller one if possible, or enable more bookings on one flight by switching to a larger plane. Those are some of several use cases making us more fuel-efficient, sustainable, and profitable, powered by Google Cloud and OPSD.”

Christian Most, Senior Director, Digital Operations Optimization



Flight operations take off with automated decision support

Within the Lufthansa Group, SWISS International Air Lines developed instrumental innovations later rolled out across the whole Lufthansa family. Connecting with Google Cloud, the team developed a joint data repository that used crew, passenger, rotation, and technical information to help optimize flight operations with automated decision support.

Enter Google Cloud

AI/ML

At SWISS, the Operations Decision Support Suite (OPSD) considers all available information to derive data-driven decisions across the air-travel ecosystem. Leveraging Google Cloud AI/ML solutions, the OPSD was able to manage various scenarios and find ways to reduce its carbon footprint, save fuel, and streamline operations. With Google Cloud, the company can now prevent multiple irregularities and operational challenges while also providing more actionable information for operations controllers and smoother, best-in-class customer experiences for passengers.

Outcome



Up to 7,400-ton decrease in CO₂ emissions per year (equivalent of 18 Boeing 777 Zurich to NYC roundtrip flights)



Up to 50% flight optimization



5.2M Swiss francs savings in current year

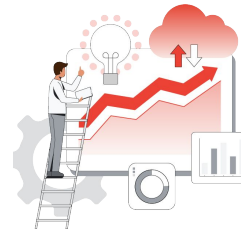


AI-powered suggestions empower controllers to review and execute routine optimizations in just 2 clicks



Businesses are betting on the cloud for their most important initiatives, and one of the most fundamental factors to their success will be security. We've had a tremendous strategic partnership with Google over the past three years that helps ensure that our joint customers can have a simple, secure journey to the cloud."

Nikesh Arora, Chairman and Chief Executive Officer



Keeping cyber threats at bay in real time with digital cloud technology

With security at the core of our digital transformations, increased focus is placed on advanced data monitoring, privacy requirements, and real-time threat detection and prevention. Palo Alto Networks (PANW) is at the forefront of innovation to enable the security industry to scale and meet industry challenges by fully adopting automated security methodologies through AI/ML. To this end, PANW is executing an extended detection and response (XDR) strategy, and working with Google Cloud to create a complete picture of an organization's data inventory and overall security posture.

Enter Google Cloud

Application Modernization | AI/ML | Business Application Platform (BAP) |
Databases | Smart Analytics | Infrastructure Modernization

PANW built Cortex XDR on the Google Cloud platform. It's a security intelligence and automation management cloud-first platform that enables customers to detect and tackle AI-powered cyber attacks. Using Google Cloud's serverless offerings and diverse analytics portfolio, Cortex XDR provides extended detection and response solutions to monitor and manage cloud, network, and endpoint events and data. Cortex XDR is also able to combine features for incident prevention, detection, analysis, and response onto a single, centralized platform. Working across thousands of end users and millions of endpoint devices, PANW delivers its customers real-time security insights at unprecedented speed and scale of adoption, enabling organizations to achieve zero lag between detection and prevention of potential security incidents, and safeguard their customers' data.

Outcome



1M events processed per second
(via Cyber Defense Center)



100% threat protection enabled



97% detection visibility achieved
with Cortex XDR, better than any
other solution on the market



Increased visibility of assets and
services offered across the
organization



Enables deep integration and
co-innovation across product
portfolios



The positive momentum from streamlining and modernizing our enterprise technology means Pearson can continue to expand our capabilities, build our IT talent, and drive exponential growth with the products serving learners at every stage of life.”

Corey Farrell, Chief Technology Officer, Engineering & Architecture



Transforming the online learning experience with cloud technology

Education continues to grow in digital and virtual spaces year over year, requiring learning providers to pivot to technologies to accommodate new teaching modes. To meet this need, Pearson launched ActiveHub to transform teaching and learning for K–12 students into more effective online experiences. The platform offers online classes, tracks engagement and skill metrics, and provides educators with near real-time visibility into class performance and student progress. This enables educators to identify and then assist the students requiring more help. Pearson collaborated with Google Cloud to keep up with the growing demand for online learning tools.

Enter Google Cloud

Application Modernization | Databases | Smart Analytics | Infrastructure Modernization

ActiveHub was launched in March 2022 to meet the educational needs of 3.8 million students across almost 200 countries. Designed to maximize rapid scalability, ActiveHub uses a wide range of Google serverless technologies such as BigQuery, Pub/Sub, Dataflow, App Engine, Cloud SQL, and Confluent Kafka. Given the highly seasonal nature of demand for educational resources, this approach ensures the platform is able to comfortably scale up and down as needed, while maintaining peak performance. With educators receiving faster insights into a student’s progress, they are also able to identify specific areas where they can help, ensuring that students are set up for success every step of the way.

Outcome



3M+ student users deployed across school year



360° view of learner journeys, including usage data



Globally scaled transactional-data oversight and analytics



Development of next-generation recommendation engine



Full-picture student progress spurring educator intervention



SAP's core development community is delighted about the fast system migrations, system stability, and infrastructure robustness. Google Cloud migrations run as an oiled machine."

Dr. Dietmar Weishaupt, Senior Development Manager



Creating a reliable, scalable, and cost-effective developer environment

Customers in the Cross-Industry category inspire and demonstrate growth as they build secure solutions in the cloud. SAP SE is the leading enterprise resource planning (ERP) software vendor. It offers its customers the digital tools they need to run their businesses better and operates across all regions and industries to improve the way people and organizations work.

Enter Google Cloud

Application Modernization | Smart Analytics | Infrastructure Modernization | Security

SAP has chosen Google Cloud to host integral core development landscapes. As a result of this collaboration, the German multinational is seeing a performance increase of approximately 20%, along with very high cloud infrastructure availability. In addition, they experienced savings in the range of 25% when compared to legacy infrastructure. Today, SAP is running more than 3,000 SAP systems and 8,000 virtual instances on Google Cloud.

Outcome



Up to 20% performance increase



Increased cloud infrastructure availability



25% cost savings compared to legacy infrastructure



3,000+ SAP systems run



Running 8,000+ virtual instances



Like a tech startup, our natural gas business needs to be nimble to capture new opportunities in a volatile market. On Google Cloud, we can grow our business at scale and achieve desired results without increasing our cost base.”

Timothy Cochrane, General Manager for Digital



Keeping wells running with the power of predictive data

Senex operates over 100 natural gas wells and handles maintenance and management tasks needed to keep them running, daily. They supply Queensland, Australia's second largest state, which covers an area roughly the same size as Alaska, with 10% of its demand for domestic gas. Google Cloud helped Senex create an infrastructure to collect its data into a single platform and leverage the power of predictive maintenance to reduce costly pump failures by improving well design, repairs, and drilling practices.

Enter Google Cloud

AI/ML | Smart Analytics

Senex is now able to run predictive modeling processes in real time and at scale, identifying potential problems before they happen. Using BigQuery, Compute Engine VMs, and Document AI, Senex is finding new solutions for optimization, increasing gas production while reducing maintenance costs. All these benefits will be passed on to the people of Queensland, who rely on this energy supply in their daily lives. Today, 60 wells are monitored by the system, and that number is expected to grow to 200 within the next two years. Senex is already starting to apply the lessons it has learned through this project more broadly across the business.

Outcome



60K Australian dollars
reduction per new well constructed



4x faster prediction
for pump failures



18 months for full
completion of the project



30 business customers
have adopted the platform

Customer Awards | **Diversity, Equity, and Inclusion**



Diversity, Equity, and Inclusion



Equifax



Kakao Brain



Spice Money



The University of Chicago





Equifax has a unique opportunity to help individuals on their financial journey and it really strikes at the heart of one of our core principles: being the consumer-friendly credit agency that is working hard every day to put consumers first.”

Bryson Koehler, Executive Vice President and Chief Product, Data, Analytics and Technology Officer



Helping people to reach their financial best

For more than 120 years, Equifax has been driven by its mission to help people live their financial best. With a large global footprint helping people in regions with limited access to credit solutions, Equifax understands that more than 90 million consumers in the U.S., ranging from young adults first entering the workforce to recent immigrants, don't have a credit file or the background to generate a credit score. Equifax saw this as a unique opportunity to work with Google Cloud on solutions to help those individuals begin their financial journey, and to allow institutions to expand their customer bases by extending credit to the previously “credit invisible.”

Enter Google Cloud

[Application Modernization](#) | [AI/ML](#) | [Business Application Platform \(BAP\)](#) | [Databases](#) | [Infrastructure Modernization](#) | [Security](#) | [Productivity & Collaboration](#)

Together with Google Cloud, Equifax built Equifax Cloud™ and Equifax Data Fabric, unique implementations that deliver world-class enterprise-wide infrastructure tailored to highly regulated data workloads and capable of centralizing all data into one repository. This protects customers' information while providing more efficient, real-time insights to help companies make faster and better credit decisions on previously unrepresented groups. Aggregating data from a wider variety of sources and using nontraditional credit information provided new ways for underbanked or less privileged consumers to establish credit history. By leveraging the secure infrastructure and machine learning capabilities of Google Cloud, Equifax is reaching out to an increased number of people, democratizing access to credit resources and opening a path to their financial best.

Outcome



Advanced security practices to strengthen protection of consumer data



Faster time to market for new B2B products and services



Real-time consumer credit data delivered to financial institutions



After KoGPT, we will continue to share innovative technologies, such as announcing various models of super-giant AI, and contribute to the development of domestic IT technology and revitalization of research to solve various social problems together.”

Kim Il-doo, Chief Executive Officer



Delivering inclusivity through natural language processing

Natural language processing (NLP) software has made rapid advances in recent years when it comes to understanding written text and spoken words. However, this is true when it comes to English and other Western languages, but less so globally. In particular, to ensure that the Korean language could benefit from NLP, Kakao Brain developed KoGPT to adapt a widely used NLP model, Generative Pre-trained Transformer. The company turned to Google Cloud when it realized its existing on-premises infrastructure needed more capabilities to handle the challenges of increasing workloads.

Enter Google Cloud

AI/ML | Infrastructure Modernization

Kakao Brain was already using Graphics Processing Units (GPUs) instead of Central Processing Units (CPUs), due to their higher speed when it comes to training deep learning models such as those used in NLP. Dataproc, Cloud Storage, and particularly Cloud TPU were key enablers in this process. They provided the scale, processing speed, and performance necessary to power KoGPT by improving network efficiency, eliminating bottlenecks, and delivering intensive resourcing on demand. With Google Cloud, Kakao Brain was able to bring its product to market within months, rather than years. Kakao Brain has created a widely applicable technology in KoGPT that will benefit many Korean-speaking people and can be used to process their language across various artificial intelligence (AI) fields. This democratization of NLP technology unlocks future R&D potential for South Korea, contributing a new tool to the international open source community.

Outcome



6B model parameters learned



200B token data used



1 day for task completion
versus 7 days previously



What's great is that Google doesn't just take security into account, but also the convenience and user experience. This is why we had scored Google Cloud much higher than the other solutions we had evaluated."

Varundeep Kaur, Chief Information Officer



Helping rural communities in India access digital financial services

Spice Money is working to address various inequities impacting India's rural communities by building new digital frameworks to drive financial inclusion in the country. As the pandemic accelerated unemployment, more people returned to their homes in rural areas. Spice Money presented an opportunity for people to become rural nanopreneurs and leverage technology to help their underserved communities through an assisted digital business model, without having to leave their towns or villages. Thanks to access to digital financial products, the service provided quickly became essential. Spice Money worked with Google Cloud to build the new digital marketplace and assure seamless integration across the country.

Enter Google Cloud

[AI/ML](#) | [Smart Analytics](#) | [Infrastructure Modernization](#) | [Security](#) | [Google Maps Platform](#) | [Google Workspace](#)

With Google Cloud, Spice Money can use tools like geospatial data to scale appropriately and know where to invest more resources for hyper-local strategies. For example, to help ease the onboarding process and subsequent day-to-day transactions for new customers, Spice Money is leveraging Speech-to-Text to build voice and audio-based assistance in multiple languages to help guide new users in their most common vernacular. Meanwhile, Apigee gives greater visibility and control across their infrastructure, and an added layer of security when it comes to portal access to ensure secure operations. Through Google Cloud, Spice Money has been able to empower millions of people in rural India by unlocking access to digital financial services and providing them with equal opportunities to a secure financial future.

Outcome



4 engineers completed data warehouse migration in 4 months



10% reduction in calls to call center



15% reduction in maintenance efforts



3x increase in application traffic



2x reduction in operational costs



Supports secure day-to-day operations for 12 different verticals



We see a world of opportunities here. These AI tools have the potential to transform how we think about representation, and the messages we're sending to children."

Dr. Anjali Adukia, Assistant Professor at the University of Chicago's Harris School of Public Policy



Addressing inequalities and misrepresentation in children's books

The University of Chicago has worked to increase awareness about the representation of racial constructs, gender roles, and age in visual content offered to children through books found in US schools and homes over the last century. In 2020, the interdisciplinary Messages, Identity, and Inclusion in Education (MiiE) team worked with Google Cloud to find timely, cost-effective, and accurate tools to build a solution that allowed detecting and addressing inequalities and misrepresentations.

Enter Google Cloud

AI/ML | Productivity & Collaboration

The university was the first to apply Vertex AI to images in children's books, which proved to be far more effective than other optical character recognition (OCR) tools in the market, requiring less data and fewer iterations and hours of coding. Vertex AI helped the MiiE team automate the process and go from 60% to 93.6% accuracy. The MiiE team was able to analyze images and text across 200,000 files and code them based on age, gender, and race, which allowed them to identify and address patterns of misrepresentation and inequality. Helping children build social awareness today is the foundation of a more equal and fair society tomorrow.

Outcome



1,000+ children's books analyzed in less than 1 day



5,403 faces analyzed with established image and text analysis from 200,000 files



From 60% to 93.6% accuracy increase

Customer Awards | Education



Education



California Institute of Technology



Cognition



Northwestern University



Penn State World Campus



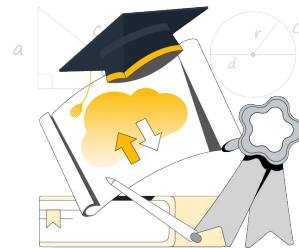
The University of Chicago





All code and data we generate are public so they benefit all researchers. We want our tools to be accessible to everyone.”

Tapio Schneider, Professor of Environmental Science and Engineering



Building high-resolution models to mitigate the impact of climate change

The Climate Modeling Alliance (CliMA) comprises approximately 70 scientists, applied mathematicians, and software engineers. CliMA has joined forces with the California Institute of Technology (Caltech) to improve climate simulations. Scientists cannot simulate clouds in global models, but they can create simulations on a smaller scale to study their formation and quantify their impact on climate on a global scale. Together, CliMA and Caltech aim to find solutions to reduce risks derived from climate and weather hazards, such as floods, droughts, and hurricanes. To achieve this, they worked with Google Cloud.

