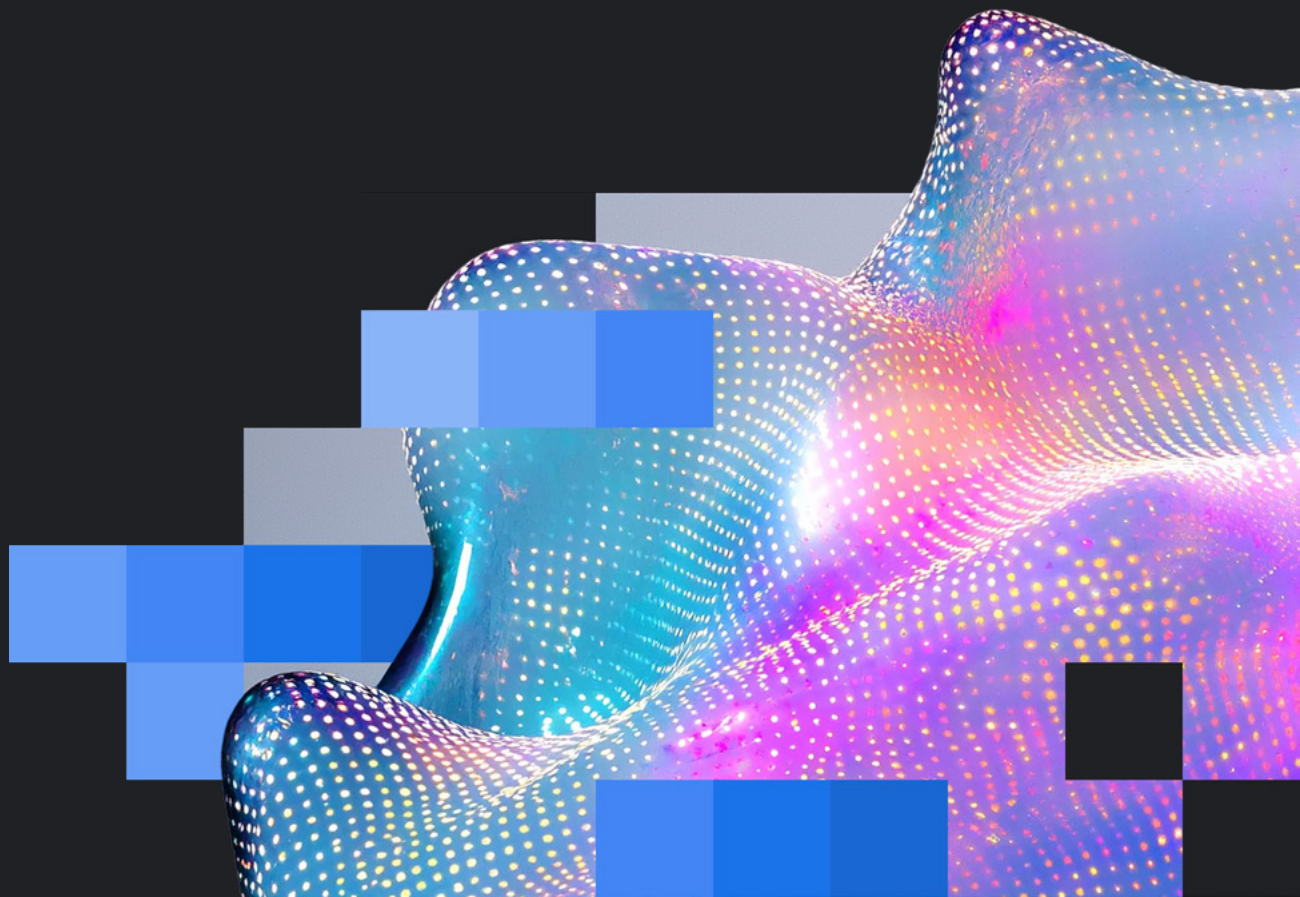
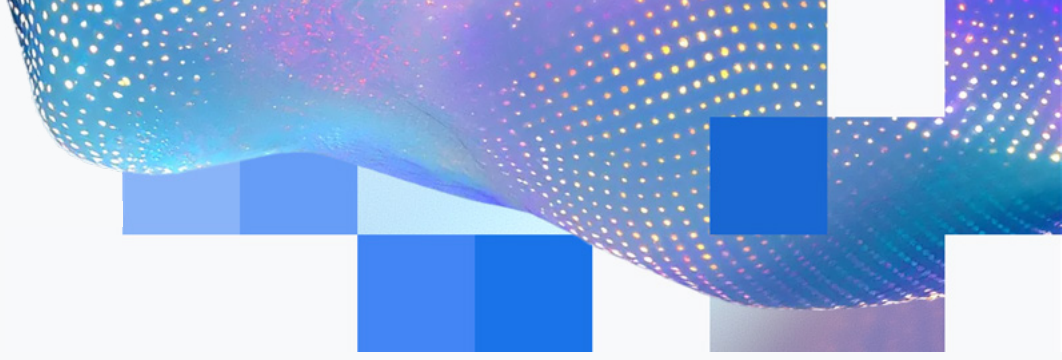


# Architecting for autonomy

Moving AI agents from  
pilot to enterprise scale  
with Agentic Data Cloud.





## Executive summary

# The new frontier: Beyond the prompt

The first wave of AI helped us complete individual tasks faster; the second is transforming how entire business systems operate. We've reached the agentic era, where entire workflows once driven solely by humans are evolving into autonomous systems that perceive, reason, and act on our behalf. But there's a catch. These agents operate at a scale and velocity that modern data stacks simply can't support.

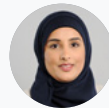
While agents can trigger thousands of queries a minute, their performance and reliability are ultimately governed by the underlying systems that feed them.

To thrive in this new era, enterprises require a new architecture—an Agentic Data Cloud built to power accurate, secure, autonomous action at scale. When you move to a foundation purpose-built for agents, you enable the orchestration of complex business processes with a level of precision and speed that manual prompting could never achieve. This shift to an integrated agentic strategy is the most significant opportunity facing leaders today—and your data foundation is what makes it possible.

While the ROI of AI is no longer theoretical, many initiatives remain stalled in the pilot phase—unable to bridge the chasm between a proof of concept and a scalable system.

## An autonomous agent is only as effective as the data that drives it.

To help you move from pilot to enterprise scale, this guide breaks down how agents function and which data issues can stall your path to autonomous action. We also showcase leading organizations that have successfully navigated this transition, demonstrating how a unified data foundation enabled them to reinvent their operations with agents. By the end, you'll have the data-first blueprint required to move past the task-based mindset and engineer your organization's future.