Enter Google Cloud

AI/ML

Scientists from Caltech and CliMA are using Compute Engine to carry out high-resolution simulations of atmospheric turbulence, convection, and clouds. Climate models are among the most complex software elaborations, typically with millions of lines of code for model components, spanning from cloud droplet formation to the tens of thousands of kilometers of planetary weather systems. Caltech and CliMA's next-generation Earth System Model is open source, which means its data is readily available. This data can help make crucial decisions regarding the effects of climate change, such as whether to build a sea wall or grow certain crops. By sharing all this information with the public, Caltech and CliMA are changing the game for science research to help reduce the effects of climate change.

Outcome



Enables more robust risk mitigation and adaptation strategies

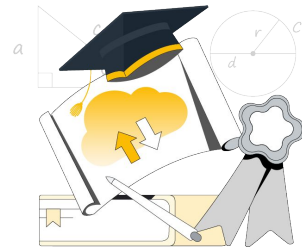


95%+ weak scaling demonstrated on V100 GPUs



We want to make sure that all children have easy access to our services, and we know that the right technology paired with the right instructional expertise enables that. We chose to partner with Google because it is a proven, strategic provider of technology solutions in education.”

John O'Connor, Senior Vice President of Business Development



Providing equitable access to learning through an interactive platform

Maintaining high levels of engagement and proficiency in math among students is a challenge across the United States, especially in high school. Cignition, a Google for Education Partner, was founded on the idea that a balance of self-guided assignments and tutoring services powered by machine learning could improve students' math skills. They help students succeed at math by offering a mix of personalized live tutoring sessions and research-proven programs through a fun and interactive platform. As demand for virtual tutoring services grew rapidly in 2020, Cignition worked with Google Cloud to improve its platform's stability and flexibility, at scale.

Enter Google Cloud

AI/ML | Infrastructure Modernization | Productivity & Collaboration

Integrating with the Google for Education platform, Cignition is using Classroom to simplify the teacher onboarding process, thanks to a significant increase in uptake. It is also leveraging one-click rostering to provide both students and teachers with a frictionless experience when getting started with the platform, which makes research-proven high-impact online tutoring available to more students than before, whether at home or in school. The company also relies on Google Workspace for internal communication and collaboration. Parents often comment that they use Cignition's tutoring platform at home because their children genuinely enjoy the tutoring sessions. Together, Cignition and Google Cloud are delivering equitable access to quality learning, as teachers and families have access to highly skilled tutors anytime, anywhere.

Outcome



300,000 students and 17,000 teachers enrolled in Cignition math programs



30-minute tutoring sessions halve typical requirements, saving on costs

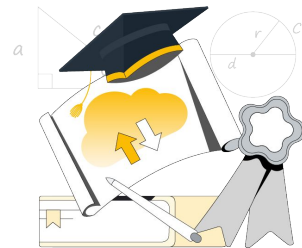


.46 standardized mean difference, delivering increased learning efficiency



Google Cloud has allowed N3 to be much more agile. The infrastructure we've developed allows us to quickly leverage data and resources in ways we could not do before."

Andrew Papachristos, Professor of Sociology and Faculty Director at N3



Helping Chicago's neighborhoods with big data

The Northwestern Neighborhood and Network Initiative (N3) is a research institute at Northwestern University that helps local neighborhood groups address core problems in Chicago's communities. To make the right information accessible and actionable by decision makers, N3 leverages and interprets various datasets. When they needed a centralized, scalable data system that would enable collaboration between researchers and partners, all while keeping the data digestible for those without deep technical knowledge, N3 turned to Google Cloud for a viable solution.

Enter Google Cloud

AI/ML | Databases | Smart Analytics | Productivity & Collaboration

Using Data Studio, N3 created interactive dashboards enabling researchers to discover new relationships between data points and identify patterns that were not visible before. Bringing datasets to BigQuery, and leveraging serverless cloud functions and Google Cloud's collaboration tools also gave community partners access to easy-to-understand data from anywhere. In the fast-paced research field that N3 occupies, Google Cloud infrastructure enables comprehensive research to be conducted in minutes, fulfilling the urgent need for information following an incident, or giving decision makers actionable insights to assist the areas and communities that need it most.

Outcome



2x faster access to aggregated statistics



Up to 58M rows of data aggregated and evaluated in minutes without the need to download it to a local PC



Interactive dashboards on Data Studio make datasets more digestible for community partners

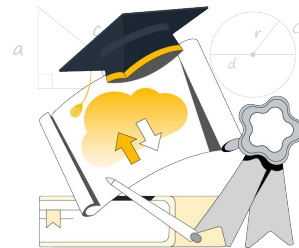


Instant scalability enables N3 to make a public dashboard and receive large amounts of new data without additional infrastructure work



We don't know of any other academic advising programs using AI. We're leading the way because student success is so important to us. We want the students' experience to be top-notch."

Dawn Coder, Director of Academic Advising and Student Disability Services



AI assistant works as a force multiplier for academic advisors

With a global student body taking online courses across 150 degree and certificate programs, Penn State World Campus sees a demanding load on its advisory staff as they support tens of thousands of students with a wide array of needs. The university wanted to keep improving and provide faster responses to student queries. After tracking the workflows of 48 academic advisors for a year, the institution discovered the top queries taking the most time, and looked to Google Cloud to help automate these responses in an effective and user-friendly fashion.

Enter Google Cloud

AI/ML | Smart Analytics | Productivity & Collaboration

Working with Google Cloud, Penn State World Campus used artificial intelligence (AI) tools such as Dialogflow to build a virtual assistant and automate responses to routine queries. Implementation took less than two months and was carried out in compliance with strict security and privacy regulations. As the advisory team discovers new common questions, they now have the power to build AI responses that continuously develop the library of automated answers, optimizing latency and reaction time. The virtual assistant manages students' queries in just seconds, freeing up advisors to work closely with students who require assistance on more complex issues and support them when they need it most.

Outcome



From 3 years to less than 2 months for build completion



Up to 90% virtual assistant accuracy for student inquiries



15 to 30 minutes saved on most queries through the virtual assistant

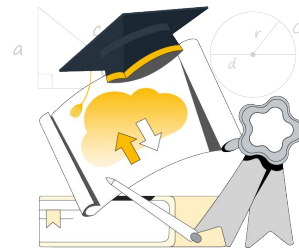


From 4 to 2 days in response time to student queries



The project would have taken much longer without Google. Standard AI tools require several optimization iterations, and far more data in order to achieve the desired performance. With Vision AI and AutoML, we were able to achieve optimum performance with training models that use a hundred times less data and iterations.”

Dr. Teodora Szasz, Senior Computational Scientist



Addressing representation inequality in books and media

At the University of Chicago, the interdisciplinary Messages, Identity, and Inclusion in Education (MiiE) team set out to better understand the representation of different demographic groups and address disparities in the treatment of race, gender, and age in children's books commonly found in U.S. schools and homes over the last century. Leveraging Google Cloud's AI/ML solutions, the team was able to achieve results that were previously beyond the reach of empirical research.

Enter Google Cloud

AI/ML | Productivity & Collaboration

The MiiE team used Google Cloud's Vision AI to identify faces in over 200,000 files, along with established image analysis and text analysis methods, to capture how racial constructs, gender identity, and age were represented in images and text throughout an extremely vast set of content. The first step involved using Vertex AI to detect images throughout 1,130 books and code 5,403 faces in illustrations based on age, gender, emotions, and actions. Next, the MiiE team used Google Cloud's AutoML and VisionAI to systematically convert texts and images into data and developed models that became increasingly more accurate at detecting faces and predicting age, gender, and race. Results and codes were made available through an open source project that can be used and improved by other researchers for the purpose of helping publishers improve the representation of the content that children are exposed to. This could lead to new innovations in measuring how racial constructs, gender identity, and age are represented in images and text in other fields and media, helping not only children's awareness in the education system, but society as a whole.

Outcome



1,000+ children's books analyzed in less than 1 day

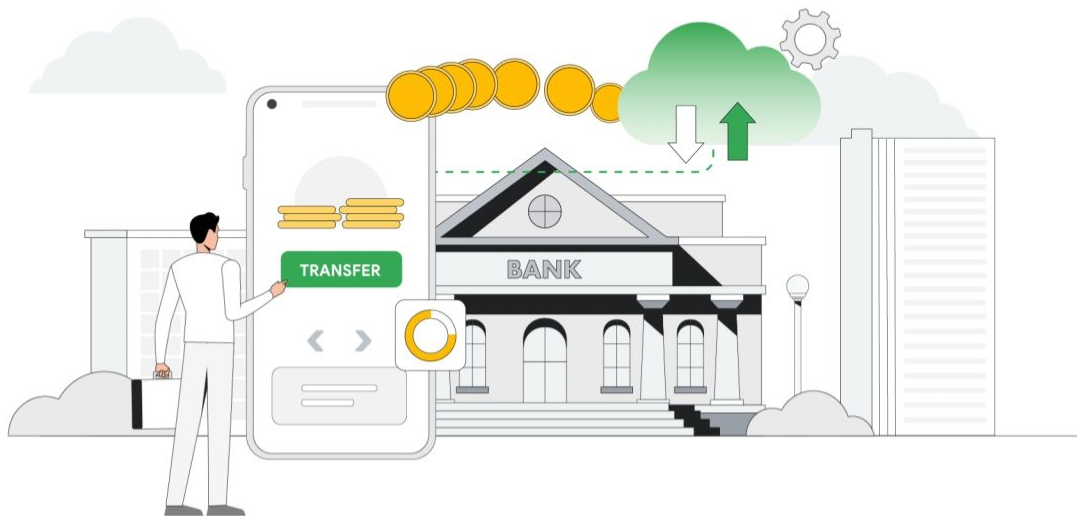


5,403 faces analyzed from 200,000 files



From 60% to 93.6% increased accuracy

Customer Awards | **Financial Services**



Financial Services



Arab Bank



Bullish / Block.one



Equifax



Grupo Financiero Banorte



HSBC



Nomura Holdings



Spice Money



البنك العربي
ARAB BANK



Success is a journey



Google Cloud has delivered beyond our expectations in terms of pace of development, scalability, and resilience.”

Eric Modave, Chief Operating Officer



Modernizing financial services by putting customers first

Arab Bank sees success as a journey and embraces innovation as part of the process. As the financial industry is continuously evolving, the bank recognized that customers want more from financial institutions than just banking. They expect streamlined digital experiences, security, and transparency. To achieve this digital relevance with its increasingly younger customer base, Arab Bank needed to accelerate its innovation strategy. The aim: to improve customers' experiences and business outcomes by delivering better features and financial solutions.

Enter Google Cloud

[Application Modernization](#) | [Databases](#) | [Smart Analytics](#) | [Infrastructure Modernization](#) | [Security](#) | [Google Maps Platform](#)

Arab Bank launched Reflect, Jordan's first neobank, using Google Cloud's Apigee API solution, GKE, and Anthos to deploy cloud-native products. Reflect replaces every touchpoint that deals with money, removing the need to carry cash or cards, and making customers' day-to-day lives easier and more secure. Leveraging Anthos for a smooth and seamless transition, the bank migrated all its services to Reflect in only nine months. Arab Bank is now rolling the solution out to other countries, where it continues to bring new products and features to meet customers' evolving needs.

Outcome



10x more transactions



Up to 70% faster application development



Faster customer onboarding through mobile applications



300,000+ registrations



50,000+ wallet accounts



Major features released every month (since launch in September 2021)



Security had to be a critical part of every layer of our architecture, from the web front end to our APIs and middleware, along with all the infrastructure that supports our exchange.”

Matt Presson, Lead Security Architect



Building the crypto exchange of the future

Backed by blockchain software company Block.one, Bullish is a powerful new crypto exchange that offers deep liquidity, automated market making, and industry-leading security. During development, the company realized that manual configuration of Envoy, its infrastructure, needed to improve on speed, scalability, and security, so Bullish turned to Google Cloud.

Enter Google Cloud

Application Modernization | Smart Analytics | Infrastructure Modernization

Leveraging automated, self-managed services on Google Cloud, Bullish can now easily expand to other regions. Google Kubernetes Engine (GKE) and Anthos speed up its ability to develop, test, deploy, and iterate quickly. With improved TLS communications, microservices were connected with the highest levels of privacy and data security across applications and servers. Since the migration to Google Cloud, Bullish has evolved from a startup with a vision to a global high-performance blockchain solutions platform, and has achieved its goal to provide technology and products to help people and businesses build trust in transactions that are global, transparent, secure, and regulated by design.

Outcome



Increases scalability and reliance with migration to Google Cloud



\$100B in total trading volumes managed seamlessly within first 9 months



Helps enable new areas within R&D and product development opportunities



We all understood that the only way for us to create a sustainable, everlasting transformation of the culture was to fully commit to a cloud-native approach. Partway measures would not be acceptable. We needed to go all in on the cloud.”

Bryson Koehler, Executive Vice President and Chief Product, Data, Analytics and Technology Officer



Delivering better financial outcomes at scale with built-in security

For more than 120 years, credit reporting agency Equifax has been helping consumers, companies, employees, and government agencies make critical financial decisions with greater confidence. Equifax creates innovative solutions and insights designed to help consumers live their financial best and move businesses forward. The company decided to reengineer its architecture, and launched a three-year digital initiative to transform its infrastructure and become the only cloud-native credit reporting company. Equifax wanted a provider that offered best-in-class security and stability, at scale; so it looked to Google Cloud.

Enter Google Cloud

Application Modernization | AI/ML | Business Application Platform (BAP) | Databases | Infrastructure Modernization | Security | Productivity & Collaboration

In a highly regulated industry, moving to Google Cloud helped Equifax greatly strengthen its security measures around privacy and data workloads. Equifax worked with Google Cloud Premier Partner EPAM to build a data fabric that could organize its disparate legacy data sources into a single, seamless structure, while still keeping all of its critical governance and separation measures in place. EPAM successfully transformed Equifax's mainframe application in less than one year, empowering B2B customers with faster access to data, better outcomes at scale, with always-on built-in security, and delivering on its mission to help more people access credit and live their financial best.

Outcome



Advanced security practices to strengthen protection of consumer data



Faster time to market for new B2B products and services



Real-time consumer credit data delivered to financial institutions



At Banorte, we are committed to implementing the best of technology to transform ourselves. We are on the way to consolidate ourselves as the strongest institution in Mexico in digital banking, and hand in hand with Google we will continue to transform ourselves for the benefit of our clients, offering them speed and agility in our services.”

Francisco Martha, General Director of Development of Digital Business



Delivering hyper-personalized and highly secure financial services

As Mexico's largest financial institution, Grupo Financiero Banorte strives to lead with innovation. In 2019, as part of its financial transformation program, the company began to update its SAP ERP system and modernize its infrastructure. Today, with Google Cloud, it continues to develop the next generation of financial products and services that meet clients' evolving preferences and needs while streamlining internal processes.

Enter Google Cloud

Infrastructure Modernization

The migration from traditional on-premises to state-of-the-art servers was carried out with the support of Google Cloud and its partner, Novis. This move delivered the capabilities necessary for each of the layers of the institution's environments, enabling high-speed and high-availability replication in a way that is also flexible and balanced in terms of costs and use of resources. This had not been possible in the previous on-premises server. As a result, the migration improved different aspects of Banorte's back-office operations, from accounting and budget control to procurement and electronic invoicing. Because customers are at the core of everything it does, Banorte used the momentum of its digital transformation to develop new solutions and innovative applications for them, including hyper-personalization and the level of security expected in its highly regulated industry.

Outcome



3:1 reduction in processing times of back-office operations



Less than 2 months' migration time from preparing servers to running validation tests



1,300 end users nationwide supported by the production environment, which scales according to demand



We can run things faster and have greater risk visibility than ever before. We have also been able to boost our compute capacity up to 10 times.”

Michele Marzano, Global Head of Traded and Treasury Risk and Analytics Transformation



Future-proofing risk management on the cloud

For HSBC, one of the world's largest financial institutions, calculating counterparty credit risk (CCR) is critical to understanding, measuring, and controlling exposure to potential risks or default. In the mid-2000s, HSBC scaled its CCR management systems using on-premises infrastructure, but after 10 years, this could no longer meet regulatory and business demands or the bank's growth. In January 2021, HSBC worked with Google Cloud on an ambitious program to deliver a more efficient and cost-effective CCR management platform that also complied with new regulatory requirements.

Enter Google Cloud

Application Modernization | Smart Analytics | Infrastructure Modernization

HSBC created NOLA 2.0, an in-house analytics library built on Dataflow. With unified streaming and a batch data platform, HSBC can now process multiple workloads in the same programming model, running them on the same infrastructure, and monitoring them from a single fully managed, automated tool. This has accelerated calculation speeds by 10 times, enabled increased analytical capabilities, and provided more control and actionable insights into risk management, all at a lower operating cost.

Outcome



3B calculations per second



10 months from prototype to production of NOLA 2.0



10x faster calculation speed



Solution expanding from 2 to 40 sites

NOMURA



By using the advanced features of Google Cloud and enabling a seamless and secure API ecosystem, we see no end to our potential to empower individual investors with the latest cutting-edge market intelligence, so they can make judicious investments for a brighter future.”

Hajime Ikeda, Senior Managing Director and Head of Digital Company and Retail Division Marketing



Driving the future of secure investments with big data

To digitize its core face-to-face services, Nomura Holdings created FINTOS!, an app that provides information to help an increasing number of investors 24/7, including the nonprofessional ones. Market reports commonly available to institutional investors have been often inaccessible to individuals. By providing them with the information they need, in real time, the potential for new value is created. Nomura Holdings decided to work with Google Cloud to develop the app quickly, simply, and securely.

Enter Google Cloud

Application Modernization | Databases | Infrastructure Modernization | Security

Nomura wanted to ensure that the app was user-friendly, so it needed to implement a simple design structure, and leverage data usage insights to optimize services. Using Google Analytics and BigQuery, Nomura was able to instantly analyze diverse logs, gain a better understanding of usage conditions, and enable quick decision-making. This made it easy to add new features to FINTOS! and improve the user experience. Halfway through the build, in its highly regulated industry, Nomura's legal team recommended that the app comply with the Financial Instruments and Exchange Act under the “investment” category, which meant it needed to modernize its security and system structure. Collaborating closely with Google Cloud and Cloud Ace, they were able to successfully switch to developing on Google Kubernetes Engine (GKE) without complex re-architecting. Today, Nomura's research reports provide insights and strategies to empower individual investors with the latest cutting-edge market intelligence they need to make the best investment decisions for their future.

Outcome



On-time launch of investment app that meets security governance



Intuitive real-time monitoring of logins and security factors



Access to insights and strategies for customers



We wish to be a digital financial services marketplace for rural India, providing ease of use, a stable platform, regional connection, and a uniform experience. Digital transformation is key to disrupting the traditional finance space.”

Varundeep Kaur, Chief Information Officer



Reimagining the financial services ecosystem through big data

Spice Money is India's leading fintech platform, empowering small business owners and nanopreneurs with the digital banking and financial services they need to serve millions of people across urban and rural communities. Spice Money's existing platform, Spice Money Adhikari, required a lot of maintenance and provided low visibility across multiple dashboards. In addition, managing data for millions of merchants became increasingly difficult and time-consuming. To help a growing number of small businesses and micro enterprises, Spice Money decided to work with Google Cloud and modernize its current infrastructure.

Enter Google Cloud

AI/ML | Smart Analytics | Infrastructure Modernization | Security | Google Maps Platform | Google Workspace

With Google Cloud, Spice Money has been able to quickly build a data strategy at minimal cost and maintenance, without compromising on performance or security. BigQuery delivers real-time analytics to sales teams spread across the country, who are then able to collaborate securely and seamlessly through the Google Workspace platform. With Apigee, the company gains greater visibility and control on data and insights across its infrastructure, while adding an extra layer of security. Today, Spice Money empowers more than 100 million consumers in rural India with a secure, scalable platform that supports all their digital financial needs, from simple banking transactions to loan and credit applications.

Outcome



4 engineers completed data warehouse migration in 4 months



10% reduction in calls to call center



15% reduction in maintenance efforts



3x increase in application traffic

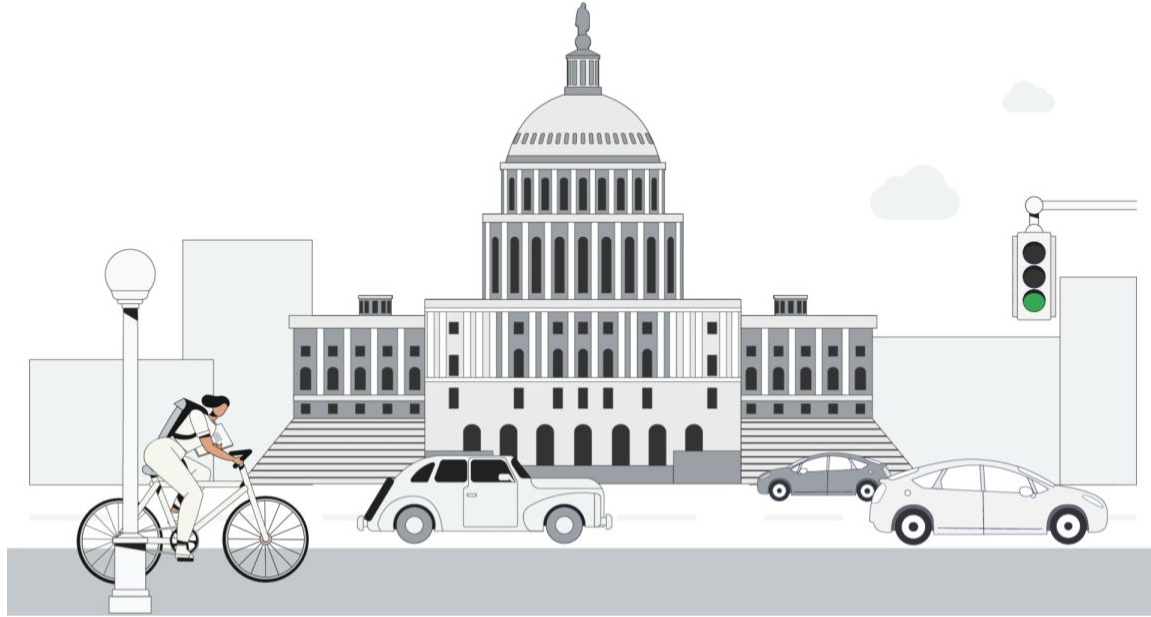


2x reduction in operational costs

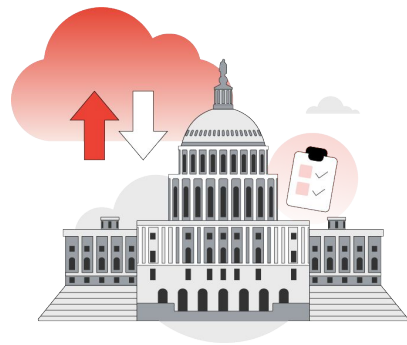


Supports secure day-to-day operations for 12 different verticals

Customer Awards | **Government**



Government



Commonwealth of Massachusetts



Georgia Department of Labor



Hamilton County Job & Family Services



Kentucky Transportation Cabinet



New York State Department of Labor Excluded Workers Fund



Oklahoma Department of Mental Health & Substance Abuse Services



Oklahoma Office of Management and Enterprise Services



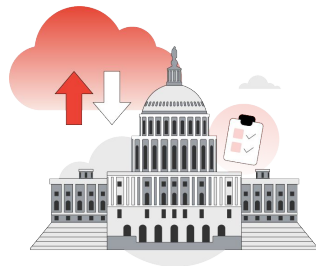
U.S. Air Force





We placed a considerable emphasis on making this system easy to use for every resident, while establishing a mechanism to effectively communicate with those struggling to book a vaccination appointment on their own.”

Matthew Moran, Assistant Secretary of the Executive Office of Technology Services and Security



Delivering vaccine supplies where needed most

The Commonwealth of Massachusetts administers the delivery of government services to its residents. When the state started distributing COVID-19 vaccines in early 2021, it did not have a centralized system to register, prioritize, and schedule appointments for constituents. With one million eligible residents needing vaccination and only 135,000 available doses each week, this caused serious concerns. To effectively book appointments and distribute vaccines statewide and comply with evolving Centers for Disease Control and Prevention requirements, the Executive Office of Technology Services and Security leveraged Google Cloud.

Enter Google Cloud

Application Modernization | Smart Analytics | Google Maps Platform

With Google Cloud and SpringML, the Commonwealth built an intuitive online portal and platform architecture in just 12 days. It enabled the registration of 400,000 residents on day one, and up to 1.1 million in total. The architecture is purpose-built for simplicity, with Firestore powering the web-based, public-facing interface for appointments. Registration data could then be easily loaded into BigQuery to analyze performance, uptake, and vaccination eligibility for various citizen cohorts, so eligible individuals could be notified via Cloud Functions and assigned appointments based on their geographic proximity to vaccination sites with Google Maps. Through the easy-to-use interface, the Commonwealth of Massachusetts was able to help its residents and provide them with healthcare resources when and where they needed them most.

Outcome



Peak of 340 hits and 19 applications per second supported



Under 10 milliseconds latency, with no more than 1 second latency for users



7 days for platform to go live, just 2 weeks after first meeting



400,000 citizens registered on the first day, 700,000 by the fifth



Managed appointments for more than 7 vaccination sites statewide

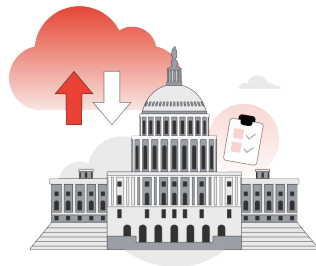


Approx. 650,000 people vaccinated through the new system



The main 'a-ha' moment with this project came with the immediate and positive impact of Google Cloud AI technology with Contact Center AI and Dialogflow. Customer service really did improve, which gave Georgia Department of Labor workers the ability to breathe a sigh of relief and focus on taking steps to help the public during a pandemic."

Jeff May, Chief Information Officer



Digital transformation acts as a force multiplier in supporting citizens

The Georgia Department of Labor provides job seekers and employers in the state with access to a wide array of resources, such as unemployment insurance administration, employment services, and provision of workforce information. During the COVID-19 pandemic, the department received an unprecedented 45,000 calls per week, but only had the resources to answer less than 2%. It had to urgently improve its customer service capacity and the effectiveness of its responses to help Georgia's citizens file unemployment claims. It reached out to Google Cloud to quickly implement a solution that could also scale to demand.

Enter Google Cloud

AI/ML

Google Cloud supported the Georgia Department of Labor in its effort to better serve the state's constituents. Artificial intelligence (AI) acted as a force multiplier for customer service and support agents, allowing them to answer more questions faster and more efficiently. Integrating Contact Center AI (CCAI) and Dialogflow to perform speech-to-text and natural language processing across devices and platforms freed up human agents to work closely with citizens who needed assistance on more complex issues. Adopting Google Cloud solutions, the administration was able to reduce workloads and support its constituents when they needed it most.

Outcome



48,000 calls managed
per week with no issues



22 minutes saved per call



25% of calls resolved without
human interaction



\$96,000 worth of full-time
employee costs avoided

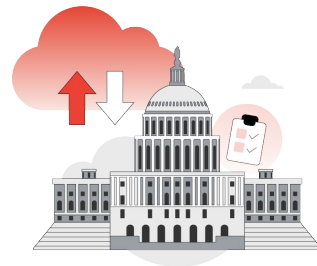


Enables the department to expand
call capacity and add additional
language support



We added staff, got better at managing finite resources, and drew on a collaboration with Google Cloud to build a data tool that could meet the extraordinary challenges of pandemic recovery. We got into the business to add value and to help people, and we now have the tools to do so.”

Kevin Holt, Assistant Director



Building digital foundations to help families keep their homes

The Emergency Rental Assistance Program (ERAP) has been delivering much-needed funds to help struggling families across the United States, but some counties found that claims validation was moving slower than desired due to a surge in requests. Hamilton County Job & Family Services (Hamilton County) supports Cincinnati, the third-largest city in Ohio. With a backlog of applications and a deadline to distribute funds or have them rescinded, the county needed to modernize its legacy systems and turned to Google Cloud to improve the application process and ensure county residents could keep their homes.

Enter Google Cloud

Application Modernization | AI/ML | Business Application Platform (BAP) | Databases | Infrastructure Modernization

A streamlined application process was rapidly deployed on Google Cloud and, in just a few weeks, Hamilton County was taking renters from application to payout in record time. The new system makes it easy to complete the application process either via a web agent or over the phone, using built-in logic to determine eligibility straightaway. New staff can also be trained to use the system in just one day with simple access to all claims processing, approvals, payments, and fraud detection. After coming close to seeing funds rescinded, Hamilton County has ultimately delivered to its community the full allocation of \$20 million in ERAP funds and is now best positioned to help more citizens of Cincinnati find a home.

Outcome



\$500,000 in funds distributed per week



40% reduction in application processing time

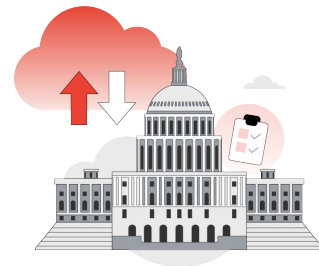


37% increase in weekly service delivery capacity



Once leadership saw the power of cloud computing, the IT team had plenty of support from the wider KYTC to expand and run with it. This big-picture shift has been reassuring, and goes to show that when people can understand the real-world value of digital transformation, they tend to enthusiastically support and embrace it.”