**Yasmeen Ahmad**

Managing Director, Data Cloud,  
Google

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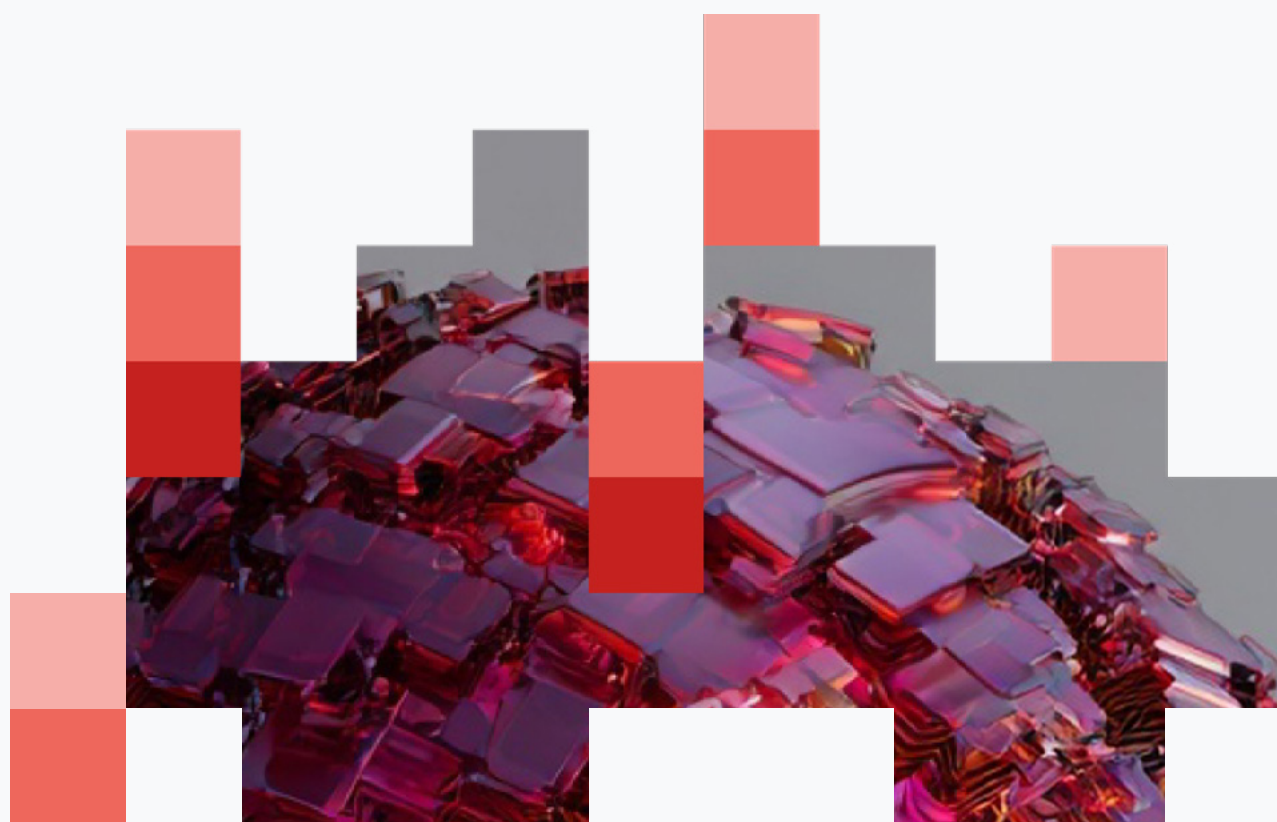
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# The transformative potential of AI agents





An agent is an advanced, secure system that can take action on your behalf—a leap beyond AI assistants that only help with individual tasks within a single app. An agent can connect to all your enterprise data and applications to understand the full business context, make decisions accordingly, and orchestrate complex tasks across all of these systems.

These agents act with a purpose. They're designed to act on a set of goals, autonomously determining the necessary steps to take, which tools to use, and which data sources to consult. It's the difference between asking AI a question and delegating a project to it—and why a high-integrity data foundation is the essential scaffolding for any successful agentic strategy.

Working with your enterprise data, agents can:



#### Decode deep data context and relationships

Agents understand schema relationships, data permissions, historical requests, business glossaries, metadata, and industry context.



#### Solve problems autonomously

They can plan multi-step data tasks (like cleansing data or creating pipelines) and design an execution plan to achieve their goal.



#### Gather and synthesize data

They're able to interpret enterprise datasets, databases, and APIs, applying reasoning and ML to draw conclusions and identify patterns.



#### Proactively plan and execute

They initiate actions and make decisions to reach the task goal, such as trying other approaches if one is unsuccessful.



#### Leverage tools and resources

They can access enterprise databases/warehouses, APIs, knowledge graphs, ML tools, external web sources, and even other agents.



# The data readiness gap





Although the potential of agents might have you dreaming, the reality can be very different.

Indeed, according to a recent MIT study, 95% of generative AI pilots are at risk of failure. The reasons for this exceptionally high failure rate vary, but can often be traced to the lack of an AI-ready data strategy, which can be caused by:



### Poor data quality and integrity

Inaccurate, inconsistent, or incomplete data leads directly to unreliable AI models. Gartner estimates that companies lose an average of \$12.9 million annually due to poor data quality.