Heather Stout, Executive Director of Information Technology



Digital transformation builds safer and more efficient roads

The Kentucky Transportation Cabinet's (KYTC) IT department has been running an on-premises big data architecture since 2015 to analyze information from numerous sources, such as traffic message center reports. However, when this legacy system became slow and operationally inefficient, KYTC turned to Google Cloud to find better solutions to review traffic patterns and keep up with the greater speed and volume of traffic-related data and insights.

Enter Google Cloud

Smart Analytics | Infrastructure Modernization

After an initial research and design project with Google Cloud, KYTC decided to migrate its platform to Google Cloud. This opened new capabilities to recreate roadway conditions like air temperature, pavement temperature, wind speed, Doppler radar, flow of traffic, and more. Now, the platform's fully serverless data analytics pipeline includes all official traffic data sources, as well as crowdsourced data from Waze. This gives decision makers real-time insights they can leverage to improve accuracy in budgeting, enhance response capabilities, and provide Kentucky residents with a safe and efficient transportation system.

Outcome



65,000 lane miles of roads and traffic systems monitored by a team of 4



24.6M real-time records processed daily, and 35M records per day during snow and ice events



\$21M saved in city street and state highway projects



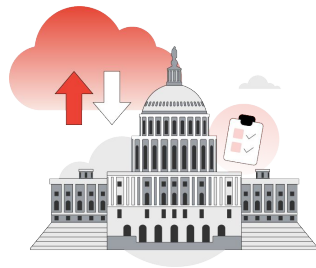
90% improvement in infringement ticketing

WE ARE YOUR DOL



New Yorkers are known for standing together in the most difficult times, and Google Cloud helped the state deliver relief quickly and efficiently to some of our families and communities hit hardest by the pandemic.”

Steven Spalten, Deputy Commissioner and Chief Strategic Officer



Bringing financial aid to disadvantaged communities

The New York State Department of Labor Excluded Workers Fund provided financial support during the pandemic to low-wage immigrant workers excluded from relief measures such as stimulus checks, unemployment insurance, federal aid, and other government programs. To distribute the \$2.1 billion fund, the New York State Department of Labor worked with Google Cloud to create a mobile-first app that enabled people to apply online for financial aid anytime, upload documents, and receive prepaid payment cards once their claim was successfully processed.

Enter Google Cloud

AI/ML | Smart Analytics

Google Cloud offered a scalable digital infrastructure with simplified processing to support high-volume use of the app, while Google Contact Center AI (CCAI) and chatbot delivered program information in real time to applicants in their preferred language. A dashboard enabled the public and government officials to review data such as claims approved and funds dispensed. Fraud detection mechanisms and cross-checks implemented by the New York State Department of Labor and Google Cloud helped ensure funds went to legitimate applicants in need. Overall, the app supported the submission of 350,000 applications and the department approved 128,000 to receive the relief benefit, of which 99% received Tier 1 funding of \$15,600 each.

Outcome



50% reduction in time to process applications, from 8 weeks to about 4 weeks



90,000 applications submitted in the first month



Thousands of New York individuals and families gained access to pandemic relief



13 languages supported

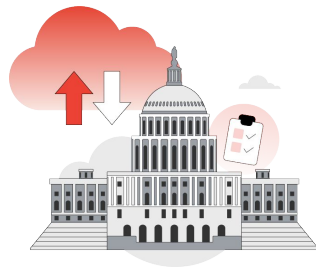


24 hours a day, 7 days a week app availability



Starting in early proof-of-concept work for the Opioid Response Solution, we were surprised to find that we could get so much more granular in our understanding than before, and therefore be more impactful with state resources, time, and who to engage and when.”

Heath Hayes, Chief Communications Officer



Leveraging data to help people fight addiction

The battle against opioid addiction has been decades long, with the disruption from the COVID-19 pandemic contributing to surges in crisis, usage, and overdose deaths. The Oklahoma Department of Mental Health & Substance Abuse Services (ODMHSAS) struggled to respond to this social and healthcare emergency without a centralized system to gather information and quantify the impact the crisis had on communities. With a large reservoir of data available, ODMHSAS turned to Google Cloud to develop a platform that would unify datasets and provide the insights to help optimize the resources available.

Enter Google Cloud

Smart Analytics

ODMHSAS worked with Google Cloud and Syntasa to develop the Opioid Response Solution, a platform that generates hyper-localized insights into the opioid epidemic by combining the power of Google's healthcare, media, and artificial intelligence (AI) and machine learning capabilities. Even in early proof-of-concept work, the system quickly delivered more granular insights to better assign resources and engage the appropriate stakeholders. Being able to use all information available has been instrumental in enabling informed decision-making. By identifying trends in their earliest stages, ODMHSAS has been able to implement effective community responses at a zip code level, as well as broaden its scope to include survey data from more than 500 school districts to drive prevention and intervention strategies that brought officials and communities together in the fight against the opioid crisis.

Outcome



7 to 8 months' time saved in delivering data to local decision makers



1 to 2 months to help 500 school districts process surveys, instead of 10 months



72-page report distributed once every 7 years consolidated into an annual 1-pager

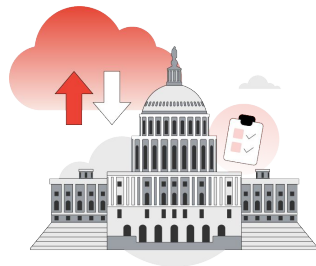


12 data sources across 4 categories unified across the state



Google Cloud was a great strategic partner to us at a time when we needed to quickly turn around critical projects like contact tracing and COVID-19 testing. And for a whole host of the services that we spun out across the state, Google was right there. I think they have what we would consider to be world-class strategy and technology when it comes to data."

Joe McIntosh, Director of Service Delivery



Unifying state data and insights to deliver services faster

The State of Oklahoma Office of Management and Enterprise Services (OMES) provides state agencies with a broad range of services, including finance assistance, human resources, property management, and business expertise. Within OMES, each agency had its own repository of data, which created silos and prevented other entities from cross-referencing sources. Under this platform, a single query could take months to resolve. During the pandemic, when communities needed fast and easy access to services, OMES turned to Google Cloud to deliver these solutions.

Enter Google Cloud

Application Modernization | Smart Analytics | Productivity & Collaboration

A centralized hub capable of unifying and analyzing data dispersed across sources and agencies, with tight protocols for security, standardization, and privacy, was the most effective resource delivered to OMES and its communities. Built on Google Cloud, the platform allows Oklahoma agencies, affiliates, and municipalities to identify needs and implement health and humanitarian services with greater ease. This data model ingests information from statewide databases to process queries in minutes instead of months. The Oklahoma State Department of Education is now using the platform to help connect at-risk students with funding for several school resources and supportive initiatives. In addition, with Google Cloud AI and machine learning tools, the Oklahoma Employment Security Commission can analyze unemployment applications to identify potential errors and fraud. OMES aims to double the number of participating agencies in the year ahead so it can make Oklahoma a top-10 state, and improve the lives of more people in the local communities.

Outcome



23 petabytes of data to be shared across sources and agencies under tight security controls



189 agencies included in 5-year growth plan for data integration

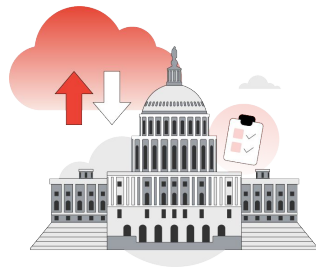


99%+ reduction in time required to execute complex searches



Thanks to the program, tens of thousands of people are learning how to fly using off-the-shelf, low-cost simulators and technology, powered and integrated with Google Cloud tools.”

Steve “Tiger” Briones, Lieutenant Colonel



Transforming flight simulator training to address pilot shortages

The U.S. Air Force needed to address a shortage of approximately 2,200 trained pilots by transforming flight simulator training. The availability of traditional flight simulators was very limited due to their high cost, which meant many students had to take turns sharing limited numbers of simulators and waiting in line. When the student wasn't in a simulator, they could only train with rudimentary tools such as posters or other hard copy materials. To drastically increase the scale and efficiency of training, the U.S. Air Force decided to leverage Google Cloud technology to develop the 19th Air Force Pilot Training Transformation (PTT) program and host low-cost simulators that could be made available to every student.

Enter Google Cloud

Application Modernization | Infrastructure Modernization | Security

With Google Cloud, the U.S. Air Force moved quickly from a prototype featuring multiple technologies to a fully-integrated, cloud-based training experience that uses state-of-the-art API management and identity services. The 19th Air Force Pilot Training Transformation (PTT) program leverages Google Cloud security innovations such as Assured Workloads, and accreditation changes to support U.S. government-regulated workloads. A consistent learning management system interface helps students easily use training software capable of varying considerably by aircraft, and provides a unified location to store and manage data. With Google Workspace, program members can collaborate and learn remotely, while Google Identity provides protection through single sign-on for both trainees and instructors. Now, when student pilots step to the flight line, they are better prepared to fly.

Outcome



Increases the scale and efficiency of pilot training



Helps pilots prepare faster and focus on key details when taking control of aircraft

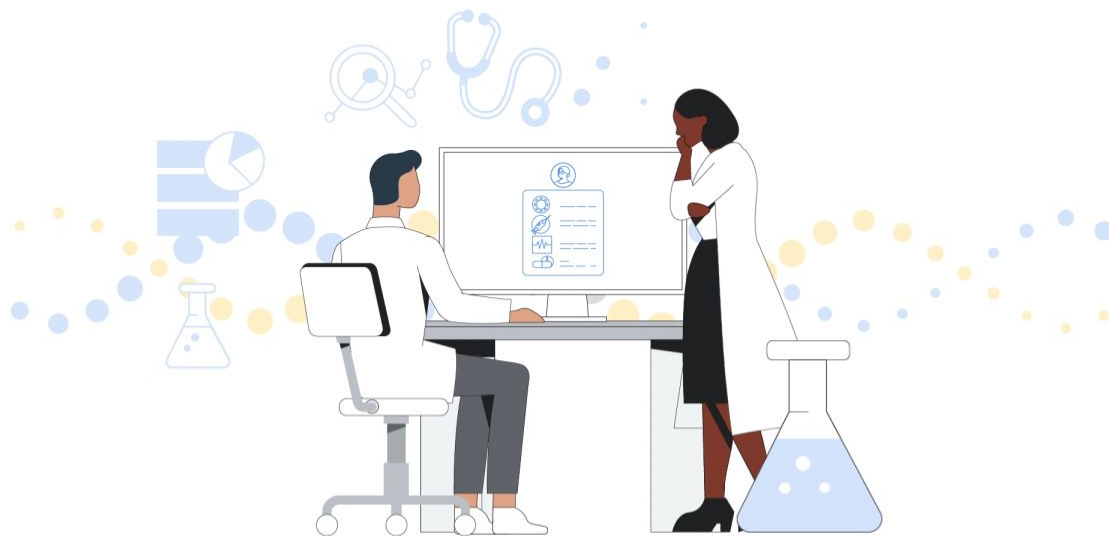


Enables the U.S. Air Force to manage data on trainee performance

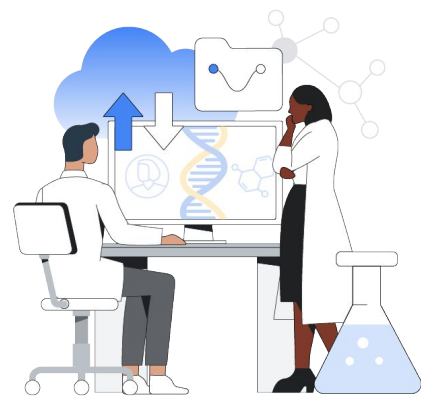


Ensures the system is secure, adaptable, and can be upgraded with new features

Customer Awards | **Healthcare and Life Sciences**



Healthcare and Life Sciences



AZ Delta	>	Harvard Medical School	>
Bayer AG	>	Infinitus Systems	>
Cardinal Health	>	Kyruus	>
Cue Health	>	Max Kelsen	>
Garvan Institute of Medical Research	>	Medecision	>
Hackensack Meridian Health	>	UNC Institute for Trauma Recovery	>



The ease to adopt BigQuery in the automation of data processing was an eye-opener. We don't have to optimize queries ourselves. Instead, we can write programs that generate the queries, load them into BigQuery, and seconds later get the result."

Peter De Jaeger, Chief Information Officer



Harnessing large-scale data analytics to improve patient care

AZ Delta, one of Belgium's largest hospitals, is at the forefront of research and data-driven medicine. Its innovation department's mission is to find ways to improve patient care through early-stage disease detection and offer prevention whenever possible. In 2020, the hospital's vast amount of medical data was available digitally, but not in a single location, and was difficult to work with at scale. To power large-scale data analytics and increase security for sensitive patient information, AZ Delta turned to Google Cloud's cutting-edge infrastructure.

Enter Google Cloud

[AI/ML](#) | [Databases](#) | [Smart Analytics](#) | [Infrastructure Modernization](#) | [Security](#)

The Google Cloud platform offered the digital solutions and technical capabilities the hospital needed to clean, code, and normalize data from its 650,000 annual patients. First, focused on ensuring the highest levels of security, with Google Cloud partner ML6, AZ Delta built a framework using Virtual Private and Cloud Identity to protect patient data. Then, the team worked on cutting down run time. Using BigQuery, query run time went from 15 minutes to 15 seconds. This enabled rapid rare disease detection and empowered physicians to plan optimal treatment pathways for their patients.

Outcome



1,000 hours of time saved



More lives saved, thanks to increased early disease detection



From 15 minutes to 15 seconds data query run time



Hundreds of millions of data points collated and analyzed at speed with BigQuery



We have been working with a very engaged Google Cloud team and an equally engaged Google Cloud Partner, Quantiphi. It feels like we are accelerating and excelling together in a highly innovative and collaborative atmosphere.”

Markus Blank, Head of Imaging, Data and Platform Services



Digital innovation brings faster remedies to patients in need

As a life science company with a 150-year history in the fields of healthcare and agriculture, Bayer has a long tradition of putting the health of its patients first. With this priority in mind, Bayer has been working to reduce time to market (and time to patient) for its SaMD (software as a medical device) products. These devices aid diagnosis and therapy, and getting them into patients' hands faster can be instrumental in saving lives. To achieve this, Bayer worked with Google Cloud to help innovate its cloud strategy.

Enter Google Cloud

AI/ML | Business Application Platform (BAP) | Infrastructure Modernization

Bayer's objective was to standardize and accelerate an end-to-end product development pipeline, from concept exploration to deployment of the final product. By migrating to Google Cloud, Bayer modernized its infrastructure with digitally managed cloud services and workflows. Compared to traditional pharma products, built-in cloud security enabled more cost-effective development activities and accelerated patient access, despite strict regulations. Google Cloud empowered Bayer to reach virtually unlimited cloud scalability to improve care products and get them to patients faster.

Outcome



30% faster data science workplaces



30% faster data service



10% faster clinical trial services



30% faster research and product development workflows

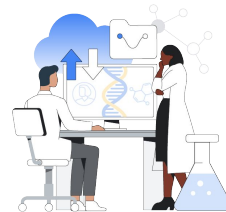


10% less time for product deployment



Google Cloud's Bare Metal Solution ensures that Cardinal Health's SAP environment can scale effortlessly to support our Pharma Modernization program goals, including plans to transform and migrate 200+ million business records into our HANA system."

Greg Boggs, Senior Vice President, Enterprise IT Shared Services



Modernizing programs to deliver medical solutions at scale

Operating in more than 30 countries with 44,000 employees worldwide, Cardinal Health is a healthcare manufacturer, distributor, and solution provider. As a result of multiple acquisitions, Cardinal Health has been managing a complex IT environment incorporating a variety of enterprise resource planning (ERP) systems, dozens of legacy applications, and multiple SAP instances at its pharmaceutical distribution centers. To support its critical role in the healthcare ecosystem, the organization embarked on its Pharma Modernization program and worked with Google Cloud to deploy a modern digital platform to improve its business models.

Enter Google Cloud

Infrastructure Modernization

Google Cloud helped Cardinal Health complete its SAP migration over one weekend without any business disruption or negative impact on users. The deployment complements SAP application servers running in virtual environments through a hybrid model that maximizes efficiency and cost-effectiveness. The SAP system can also support the surges in data volumes and future database growth expected from the ongoing Pharma Modernization program. Delivering the right medical support to patients can be a life-or-death matter, and the increased system stability with zero downtime provided by Google Cloud proved imperative.

Outcome



300% improvement in reporting and decision-making efficiency through Pharma Modernization



\$20M in savings over the first 5 years of Pharma Modernization



30% estimated increase in productivity

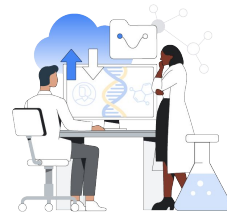


200M+ records migrated into the new system



To earn the confidence of the U.S. Department of Health and Human Services, and the Department of Defense, we had to share our data compliance and approach around security, HIPAA, scalability, and redundancy. Google Cloud was great for that, but also internationally, because you have to domicile health data in each of the different territories where you get approved.”

Chris Achar, Chief Strategy Officer



Leveraging data-driven decisions to track and prevent future pandemics

Cue Health provides a U.S. Food and Drug Administration-approved COVID-19 molecular diagnostic test that's sold over the counter for at-home use. The business turned to Google Cloud to scale its infrastructure to accommodate demand-based forecasted growth, while continuing to meet strict healthcare data privacy and security requirements.

Enter Google Cloud

Databases | Smart Analytics

Cue Health deployed a data lake to store the information necessary to create an overview of the pandemic's global evolution. Google Cloud was instrumental in delivering security, scalability, and regulatory compliance requirements held by various governments. By enabling Cue Health's migration from on-premises to its digital infrastructure, Google Cloud also enabled the business to transition manufacturing processes to commercial scale. With the genomic data stored for analysis at scale through artificial intelligence (AI) and machine learning, the business is exploring Google Cloud's public dataset program to build machine learning models to track future COVID variants, so officials can take data-driven preventive action that helps everyone.

Outcome



230,000 readers and 6M cartridges' worth of data supported



Ability to enhance the platform for third-party app development and offerings



Scales to meet pandemic-level demands

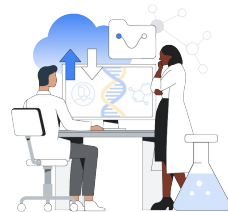


Garvan Institute
of Medical Research



The dramatic expansion of access to clinical genomics requires scalable, coordinated data infrastructure. Google Cloud offers infrastructure built for scaling and efficiency. Without it, this genome project would have taken much longer.”

Sarah Kummerfeld, Associate Professor, Head of Data Science



Using genomic sequencing to map new therapeutic solutions

The Garvan Institute (Garvan) uses genomic research for prediction, diagnosis, and treatment of diseases. Genomic sequencing has been instrumental in understanding diseases for many years. However, the process of sequencing a single genome can take as much as 600 CPU hours and 100GB of data. Genomic information is also sensitive, and its use is highly regulated, with datasets required to be analyzed in-country. Garvan turned to Google Cloud to establish a local, scalable system capable of handling data analysis in a secure and compliant way.

Enter Google Cloud

Infrastructure Modernization

By storing genomic data on Google Cloud and leveraging the Terra workflow and data management system of the Broad Institute (a research organization that convenes a community of researchers from across many disciplines), Garvan was able to pilot a program to process the largest genomic dataset ever examined in Australia. In just two weeks, 14,000 genomes were processed, while meeting security and international genomic specifications that would have taken more than a year with the on-premises infrastructure. Google Cloud's solutions for computing and connectivity made data more accessible to researchers across the network, and allowed them to efficiently process genomic data locally, and at scale. As research is increasingly rooted in data science, Garvan made digital transformation its greatest ally in its mission to understand diseases and map new therapeutic developments in Australia and beyond.

Outcome



14,000 genomes processed in just 2 weeks versus 1 year



Up to 3x increase in pilot program capacity

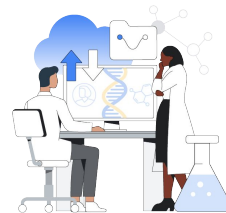


Scales to meet population growth demands for today and the future



Hackensack Meridian Health is always looking for new and innovative ways we can utilize technology to transform the patient experience. Through our collaboration with Google, we are enhancing patient care and improving health outcomes.”

Robert C. Garrett, FACHE, Chief Executive Officer



Solving data challenges to help clinicians better serve their patients

The power of artificial intelligence (AI) has been instrumental in overcoming challenges posed by COVID-19. From expediting drug discovery to forecasting and modeling case loads, smart application of machine learning in healthcare research can turn vast amounts of unstructured data into meaningful insights for researchers. As the majority of healthcare data is unstructured, Hackensack Meridian Health worked with Google Cloud to design language-processing tools to solve data management challenges and empower clinicians, patients, and communities.

Enter Google Cloud

AI/ML

Using the Google Cloud Healthcare Natural Language API, Hackensack Meridian Health is gathering information such as social determinants of health and behavioral signals from millions of clinical notes. Automating processes and targeting information that is typically not found in traditional electronic health records frees staff from manually heavy and cumbersome systems management, giving time back to clinical teams to focus on serving patient needs directly. The organization sees opportunities for discoveries beyond drug development and into further research around cancer, diabetes, and various disabilities, to bring more targeted therapies to millions of patients in need of a cure.

Outcome



35M clinical notes processed in a matter of weeks



36,000 employees across 17 hospitals have access to data



Computational approaches can make a big difference for drug discovery. It is our vision that VirtualFlow will become the standard virtual screening platform in the world."

Dr. Christoph Gorgulla, Research Associate



Revolutionizing the drug discovery process and search for cures

The average new drug takes billions of dollars and around 10 years to develop, but COVID-19 prompted the need to accelerate the process urgently. Harvard Medical School's Dr. Christoph Gorgulla built an open source tool, VirtualFlow, to screen billions of chemical compounds and narrow down promising drug candidates. A first-of-its-kind platform, VirtualFlow delivers linear scaling behavior to simulate physics-based docking efficiently, and integrates with libraries of molecules and compounds accessible to researchers worldwide. In the race to fight COVID-19, the platform needed massive processing power, so it turned to Google Cloud to take its analysis to the next level.

Enter Google Cloud

AI/ML | Databases

Google Cloud gave Harvard Medical School the infrastructure to scale up VirtualFlow computations, delivering ultra-large virtual screenings at speeds not seen before. Working in close collaboration with Dr. Gorgulla to provide him with technical support, VirtualFlow was able to target 17 proteins with 40 target sites, where each virtual molecule tested is scored for its potential as a blocker for COVID-19. As the highest-scoring candidates are identified, the research team posts them on Google's Public Dataset for educational and research use, which is instrumental in advancing drug discovery. The research has been published in the world's leading multidisciplinary scientific journal, "Nature," and holds incredible potential for the future of drug discovery and in the search for cures.

Outcome



17 proteins and 40 target sites tested in COVID-19 molecular analysis



160,000 vCPUs used in Google Cloud simultaneously



1.4B compounds tested in just 5 days

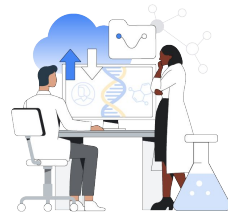


On track to deliver 20B compounds in ready-to-screen format on ZINC database



These calls are so routine. We've mapped out 98.99% of the pathways that happen in these conversations."

Ankit Jain, Chief Executive Officer



Automating healthcare calls for faster access to therapy

To solve the challenges caused by prolonged wait times, Infinitus Systems develops conversational artificial intelligence (AI) technologies and helps manage repetitive calls in the healthcare industry. Its products include a digital assistant, Eva, that automates calls made by care providers and pharmacies to payers, the organizations in charge of paying for the services provided. Looking to ensure scalability, performance, and HIPAA compliance, Infinitus Systems opted to build its products on Google Cloud.

Enter Google Cloud

AI/ML

Infinitus Systems was able to work with Google Cloud from inception to delivery of its technologies. Google Cloud provided the company with powerful AI services that enable and augment its products, including Speech-to-Text, so Eva, their digital assistant, would have enhanced training and capabilities. Today, BigQuery is employed to manage analytics data for its natural language processing (NLP) models, running on Google Kubernetes Engine, so Eva can hold human-like conversations in healthcare settings, to help people access the therapy they seek in a faster, more cost-effective way.

Outcome



93% of positive responses from call recipients on service delivery



6 weeks to launch Infinitus digital assistant program, with just 2 weeks to implement additional features



Enables customers to automate manual calls that would otherwise require hundreds of people to complete

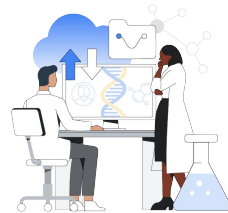


Able to handle increased traffic during busy periods, such as vaccinations during the pandemic



With Google Cloud, we've built an even more robust, scalable data pipeline that can support our business's tremendous growth and our customers' unique needs."

Mark Vo, Senior Vice President of Engineering



Connecting people to the care they need with cloud technology

Successfully delivering a white-labeled SaaS product like HealthSparq means onboarding customers as quickly and efficiently as possible. To achieve this, Kyruus needed a next-generation pipeline that could ingest raw data from customers, map it to the company's data format, and make it available to users through web applications. Looking to improve search and scheduling solutions for healthcare organizations, Kyruus turned to Google Cloud to help augment its data pipeline.

Enter Google Cloud

[Smart Analytics](#) | [Infrastructure Modernization](#) | [Google Maps Platform](#)

With Google Cloud infrastructure, Kyruus has access to more valuable tools to support its business growth. HealthSparq uses Dataflow to process data faster, and for the capability to scale in the addition of new customers' information. Meanwhile, the business and analytics teams at Kyruus use BigQuery datasets to view data at various stages of processing. Beyond improving its efficiency and reducing operational costs, Kyruus is able to continue serving millions of people each month by turning data into information they can easily use to make the healthcare choices that are right for them.

Outcome



Nearly 100% service uptime



3 hours processing time, reduced from 48 hours previously



150% reduction in customer data ingestion time



2M appointments booked via Kyruus platform

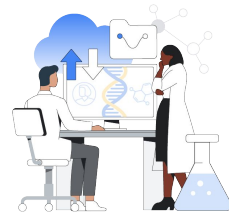


MaxKelsen



Machine learning doesn't get tired or have a bad day. It's working at the same level time and time and time again, and that will drive an increase in patient safety and a decrease in canceled surgeries."

Nicholas Therkelsen-Terry, Co-Founder and Chief Executive Officer



Saving lives by improving surgical precision with machine learning

Max Kelsen is an analytics and software engineering agency specializing in machine learning and artificial intelligence (AI). The company worked with Johnson & Johnson to improve effectiveness and precision in the methods of inspection of each set of surgical tools supplied to various health centers and hospital facilities. With lives at stake, it's vital to ensure that surgical sets, the trays, and the hundreds of instruments they contain, will be ready and free from contamination for each use. Max Kelsen turned to Google Cloud to help its customers with a digital tool to work more efficiently and avoid supply bottlenecks, surgery delays, and human error.

Enter Google Cloud

AI/ML

Max Kelsen used Google Cloud to build and run its SAVI (Semi-Automated Vision Inspection) platform. This automatic tool uses standard camera imaging and machine learning to accurately identify and catalog instrument sets. This process requires a high degree of accuracy, with less than a 1 in 10,000 error rate, a level of precision that previously seemed unachievable. However, using Google Cloud's AI/ML solutions, Max Kelsen was able to meet this standard. Google Kubernetes Engine delivered several different benefits, beyond fulfilling this legal compliance obligation. SAVI has reduced the time required to inspect surgical instruments, as well as the time to train technicians who work with surgical tools, from two years to three months. SAVI is also improving the patient experience, with fewer canceled procedures, shorter surgery waitlists, and faster access to care.

Outcome



40% minimum reduction in time needed to assess surgical equipment



85% anticipated reduction in time spent training technicians



99.99% accuracy in identifying surgical instrument sets

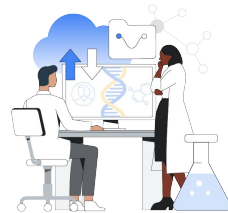


2 years from completion of POC to pilot project deployment



Healthcare is plagued by care managed through delayed response, and the shift to Google Cloud will help our customers deliver quality care at the right time and through a variety of communication channels.”

Pavel Grebenshikov, Chief Technology Officer



Improving patient care outcomes with cloud-native transformation

Medecision provides digital care management solutions as a service to healthcare providers. Over time, its legacy platform became ineffective, forcing the company to run multiple instances for each client and making operations and overheads a growing challenge. To maintain its position as a leader, Medecision knew it needed to build a next-generation Digital Care Management Platform and was ready for a cloud-native transformation with Google Cloud.

Enter Google Cloud

[Application Modernization](#) | [AI/ML](#) | [Databases](#) | [Smart Analytics](#) | [Infrastructure Modernization](#)

Medecision started its modernization by focusing on a foundational layer in Google Cloud. This avoided rebuilding business applications, while delivering real-time insight capabilities and a new level of data intelligence. Operational deficiencies of its legacy platform were quickly overcome while introducing new services and products, including a clinical intelligence layer that responds to incoming data to make rapid decisions for Next Best Action, providing a completely new approach to real-time process automation. Google Health, Healthcare API, and other related services also helped integrate systems quicker. This change to proactive management for Medecision clients has removed lengthy delays in decision-making, leading to improved quality of care delivered to patients.