### Systemic data bias

AI models trained on datasets that are not representative of the real world will inevitably perpetuate and often amplify historical biases, creating significant ethical, legal, and reputational risks. A well-documented example involved a bank whose AI-driven credit system offered women lower credit limits than men with similar profiles, because the model was trained on historical data reflecting past societal biases.

The path to realizing the transformative potential of AI begins with your data. The most successful enterprises have internalized a new strategic mantra: **Become data-driven before becoming AI-driven.**



### Inaccessible and siloed data

High-quality data is useless if it's locked away in the walled garden of departmental databases, legacy systems, or disparate cloud environments. An agent attempting to create a unified customer profile will fail if it can't access data from sales, marketing, and service systems simultaneously. It must be able to activate all your data—including dark and unstructured data—and it must be supplied with the context to understand that data's meaning.



### Deployment gap (lack of business context)

An organization's true differentiator lies within its proprietary business data—the unique history, customer insights, and operational metrics developed over time. If you deploy an AI agent without this crucial business context, you'll end up with a general-purpose tool. It won't be able to give you the specific, practical insights you need to move key business projects forward or establish a competitive edge in the market.

# Google's Agentic Data Cloud



Google's Agentic Data Cloud evolves static foundations into dynamic systems of action, enabling the seamless orchestration of autonomous enterprise workflows.

**This foundation delivers on three non-negotiable requirements:**

01 It is AI-native

02 It is flexible

03 It is trusted

By leveraging this robust framework, organizations can empower their agents with the deep, real-world business context necessary to drive a successful agentic strategy.

**With an AI-native stack, you can:**

- ✓ **Eliminate costly and complex data movement** by bringing AI directly to your data
- ✓ **Utilize sophisticated semantic search capabilities** via state-of-the-art vector search embedded across the database portfolio, including [AlloyDB](#) and [Spanner](#)
- ✓ **Get accurate and contextually relevant responses** by grounding the AI models you use in your specific enterprise data
- ✓ **Give your agents the ability to act in the moment** with access to both real-time transactional data and historical analytical data without impacting production workloads, thanks to native integrations between services like [Spanner](#), [AlloyDB](#), and our [Lakehouse for Apache Iceberg](#)





Establishing trust through governance with Google Cloud enables you to:

- ✓ Reduce generative AI hallucinations by as much as two-thirds, ensuring your agents provide accurate, reality-based answers utilizing Looker's semantic model (LookML)
- ✓ Eliminate ambiguity by defining all business metrics and relationships in one place, guaranteeing that every team and AI model works from the same consistent data
- ✓ Improve data governance and discovery by using our Knowledge Catalog to create a dynamic knowledge graph of your entire organization, allowing you to discover data, track its lineage, and enforce security policies across your ecosystem

Built-in flexibility means you have the tools to:

- ✓ Automate complex data discovery, cleansing, and analysis tasks with the open-source Agent Development Kit (ADK), a framework for creating sophisticated agents
- ✓ Manage your agents in Gemini Enterprise, a secure execution environment that is deeply integrated with the data and governance layers of the platform
- ✓ Securely connect your agents to diverse data sources using the MCP Toolbox for Databases

Our broad network of partners can also help implement our technology into your business. Their deep expertise in every aspect of the journey, including data integration, governance, building agents, and more, can help you to create custom workflows or implement pre-built solutions—so you can get up and running fast.



Real-world use cases

# Agentic transformation in action

Leading organizations are moving beyond the prompt by architecting their data for the agentic era—deploying autonomous systems grounded in unique business context to realize transformative results.



# Seattle Children’s Hospital improves patient outcomes and compliance standards



## Challenge

Seattle Children’s spent over a decade developing 70+ pediatric Clinical Standard Work (CSW) pathways to improve patient outcomes. However, clinicians had to spend hours manually searching thousands of paper pages for these validated best practices. They needed to provide immediate, point-of-care access to this critical information to enhance patient care.



## Solution

Seattle Children’s created an AI-ready foundation by consolidating hundreds of data systems into a “data ocean” with BigQuery at its core, reducing overnight processing time to one hour and minimizing engineering effort. By using the latest models on Gemini Enterprise Agent Platform, they developed “Pathway Assistant,” an AI chatbot, in collaboration with over 50 healthcare providers. This tool instantly synthesizes evidence-based clinical information, including text, images, and medical research from the hospital’s CSW pathways. Pathway Assistant allows clinicians to retrieve complex information in seconds, eliminating the previous 15-minute manual search.

[Learn more](#)

## The results

87%+

reduction in processing time—cutting overnight data processing down to 1 hour in BigQuery

93%+

reduction in time to get answers from Clinical Standard Work pathways, from 15 minutes to seconds with Gemini



Pathway Assistant takes the clinical process that we have spent years fine-tuning and fully automates it. We’ve taken thousands of pages of clinical pathway PDFs... ingested into Gemini Enterprise Agent Platform. Now, you can ask the AI and the AI agent will have an interactive conversation and get clinicians to the answer they need—amalgamating hours worth of reading into minutes.”

**Dr. Zafar Chaudry**

Chief AI and Information Officer,  
Seattle Children’s Hospital

# loveholidays powers smoother travel with Google Cloud AI



## Challenge

As one of the UK’s fastest-growing online travel agencies, loveholidays was looking for a way to scale its contact center cost-effectively without impacting the support experiences of its rapidly expanding customer base.



## Solution

Initially a simple chatbot, loveholidays used Contact Center AI (now Customer Engagement Suite with Google AI) and Dialogflow (now Conversational Agents) to handle customer inquiries. By advancing to Dialogflow CX and Gemini Enterprise Agent Platform, they transformed Sandy into a powerful AI agent available 24/7 to provide personalized guidance in a quick and natural way. This has reduced workload on human agents while giving them back valuable time to focus on complex cases.

[Learn more](#)

## The results

55%

of loveholidays customers get an answer to their question in less than a minute with Sandy

£3m

in operational cost savings last year due to scaled support



Sandy has dramatically improved our operation cost. We’ve never had to get rid of anyone because of AI, but we’ve been able to scale the amount of customers we’re supporting with the same number of people—and that operational savings is about three million a year.”

**Eugene Neale**  
Director of AI, loveholidays



# Definity's future-proof insurance for AI success, built with Google Cloud



## Challenge

In a rapidly evolving Canadian P&C insurance industry, Definity needs to ensure their processes and systems are efficient, flexible, and scalable to fuel long-term growth.



## Solution

Definity partnered with Google Cloud to lay the groundwork for AI innovation, migrating its data into BigQuery in just 10 months—50% faster than the industry average. In collaboration with Google Cloud partner Deloitte, Definity used Google's AI capabilities to improve its contact center operations, leveraging Google Dialogflow CX to provide self-service authentication through a virtual agent integrated with the backend systems. Google's Gemini Enterprise Agent Platform and Gemini are used to summarize calls, analyze customer sentiment, and provide assistance to help team members resolve issues faster for brokers and customers. In addition, Definity used Doc AI to automate the intake and triage of broker requests, accelerating its service.

[Learn more](#)

## The results

# 75%

of customers are authenticated without human help

# 20%

improvement in call handle time

# 15%

productivity improvement



**definity.**

We stood up our data platform in Google Cloud and ingested all critical insurance data in 10 months, which is about half of the time that people see in the industry. The technology that BigQuery provides, processing large amount[s] of data very quickly, is giving our practitioners [and] engineers tools that are advanced and a platform that has AI and ML built in. We have doubled the number of users [in a very short period of time].”

**Tatjana Lalkovic**

Chief Technology Officer, Definity

# Domina revolutionizes its data management capabilities with Google Cloud



## Challenge

Managing over 20 million shipments annually, Colombian logistics company Domina struggled with data fragmented across its logistics, BPO, and digital business units. This siloed environment led to outdated reports, inconsistent business indicators, and a heavy reliance on manual processes, which increased human error and slowed down critical decision-making.