Outcome



100M+ patients under new management platform



10,000 to 20,000 concurrent active B2B users

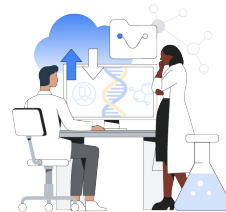


2,500 members per Care Manager achieved for clients



There was the anxiety and fear of infecting loved ones and the burden of seeing so much sadness, which had a clear impact on mental health. But without a way to assess it, it was hard for hospital leadership to address the problem in a systematic, scalable way.”

Dr. Samuel McLean, Jeffrey Houpt Distinguished Investigator
and Director of the Institute for Trauma Recovery



Supporting frontline health workers with mental health resources

The pandemic raised two important issues to everyone’s attention: the critical role that healthcare workers provide, and the importance of mental health. With this in mind, the team at the University of North Carolina (UNC) Institute for Trauma Recovery worked with Google Cloud to build an app that offers self-assessment tools to frontline healthcare professionals, helps monitor their mental health symptoms, and offers crisis support when needed. The app would serve as both an avenue of assistance and a reporting system on trends in workers’ wellness.

Enter Google Cloud

Productivity & Collaboration

The Heroes Health app was developed in just two months, and was made available as a free app on Android and iOS in July 2020. Built on the Google Cloud platform and using its Real-World Insights and the FDA’s MyStudies infrastructure, the program first launched at UNC Health and its hospital network, and has since expanded across 48 states. Along with the regular self-assessment check-ins and graphs of symptom severity over time, Heroes Health offers confidential mental health resources for self-directed support, as well as discounts for popular online services including Talkspace and Headspace. To date, Heroes Health continues in its effort to destigmatize mental health and provide staff with the support they need to thrive, at work and in life.

Outcome



1,640 healthcare workers served



25% reduction in
depressive symptoms



31% reduction in
anxiety symptoms

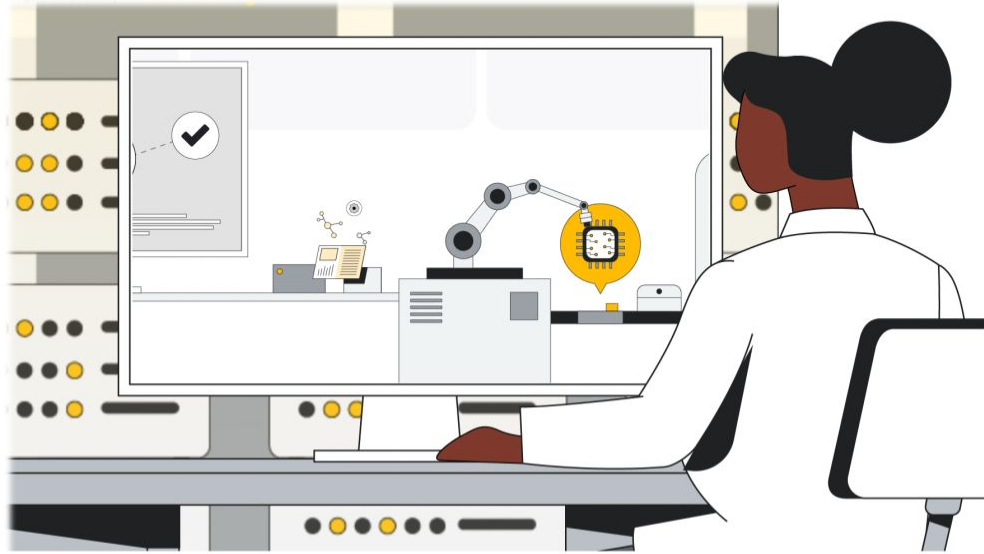


20% reduction in post-traumatic
stress symptom severity
(4 to 8 weeks after enrollment)



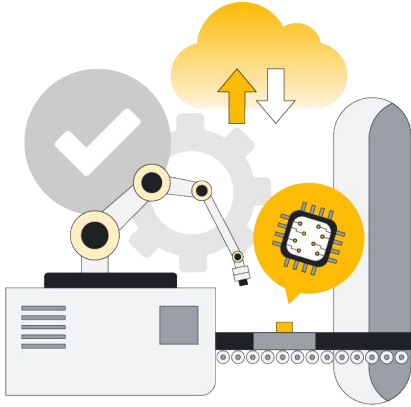
67% of users at partner
organizations agree Heroes Health is
helpful in supporting their mental
well-being

Customer Awards | **Manufacturing**



Manufacturing

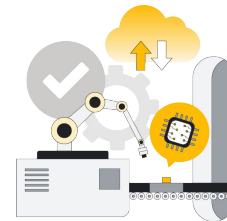
The Mahindra Group





A digital mindset is front and center in every aspect of The Mahindra Group. We are building for the future with advanced cloud-based technologies and data-driven strategies to speed decision-making and maximize synergies across our business.”

Mohit Kapoor, Group Chief Technology Officer



Driving a digital-first future for businesses with cloud innovation

Founded in 1945, the Mahindra Group is a multinational conglomerate based in India that comprises more than 150 companies, serving a diverse portfolio across multiple industries. Its mission: to challenge conventional thinking and drive positive change through technology. With this goal in mind, Mahindra Group’s Digital, Data, and Cloud center of excellence, called Mahindra Digital Engine (MDE), worked with Google Cloud to leverage its secure and reliable infrastructure for a new data cloud strategy. This would allow it to drive innovation across multiple business units, from core operations to customer-facing channels and employee experience.

Enter Google Cloud

Application Modernization | AI/ML | Databases | Smart Analytics | Infrastructure Modernization | Security

MDE needed to migrate its business-critical applications from its on-premises data centers to Google Cloud. Leveraging artificial intelligence (AI) capabilities enabled teams across Mahindra Group to gain a deeper understanding of customers’ demands and preferences. These insights help MDE anticipate trends and consumer actions to accelerate product innovation and drive more personalized experiences accordingly. The new infrastructure allows for streamlining of complex data management, lowering the total cost of ownership and improving security and governance. By making these shifts internally, Mahindra Group believes it will be better placed to help its clients replicate success in their own digital transformation journeys, helping them drive a digital-first future through technological innovation.

Outcome



From 1 day to 30 minutes
reduction in deployment time

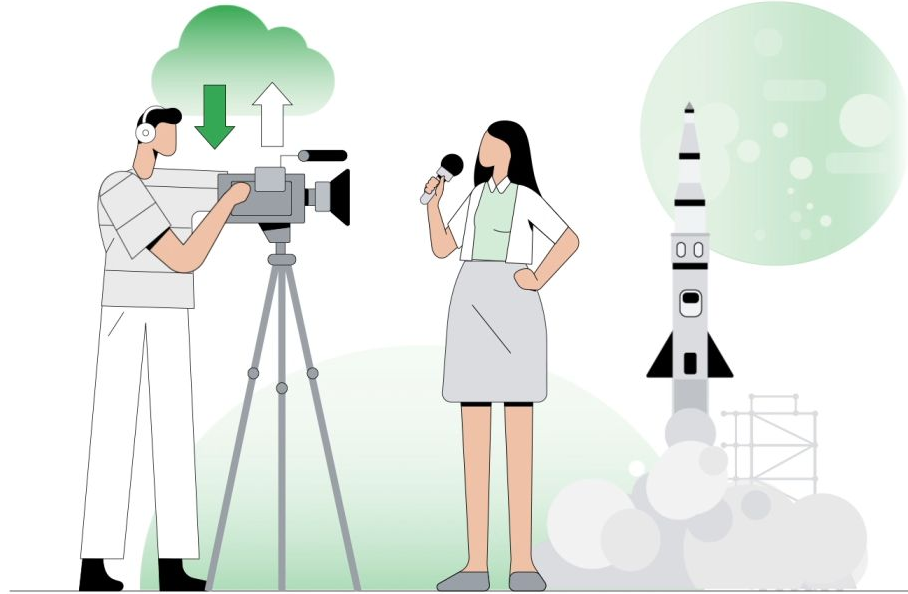


20% faster releases

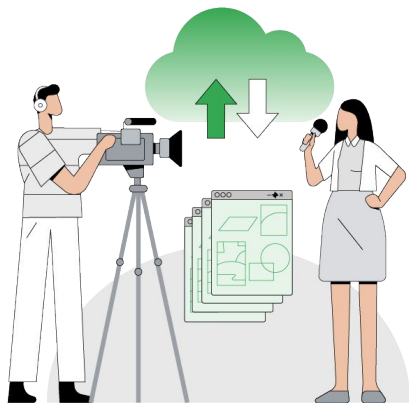


Faster VAPT clearance
with minimum iterations

Customer Awards | **Media and Entertainment**



Media and Entertainment



Bonnier News



Kakao Brain



TIME

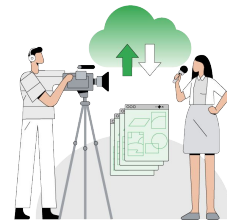


BONNIER NEWS



In our aspiration to safeguard democracy, we always have to make sure every bit of information is widely available to our readers, especially through our content but also to protect their integrity. Google Cloud supports the democratization of data, allowing us to collaborate without boundaries in a safe environment.”

David Hatschek, Head of Development for Data and Analytics



Digital transformation helps to democratize data and protect democracy

Bonnier News is a leading news player and the Nordic region's largest media group. With a 200-year tradition in changing the media landscape, and driven by supporting free speech and contributing to a democratic society, Bonnier News was determined to democratize its data. After experiencing increased growth, both organic and through the acquisition of multiple media outlets, the company identified the need to unify and modernize its existing analytics infrastructure in order to use its data to continue to meet its audiences' evolving needs across its 100+ brands. To achieve this, it turned to Google Cloud.

Enter Google Cloud

Databases | Smart Analytics

Bonnier News' digital transformation ambition included modernizing everything from how data was collected and processed to the insights it generated and how people accessed them across the organization. Bonnier News worked with Google Cloud to consolidate its legacy systems and build a centralized data platform without disrupting ongoing business. With a stack based on Airflow and BigQuery, anyone in the organization, regardless of technical know-how, is empowered to use data insights from across the company. Google Cloud provided a seamless ecosystem to support the company's unique technological legacy, in-house competencies, business needs, and long-term digital strategy. By making access to information easy, the new system allows teams to solve problems autonomously and prioritize content that is engaging and relevant to readers. Access to information is a cornerstone of democracy, and by creating a digital framework to protect its integrity and help audiences to be well-informed, Bonnier News is protecting journalism, free speech, and democracy itself.

Outcome



76% conversion from clicks on messages to logins



Data-driven recommendations and offers based on readers' interests across Bonnier News' 100+ brands



150 pipelines built by teams other than the data team (initial goal of 3 pipelines)

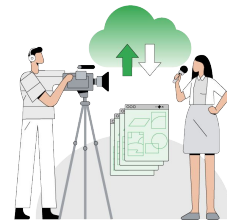


Accommodates multiple legacy subscription and CRM systems in 1 flexible cloud infrastructure, supporting both digital and print business models



Thanks to the continuous development built around Google Cloud products, we were able to focus exclusively on AI research and paper publications within a couple of months. Without TPU, it would have taken several years to complete all these tasks.”

Baek Woonhyuk, Large-Scale AI Research Team Lead



Bringing real-world opportunities with AI-based technologies

Kakao Brain is at the forefront of South Korea's artificial intelligence (AI) research, developing and innovating with AI-based technologies. Continuously leveraging AI to solve challenges, Kakao Brain created KoGPT, the first natural language processing (NLP) AI made for the Korean language. At the time, most of the company's AI-related research and projects were conducted in a custom-built GPU-based cloud. However, with a growing number of tasks that require a larger AI model and more data to learn, Kakao Brain turned to Google Cloud for a flexible system that could handle the process seamlessly.

Enter Google Cloud

AI/ML | Infrastructure Modernization

Kakao Brain used Cloud TPU to develop and operate KoGPT, while adapting Generative Pre-trained Transformer 3 (GPT-3), the most widely used natural language processing (NLP) model, to Korean. The English-speaking world was already using GPT-3 beyond translating words to text, including accurately reading a speaker's intentions, writing letters, and coding software. Through KoGPT, Kakao Brain has created a widely applicable technology that can be used to process the Korean language across various AI fields. The efficiency of Cloud TPU has already proven invaluable, quickly learning six billion model parameters. Using 200 billion token data to bring the power of NLP to South Korea for the first time, Kakao Brain is opening up more opportunities for real-world applications with AI.

Outcome



6B model parameters learned



200B token data used



1 day for task completion
versus 7 days previously



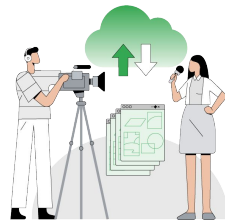
Time to test reduced from months
to weeks

TIME



Our Google Cloud team is at the forefront of helping us strategize and ideate in ways that keep us ahead of the industry.”

Burhan Hamid, Senior Vice President, Data and MarTech



Merging tradition and innovation with the leap from print to Web3

TIME has evolved from a traditional print publication to a leader in cutting-edge media within a few short years. Through cloud-based collaboration and productivity apps from Google Workspace, the company was able to ease the disruption of transitioning to a hybrid work environment, as well as build a customer data platform (CDP) that enables data management and optimization. Seeing the results from its shift into a digital-first organization, TIME embarked on its next phase of leveraging its data and entering the metaverse, with the help of Google Cloud technology.

Enter Google Cloud

Application Modernization | AI/ML | Business Application Platform (BAP) | Smart Analytics | Productivity & Collaboration

Today, Google Cloud plays a key role in enabling TIME's NFT community, a Web3 initiative called TIMEPieces, to ingest blockchain data and make it presentable to stakeholders. By integrating with Etherscan and OpenSea APIs, TIME was able to provide a secure payment platform for users to connect their digital wallets for seamless access, and build a machine learning model to power a dashboard that enables internal marketing teams to track performance based on customer data. As TIME continues migrating its entire media asset management and archived content to Google Cloud, its NFT community can manage their assets directly on the site, and readers can subscribe to traditional magazine issues with cryptocurrencies as payment.

Outcome



18,000+ artists, collectors, and enthusiasts in TIME's NFT community



5,000+ TIMEPieces holders connect digital wallets to Time.com for frictionless access to the site



360-degree customer profiles built based on first-party data derived from digital subscription product



Gained ability to activate offline print subscribers on digital platforms

Customer Awards | **Retail**



Retail



AEO Inc.



commercetools



The Home Depot



Quantum Metric



Shopify



AEO INC.