## Solution

In partnership with uCloud, Domina modernized its infrastructure on Google Cloud in three phases. They first established a data lake using Cloud Storage and Datastream to consolidate information, followed by a data warehouse built on BigQuery for advanced analytics. Leveraging Gemini Enterprise Agent Platform, Domina implemented predictive models to anticipate package returns and optimize delivery routes, while also automating internal communications.

[Learn more](#)

## The results

- 80%** improvement in speed of access to real-time information
- 20%** reduction in operating costs
- 15%** improvement in delivery effectiveness
- 100%** reduction in report generation time (effectively eliminating manual reporting)



The implementation of Google Cloud has transformed Domina into a more agile, efficient, and innovative company, with a solid technological foundation that facilitates its growth and continuous improvement.”

**John Andersson Cardozo Buitrago**  
Head of Analytics and Business Intelligence, Domina

# Escritório de Dados da Cidade do Rio de Janeiro boosts service efficiency with Gemini



## Challenge

The Rio de Janeiro City Data Office struggled to integrate and govern data across municipal bodies due to infrastructure limits. To improve efficiency, the city sought a centralized data infrastructure, specifically helping the Department of Transport analyze real-time bus GPS feeds for better schedule and provider oversight.



## Solution

In June 2022, the City Hall launched a data lake on Google Cloud. They utilized BigQuery for AI model training, GKE for hosting, and Cloud Storage for external data. They also deployed Dialogflow for their “1746” chatbot and used Gemini at the CIVITAS security center to identify critical safety contexts (like floods, stopped vehicles, and people in tunnels) in video feeds.

[Learn more](#)

### The results

- 83%** faster response times for citizens (from 30 minutes to 5)
- 9.5TB** processed daily across 49 integrated systems
- 6M+** OCR readings daily for public safety
- 7k+** suspicious vehicle plates were registered in less than a year



Escritório de Dados

We discovered that, for image reading, Gemini stands out in context identification. From a simple flood and a car stopped on the road, to people walking inside a tunnel, in short, everything that can represent a security risk can be mapped with the help of Gemini.”

**John Carabetta**

Chief Technology Officer,  
City Hall of Rio de Janeiro

# LUXGEN enhances the car purchase and driving experience with data analytics and AI



## Challenge

With the success of its n7 electric SUV and a rapidly growing user base, LUXGEN faced a surge in customer inquiries across its digital channels. The automaker needed a way to provide instant, accurate support to its 160,000 LINE users and reduce the increasing pressure on its human support agents, while also unifying its data to enable smarter services.



## Solution

LUXGEN used Gemini Enterprise Agent Platform to deploy an intelligent customer service chatbot. By training the model on manuals and FAQs, they enabled it to handle complex inquiries directly within LUXGEN's messaging app. This initiative relied on a data foundation built in BigQuery, which centralized app and website data to provide the AI with accurate, real-time context.

[Learn more](#)

## The results

90%

user satisfaction rate with the AI chatbot

80%

reduction in data platform costs

30%

reduction in customer service workloads

“

**LUXGEN**

With its accurate understanding and responses, the chatbot powered by Gemini Enterprise Agent Platform has greatly improved the service quality and productivity of our customer service team.”

**Paul Lin**

IT Director, LUXGEN

# Finnomena deploys agentic AI solution to better serve its diverse and fast-growing investor base



## Challenge

Finnomena, a top Thai digital wealth management platform, needed to scale operations for a growing user base and 1,800+ mutual funds. The company struggled with manually processing 500+ daily emails from 21 partners to identify time-sensitive updates like fee changes, which are vital for investor decisions.



## Solution

Finnomena used Gemini Enterprise Agent Platform and Gemini 2.0 Flash to build an agentic AI solution that automates extraction of crucial information from partner emails. Integrated with BigQuery, Cloud Run, and Google Workspace, the system provides real-time summaries in Thai and English, alerting teams via Gmail and Google Chat. Grounded by internal and third-party data, the solution ensures accuracy for this regulated industry.

[Learn more](#)

## The results

75%

faster delivery of financial market updates

90%

accuracy in extracting and summarizing details

100%

of emails containing crucial information correctly identified since implementation

~6 hrs

saved per staff member per day

“

## Finnomena.

With Gemini Enterprise Agent Platform’s comprehensive model customization capabilities, we’ve developed a semi-autonomous solution that’s multilingual, and more reliable and performant than what other cloud providers could deliver. After implementing Google Cloud AI with human-in-the-loop, we’re delivering accurate financial market updates and insights 75% faster.”

**Supattra Siripongmongkol**

Chief Operating Officer, Finnomena Funds



# Morrisons serves up stress-free grocery shopping with the help of AI



## Challenge

The quest for specific items—particularly smaller, specialty products like tahini or cranberry sauce—can quickly turn a routine trip to the grocery store into a time-consuming search. To address this common frustration, Morrisons wanted to bring the same intuitive, effortless search experiences shoppers enjoy online, directly into its aisles.



## Solution

Morrisons had already partnered with Google Cloud to migrate all of its data to BigQuery and adopted Looker to enable real-time visibility across store transactions. Having this strong data foundation enabled Morrisons to embrace Google Cloud AI technologies to create the Product Finder. Through Gemini Enterprise Agent Platform, Morrisons harnessed the advanced capabilities of Google's multimodal Gemini models to interpret natural language queries. BigQuery's tight integration with Gemini Enterprise Agent Platform also allowed Morrisons' relatively small team to quickly develop and deploy the Product Finder, saving months of development.

[Learn more](#)

## The results

# 50k

uses per day over Easter 2025 alone, with usage steadily climbing as shoppers continue to rely on it for return visits

“



It takes a lot of work out of the user interface. If we were to do it without those products, it may have taken us months and a much larger team than we have. So bringing those together, Gemini Enterprise Agent Platform with BigQuery, Google makes it so easy to focus on the user experience and it enables a relatively small team to do far more than you might have expected us to because of the ease of use of the platform.”

**Peter Laflin**

Director of Data Analytics and AI, Morrisons

# Grupo Bafar pioneers data-driven food industry performance



## Challenge

Grupo Bafar, a major multinational food industry leader in Mexico, struggled with a heavily siloed IT landscape. Key issues included disparate enterprise resource planning systems across different business units, reporting inefficiencies, and bottlenecks due to manual dashboard reviews.



## Solution

With the help of Google Cloud partner Servinformación, Grupo Bafar used Google Cloud Cortex Framework to unify data from SAP, Salesforce, and other sources in a new BigQuery data lake. They replaced their legacy BI with Looker. Next, they turned to Gemini Enterprise Agent Platform. Assisted by partner Eleven Solutions, they created an AI agent helping 300 retail employees review dashboards to analyze sales and SKU performance. This agent eliminated roughly 900 hours of manual analysis daily. Agents also help the retail marketing team accelerate efforts by consuming transactional data from the data lake and monitoring campaigns via Looker.

[Learn more](#)

## The results

**900 hrs** of manual work eliminated daily

Transformation from a traditional food business into a “food tech company”

“



GRUPO BAFAR

With the help of Google Cloud and its partner ecosystem, Grupo Bafar is poised to accelerate innovation and achieve a more creative organizational mindset that handles change management with ease and onboards new capabilities at speed.”

**Elias Picos Vega**

Director of Digital Strategy, Grupo Bafar

Google Cloud

# Get your data AI-ready.

The era of passive data is behind us. The future belongs to a proactive system of action: an Agentic Data Cloud.

You've seen the real-world examples. AI that understands your unique business context and accurately orchestrates workflows for you is achievable with a flexible, trusted, AI-native data platform. And we're here to help you make the magic happen. Are you ready to get started?

**Get in touch**