We recommended Google Workspace for our productivity foundation of the future ... to collaborate more effectively, so we think, act, and move faster to serve customers and win in the marketplace – we are creating the future of work at AEO.”

Mat Lee, Manager, Product Management and 2021 AEO ICON Winner



Delivering the future of work to teams collaborating from anywhere

American Eagle Outfitters (AEO) is a leading global retailer offering clothing, accessories, and personal care products under its American Eagle and Aerie brands. The company operates stores in the United States, Canada, Mexico, and Hong Kong, and ships to 81 countries worldwide through its websites. After the COVID-19 pandemic, AEO saw an opportunity to move to a hybrid working environment. The company wanted to provide its teams with the ability to share large files and work collaboratively in real time, with a platform that lets them work wherever, whenever, and on any device they want. AEO chose Google Workspace to help it shape the future of its work.

Enter Google Cloud

Productivity & Collaboration

AEO had to figure out how to launch its new hybrid work environment, while also maintaining high security standards. Using Chrome profiles and extensions to control access to its enterprise environment enabled safe and reliable connections to documents and collaboration tools, without demanding always-on VPN access for users' logins. Overcoming these challenges cleared the way for AEO to deliver hybrid work and effective processes through Google Workspace. Google Forms and Google Sheets have already helped the business deliver payroll accurately during a large ransomware attack.

Outcome



Zero payroll delays and accurate pay for 40,000+ hourly workers during a ransomware attack



5,000+ devices matched to AEO credentials daily through Endpoint Verification



Leveraging Google Chrome profiles and extensions for access to enterprise environment



Deployed Endpoint Verification extension to efficiently match device serial numbers to AEO credentials



It was an incredibly successful migration that resulted in about 10 minutes of downtime, which was 50 minutes less than we had told our customers. We couldn't have asked for a better partner."

Monia Spartà, Head of Infrastructure Alliances, Global



Empowering retailers with innovative digital experiences

Commercetools is a next-generation software company that offers a truly cloud-native commerce platform. By late 2016, the company had grown to the point where its existing cloud infrastructure was struggling to cope with increasing traffic. It was working with a provider that designed its cloud for individual developer use cases, but it was suffering from frequent outages and lack of support. Commercetools needed to find a new cloud infrastructure that had the capability to fulfill its speed, flexibility, and simplicity requirements at scale. The Google Cloud platform had all the resources the company was looking for.

Enter Google Cloud

Application Modernization | AI/ML | Databases | Infrastructure Modernization | Security | Productivity & Collaboration

As a cloud-native platform, commercetools understood the advantages of container-based architecture and designed its infrastructure around Kubernetes. Google Cloud's GKE has become the core of its new infrastructure, allowing commercetools to offload more of its maintenance tasks through automation and managed services. A team of eight managed the migration in a record time of two hours, with only 10 minutes of downtime for customers. After expanding its collaboration with Google Cloud, commercetools was able to decrease maintenance and infrastructure costs and invest in even more digital developments. As a result, brands and retailers can now purchase commercetools directly via Google Marketplace, access more integrated offerings for streamlined processes, and deliver an overall enhanced customer experience.

Outcome



100% uptime for customers



70% reduction in monthly costs



300% traffic increase for customers



50% more API calls



Because many of our customers shop at both our brick-and-mortar stores and online, we've embarked on a multiyear strategy to offer a shopping experience that seamlessly bridges the physical and digital worlds."

Jason Rice, Senior Director, Technology



Data-driven strategy delivers personalized shopping experiences

As one of the largest home-improvement e-commerce retailers, The Home Depot migrated part of its infrastructure and data assets to the cloud over the last two years to create personalized search results that would increase customer relevance and drive sales. Focused on improving long-tail searches, The Home Depot turned to Google Cloud for artificial intelligence (AI) and machine learning expertise.

Enter Google Cloud

Business Application Platform (BAP)

The Home Depot commenced the project in June 2021, and working closely with Google Cloud Professional Services, its engineering team tested and implemented Cloud Retail Search across its website and mobile app in just five months. This enabled the business to apply the solution against 30% of traffic before the peak Black Friday-Cyber Monday e-commerce period in November, allowing teams to create diagrams and workflows, and perform stress tests to ensure the system could autoscale to manage standard and peak loads without disruption. Over a nine-month period, the solution handled over one billion search queries, using smart analytics to generate insights into customer preferences, fueling seamless and tailored shopping experiences and ensuring The Home Depot's continued success.

Outcome



\$50M in incremental revenue added



Significant uplift in average order value through the website



1.47% increase in click-through rate for B2C clients and 9.18% for B2B



3.46% increase in conversion rate for B2C clients and 1.14% for B2B



Google has helped us in so many ways, from helping us build a cost-effective cloud architecture to helping us move mountains for our customers and win sales. I truly feel like Google wants us to succeed.”

Glenn Trattner, Chief Operating Officer



Turning negative shopping experiences into revenue

As a partner to many of the world's most recognized brands, Quantum Metric is focused on helping companies understand how to create improved, streamlined digital experiences for their customers. To do this, they leverage real-time insights across hundreds of millions of unique user sessions, making scalability and performance the foundation of Quantum Metric's platform. With these priorities in mind, the company looked toward Google Cloud to build a digital platform with the speed and scale it needed to achieve its growth targets.

Enter Google Cloud

Smart Analytics

Leveraging Google Cloud infrastructure, Quantum Metric built its Continuous Product Design (CPD) platform and delivered on its goal to enable teams across every industry and business area to find, fix, and quantify online issues. From slow page loads to broken links, or abandoned shopping carts due to failed attempts to use coupon codes, Quantum Metric offers clear visualizations of many hard-to-capture friction points to improve in order to quickly convert negative shopping experiences into revenue. Using Google Cloud Smart Analytics also allows client brands to trigger chat sessions or calls based on identified user frustration on site. Its ongoing development of new services for its clients has helped Quantum Metric's customers boost their sales by transforming online shopping journeys into seamless customer-focused digital experiences.

Outcome



100+ petabytes of data analysis volume in BigQuery every month



3.5B+ total user sessions analyzed every month



20% of Fortune 500 companies are now customers of Quantum Metric



97% global customer retention in 2021



Improved store speed and performance will give our merchants a competitive edge by allowing them to better serve buyers where they are, and it will do so in the most energy-efficient way possible through Google Cloud.”

Farhan Thawar, Vice President of Engineering



Cloud technology delivers better outcomes during peak times

As a cloud-native e-commerce platform, Shopify empowers 1.7 million online retailers across the globe, and needs to be ready to meet customer demands when they're at their busiest. This is particularly true during Black Friday through Cyber Monday (BFCM) weekend, when record sales volumes reach new peaks each year. Shopify moved to Google Cloud in 2017, but in 2021, it prepared to set new records yet again.

Enter Google Cloud

Application Modernization | AI/ML | Databases | Infrastructure Modernization | Security | Productivity & Collaboration

Shopify prepares for BFCM events six months ahead of time, performing traffic forecasts and capacity planning through multiple iterations to ensure capacity needs will be met in a cost-effective manner. Simulations are performed on BFCM loads based on these forecasts by the engineering team. While Elastic Cloud services help across flash sales, events like BFCM require advance planning, fault tolerance, and the ability to autoscale to meet the evolving needs of merchants worldwide. With the pandemic accelerating online shopping, BFCM 2021 saw 47 million consumers across the globe enjoying a seamless and secure shopping experience, and merchants of all sizes finding their path to entrepreneurship with the help of Google Cloud.

Outcome



1.7M businesses supported worldwide with no downtime



\$3.1M in peak sales per minute on Black Friday 2021



2M CPU cores used over multiple regions for BFCM 2021



57% growth in total Shopify revenue in 2021



\$6.3B total global sales across 47 million customers, an increase of 23% from 2020

Customer Awards | **Social Impact**



Social Impact



Kakao Brain



New York State Department of
Labor Excluded Workers Fund



Northwestern University



Oklahoma Department of Mental Health
& Substance Abuse Services



Spice Money





Many professionals in our field still find it extremely challenging to apply AI to real-world problems. But we believe that with Google Cloud, Kakao Brain will be able to accelerate the holistic development process of our deep learning models. We look forward to bringing our ideas to life soon.”

Baek Woonhyuk, Large-Scale AI Research Team Lead



Pioneering deep learning models for written and spoken language

Looking to ensure that Koreans benefit from advanced technologies and the development of deep learning models such as natural language processing (NLP) and AI, Kakao Brain developed KoGPT, a large-scale NLP artificial intelligence (AI) model. While NLP software has made rapid advances in recent years, when it comes to understanding written text and spoken words, it is still primarily limited to English, and less helpful with other languages, such as Korean. To ensure smooth and timely delivery of KoGPT, Kakao Brain worked with Google Cloud for the computing power it needed.

Enter Google Cloud

AI/ML | Infrastructure Modernization

To ensure the speed and scale it needed to build KoGPT, Kakao Brain adopted Cloud TPU with Generative Pre-trained Transformer 3 (GPT-3), the most widely used NLP model. This enabled the study of 6 billion model parameters and 200 billion token data in just a few months. Through the launch of KoGPT, Kakao Brain has created a widely applicable technology that can be used to process the Korean language across various AI fields. By bringing the power of NLP to South Korea, local engineers and academic researchers within the AI/ML space can now save time with KoGPT, and even collaborate to bring the next evolution of KoGPT through the power of the open source.

Outcome



6B model parameters learned



200B token data used



1 day for task completion
versus 7 days previously

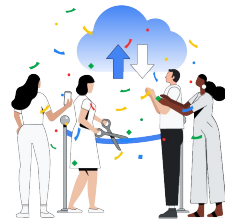


Time to test reduced from months
to weeks

WE ARE YOUR DOL

During this pandemic, Americans are facing historically high levels of unemployment, and no state is immune, but New York is moving quicker than other states to get money into unemployed workers' hands. In just two and a half months, we have paid four years' worth of benefits. And we will make sure everyone receives the benefits they are eligible for."

Roberta Reardon, Commissioner



Building a platform to bring financial support to those who need it most

During the COVID-19 pandemic, many low-wage immigrant workers helped keep New York State going. This included street vendors, domestic workers, delivery drivers, cooks, and more who provided vital services through challenging times. Even though they paid taxes and contributed greatly to the economy, the large portion of these workers found themselves excluded from relief measures that helped other New Yorkers cope with widespread financial challenges. In response, the New York State Department of Labor launched the Excluded Workers Fund and worked with Google Cloud to build a mobile-first application that workers could use to apply for financial aid.

Enter Google Cloud

AI/ML | Smart Analytics

Using Contact Center AI (CCA) and Document AI to build the app, the New York State Department of Labor was able to deliver program information to applicants in real time and in their preferred language, through a chatbot. With a dashboard, the public, advocates, and government officials were able to review data about claim approval status and funds dispensed. Fraud detection mechanisms and cross-checks implemented by the New York State Department of Labor ensured funds went to legitimate applicants in need. Through the app built on the Google Cloud platform, New Yorkers were able to easily apply online 24/7 in 13 languages, upload documents, and receive prepaid payment cards once their requests were successfully processed. Over 128,000 approved applicants received support through payments of up to \$15,600.

Outcome



50% reduction in time to process applications, from 8 weeks to about 4 weeks



90,000 applications submitted in the first month



Thousands of New York individuals and families gained access to pandemic relief



13 languages supported

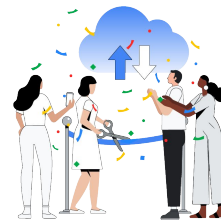


24 hours a day, 7 days a week app availability



We're unique in that we're a broker between datasets and neighborhoods, between nonprofits and government. The infrastructure we've developed allows us to quickly leverage data and resources in ways we could not do before. In the fast-paced research field that N3 occupies, Google Cloud gives us the opportunity to generate more comprehensive research as quickly as our partners need it."

Andrew Papachristos, Professor of Sociology and Faculty Director at N3



Using data for good in Chicago's communities

The Northwestern Neighborhood and Network Initiative (N3), a research institute at Northwestern University, has been actively working to help local neighborhood groups address core social issues affecting communities in the Chicago area. Leveraging cutting-edge social science research and big data, N3 is contributing to reducing gun violence, and acting as a research and evaluation partner for the Chicago Neighborhood Policing Initiative. To increase its reach and effectiveness, N3 also needed a more agile way to collaborate and share data insights with those who may not have experience sifting through complex data. For this, N3 decided to build on the Google Cloud platform.

Enter Google Cloud

[AI/ML](#) | [Databases](#) | [Smart Analytics](#) | [Productivity & Collaboration](#)

Using Data Studio and BigQuery, N3 created an interactive dashboard to ingest, interpret, and share data in a way that allows the discovery of new correlations between data points and insights that couldn't be accessed before. BigQuery powered serverless cloud functions that empowered every team member to effectively work with data, including those who had less experience or deep technical knowledge. The Google Cloud infrastructure provided N3 with the computing resources to build larger models, compile more data, and highlight measurable differences in outcomes that could not be quantified previously. Finally, by leveraging automation to reduce the time, labor, and errors in converting raw data into information, N3 enables its researchers to expand the scope and depth of their studies. This results in faster, better insights when it comes to creating network maps of areas where prompt intervention is needed most, and realizing the goal of reducing gun violence by 80% in five years (2025).

Outcome



2x faster access to aggregated statistics



Up to 58M rows of data aggregated and evaluated in minutes without the need to download it to a local PC



Interactive dashboards on Data Studio make datasets more digestible for community partners



Instant scalability enables N3 to make a public dashboard and receive large amounts of new data without additional infrastructure work



Brings visibility to patterns in datasets to help community groups take positive action



We have a lot of data, including a robust system to share data with other agencies, but we had limitations in getting to a granular level. The Opioid Response Solution helped us see different trends with treatment versus prevention, and to better prioritize strategic communications.”

Heath Hayes, Chief Communications Officer



Helping officials and communities work together in the opioid crisis

With the opioid crisis reaching record levels during the pandemic, Oklahoma wanted to meet the challenge through a modernized data-driven response. Data was scattered across various sources in the state without any centralized way to gather and analyze it. The Oklahoma Department of Mental Health & Substance Abuse Services (ODMHSAS) worked with Syntasa and Google Cloud to develop the Opioid Response Solution, a platform that unifies data sources and creates actionable insights that fuel preventative programs aimed at optimizing limited resources.

Enter Google Cloud

Smart Analytics

The Opioid Response Solution quickly delivered ODMHSAS zip-code level insights into the crisis. With hyper-localized insights into the opioid epidemic, it combines the power of Google's healthcare, media, and artificial intelligence (AI) and machine learning capabilities and applies them to public health agencies' mission of serving constituents' behavioral health needs. Reports include data from a prevention and intervention survey across more than 500 school districts, improving teams' ability to proactively determine the right culturally appropriate, gender-responsive, and trauma-informed school practices and programs to implement. ODMHSAS also leveraged Google Cloud with outreach and engagement. Together, they are fostering more proactive engagement to ensure both individual communities and officials can fight the opioid epidemic and understand one another.

Outcome



7 to 8 months' time saved in delivering data to local decision makers



1 to 2 months to help 500 school districts process surveys, instead of 10 months



72-page report distributed once every 7 years consolidated into an annual 1-pager

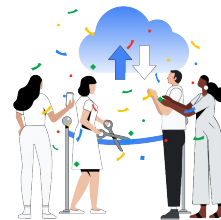


Provides insights across 77 counties statewide



With Google Cloud, we have been able to gain real-time insights which are being leveraged to target the right geographies.”

Varundeep Kaur, Chief Information Officer



Bringing digital financial services to India's rural communities

Spice Money works to empower small business owners and nanpreneurs with digital financial products that are essential to help them run their businesses. The fintech company offers financial and e-retail services such as mini ATM services, bill payments, statements, money transfers, and insurance, across 12 verticals. To help drive more innovative solutions and financial inclusion across the country, Spice Money turned to Google Cloud.

Enter Google Cloud

[AI/ML](#) | [Smart Analytics](#) | [Infrastructure Modernization](#) | [Security](#) | [Google Maps Platform](#) | [Google Workspace](#)

With Google Cloud, Spice Money has built a data strategy at minimal cost and maintenance, without compromising on performance or security. Through BigQuery and Pub/Sub, Spice Money was able to quickly build a data warehouse that could process data in real time, while Apigee assists with the secure handling of three billion transactions a year. Leveraging real-time insights to target the right geographies, Spice Money is able to bring essential financial services to areas that traditional banking infrastructure cannot reach, helping millions of small businesses and nanpreneurs in rural India access digital financial services catered to their specific needs.

Outcome



4 engineers completed data warehouse migration in 4 months



10% reduction in calls to call center



15% reduction in maintenance efforts



3x increase in application traffic



2x reduction in operational costs



Supports secure day-to-day operations for 12 different verticals

Customer Awards | Supply Chain and Logistics



Supply Chain and Logistics

One Mount Group





Google Cloud is a critical technology partner in One Mount's speed to market and effort to continuously deliver differentiated services to our customers in Vietnam."

Lu Luc, Chief Data Officer



Improving digital services for the people of Vietnam

One Mount Group is on a mission to make people's lives better. Its digital services are used by businesses and consumers alike, whether that's VinID (an e-retail loyalty app), VinShop (a service connecting suppliers and customers with more than 100,000 independent retailers), or OneHousing (an online real-estate platform). One Mount believes speed, security, and scale are crucial to modernizing technology and innovation. When the company realized its existing on-premises architecture was hindering these ambitions, with its mantra of "grow together" in mind, One Mount decided to work with Google Cloud for its digital transformation.

Enter Google Cloud

Application Modernization | AI/ML | Databases | Smart Analytics | Infrastructure Modernization | Security | Productivity & Collaboration | Google Maps Platform

Working with a 25-strong team of One Mount engineers, the company began to overhaul its infrastructure and now leverages a wide variety of Google Cloud solutions, such as Compute Engine, Cloud Storage, and Google Kubernetes Engine, to drive innovation in many of its services. These products help to provide the scalability to meet demand and the flexibility to respond quickly to change that was previously lacking. Today, One Mount services attract billions of requests per month from millions of active users, with an annual growth rate of 20%. Security and data privacy are also ensured, with regulatory compliance across services and locations. Running across two Google Cloud regions in Taiwan and Singapore, the infrastructure delivers the best possible performance for the people who live in those communities.

Outcome



45TB of data processed by BigQuery daily



150+ projects currently active on Google Cloud



400TB of data hosted on Cloud Storage

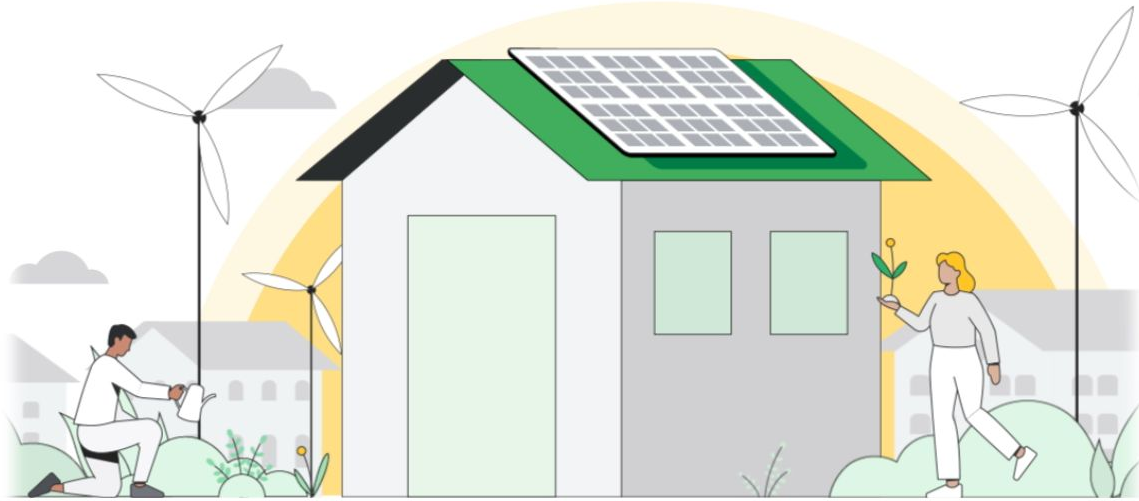


1,400+ virtual machines running on Compute Engine

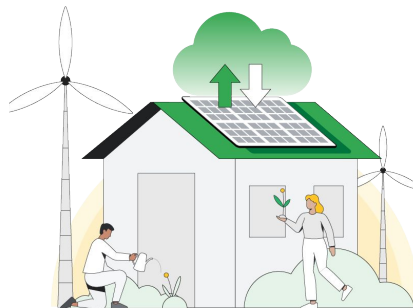


80+ Google Kubernetes clusters

Customer Awards | **Sustainability**



Sustainability



California Institute of Technology



Geotab



Lendlease



Lufthansa Group



The Mahindra Group





This framework will allow researchers to provide higher-quality data to facilitate an improved understanding of atmospheric phenomena, and enable more robust decisions around future extreme weather and climate events.”

Akshay Sridhar, Research Scientist, Environmental Science and Engineering



Learning from the clouds to help improve the future of our climate

The Climate Modeling Alliance (CliMA) comprises approximately 70 scientists, applied mathematicians, and software engineers. CliMA is working closely with the California Institute of Technology (Caltech) to improve the accuracy of software-generated climate simulations. Together, they aim to find solutions to reducing uncertainty about how to cope with extreme environmental events like floods, droughts, and hurricanes. Since clouds are the principal uncertainty in climate predictions, and while scientists cannot simulate clouds in global models, they can create simulations on a smaller scale and share their findings with the rest of the scientific community. They are doing this by leveraging Google Cloud solutions.

Enter Google Cloud

AI/ML

Scientists from Caltech and CliMA are using Compute Engine to carry out high-resolution simulations of atmospheric turbulence, convection, and clouds. Climate models are among the most complex software elaborations, typically with millions of lines of code for model components, from the micrometers of cloud droplet formation to the tens of thousands of kilometers of planetary weather systems. Leveraging Google Cloud resources, CliMA and Caltech built an Earth System Model (ESM, an open source software for building climate, numerical weather prediction, data assimilation, and other earth science software applications). Together, they are finding solutions to better understand climate change today, and give the scientific community more resources to limit its effects tomorrow.

Outcome



Enables more robust risk mitigation and adaptation strategies



95%+ weak scaling demonstrated on V100 GPUs



Geotab's data-driven insights empower fleets to understand, act upon, and scale efforts in reducing emissions. We work alongside our partners and customers to reimagine how we value, protect, and restore how the world moves, transitioning toward a net-zero carbon future."

Neil Cawse, Owner and Chief Executive Officer



Doing things better to ensure a thriving and greener future

Geotab is a leading global telematics provider that enables businesses to better manage their transport fleets. As an official signatory of The Climate Pledge, the company's commitment to help decarbonize the way businesses and cities move and transport humans and goods drives its decisions and actions. Geotab works alongside its customers to innovate and solve sustainability challenges on a global scale. To help them make the transition to electric vehicles (EVs), Geotab used Google Cloud to create its free Electric Vehicle Suitability Assessment (EVSA) tool.

Enter Google Cloud

[Application Modernization](#) | [AI/ML](#) | [Databases](#) | [Smart Analytics](#) | [Infrastructure Modernization](#) | [Security](#) | [Productivity & Collaboration](#) | [Google Maps Platform](#)

The EVSA dashboard empowers companies with the information they need to plan and prepare for the transition to EVs in a way that best suits their budget and time frame. The tool's capabilities have since been enhanced to demonstrate the potential and benefits of electrification at scale for larger fleets. Through BigQuery, Geotab had the computing power and analytical intelligence needed to analyze billions of data points and successfully run its EVSA study of 91,000 connected vehicles, producing a suitability assessment on a scale that had never been attempted before. With data-driven insights, Geotab could make recommendations to customers and partners to make the transition to electric as seamless as possible, ultimately delivering on their commitment to not only do things better, but to do better things to help ensure a greener future.

Outcome



91,000+ vehicles analyzed with billions of data points provided



\$33M in potential savings revealed



Potential reduction of 194,000 tons of CO₂ emissions over 4 years



13% of analyzed vehicles could be economically replaced by EVs today

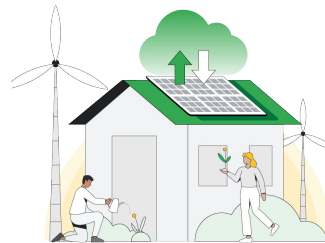


Up to 45% of analyzed vehicles could be electrified as EV pickup trucks enter the market



To be a leading sustainable company, we need to fully understand the impact we have on the environment, which can be challenging to measure. We're solving that problem with our solution, built on Google Cloud. For the first time, we're able to assess each of our products on their economic, operational, and environmental value."

Harvey Worton, Global Co-Chief Information Officer



Building a sustainable-by-design future for the developer industry

With a mission to reduce environmental impact and create social value through sustainable design and operation of buildings, real estate group Lendlease aims to reach net zero carbon by 2025 and absolute zero carbon by 2040. To support its sustainability goals, Lendlease and Google Cloud built Podium, the platform that provides meaningful insights into the carbon impact of technology and enables unprecedented data-driven decisions.

Enter Google Cloud

Application Modernization | Smart Analytics | AI/ML | Infrastructure Modernization

The Lendlease IT team is focused on improving Podium features and insights on carbon emissions. With Google Cloud's Carbon Footprint tool, a carbon emissions dataset gets exported to BigQuery and is ultimately used to display monthly trends and regional-level emissions. By collecting and analyzing emissions data, Podium's custom dashboard enables decision makers across the business to consider the environmental impact of their decisions. These insights have been a game changer; a summary of total project emissions with a visual representation of monthly trends, and a breakdown of project emissions by service and location are empowering teams to make the best technology, operational, and investment decisions for their products, and contribute to Lendlease's renewed commitment to driving the evolution of the industry to be environmentally, socially, and economically sustainable.

Outcome



On track for Absolute Zero Carbon by 2040



24% reduction in customers' electricity consumption, thanks to Podium Property Insights



21% reduction in gas consumption in customers' buildings



Supported safer and healthier buildings aiming to increase workplace productivity by up to 12%



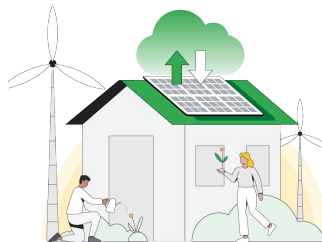
Quick global scalability leveraging the Google Cloud Platform footprint

LUFTHANSA GROUP



In air travel, sustainability and cost-effectiveness go hand in hand. Saving on fuel isn't just good business, it can also help to reduce an airline's carbon footprint. Together with Google Cloud, we established a solution that enables us to allocate the most efficient aircraft to the best-fitting route."

Christian Most, Senior Director, Digital Operations Optimization



Taking air travel to the cloud and toward a greener future

At the Lufthansa Group, coordinating real-time data from airports, ground handlers, air-traffic controllers, travel agents, and millions of travelers is a daily routine. As part of the Lufthansa family, SWISS International Air Lines works with various datasets and information from all business divisions to improve the passenger experience while continuing to reduce its carbon emissions through operational optimizations. To achieve this goal, SWISS turned to Google Cloud.

Enter Google Cloud

AI/ML

As part of the Lufthansa Group, SWISS leveraged Google Cloud AI/ML and Smart Analytics solutions to process vast amounts of diverse data from all of its business divisions and run multiple "what if" scenarios simultaneously. Using a modular data platform to find more ways to optimize operations and decrease fuel consumption, SWISS is ultimately reducing its carbon footprint across all the regions it connects through its global routes. With Google Cloud, Lufthansa Group's effort is leading the aviation industry toward new eco-efficiency targets and a more sustainable future.

Outcome



Up to 7,400-ton decrease in CO₂ emissions per year (equivalent of 18 Boeing 777 Zurich to NYC roundtrip flights)



On track to meet net-zero emissions goal by 2050



Up to 50% flight optimization



By utilizing the best-in-class infrastructure and data capabilities of Google Cloud, we can innovate faster for competitive differentiation, advance our enterprise sustainability goals, and strengthen our talent pool by attracting the best tech talent in the industry.”

Mohit Kapoor, Group Chief Technology Officer



Progress mindset that builds a more sustainable future

The Mahindra Group is a multinational conglomerate, based in India, that comprises more than 150 companies. With operations across many manufacturing sectors, from auto to farming, Mahindra Group is constantly innovating to reduce its carbon footprint. With sustainability at the core of its mission, the conglomerate decided to further expand its cloud strategy. To modernize operations across its multiple business units and from customer-facing channels to employee experience, Mahindra Group chose Google Cloud for its clean, secure, and reliable infrastructure.

Enter Google Cloud

Application Modernization | AI/ML | Databases | Smart Analytics | Infrastructure Modernization | Security

Migrating its operations to Google Cloud has helped Mahindra Group accelerate its sustainability goals. Since its migration, it has won multiple sustainability awards and has been recognized by several organizations, such as The Wall Street Journal, the National Stock Exchange, and more, for its work on environmental, social, and governance (ESG) and global climate stewardship. Mahindra Group plans to fully migrate from its on-premises infrastructure to the cloud within three years, embracing sustainable innovation, a progress mindset, and building a better global future.

Outcome



From 1 day to 30 minutes
reduction in deployment time



20% faster releases



Faster VAPT clearance with
minimum iterations

Congratulations to all the winners

Visit cloud.google.com/awards to find out more about Google Cloud Awards.

