

# The Future of Finance

How Google leveraged SAP on Google Cloud for its finance transformation journey.



## The need for transformation in finance

When Google celebrated its 20th birthday in 2018, one thing was clear: “What got us here won’t get us there.”

Over those 20 years, Google had grown by leaps and bounds. Building and scaling nine applications. Billions of users every day. The founding of Alphabet. Moonshots and disrupting events. To keep up with the ongoing, rapid pace of innovation, the company developed, over time, a mix of homegrown systems, heavily customized solutions, and a spaghetti of integration pipelines that needed an army of outside resources to help keep processes flowing.

Continuing to support exponential growth with their current systems was not an option. “We needed more useful and accurate data at our fingertips,” said Ruth Porat, Alphabet CFO. “It was time for a financial transformation to the processes and technology that would enable us to maximize business velocity and growth.”



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**Ruth Porat**  
Alphabet CFO

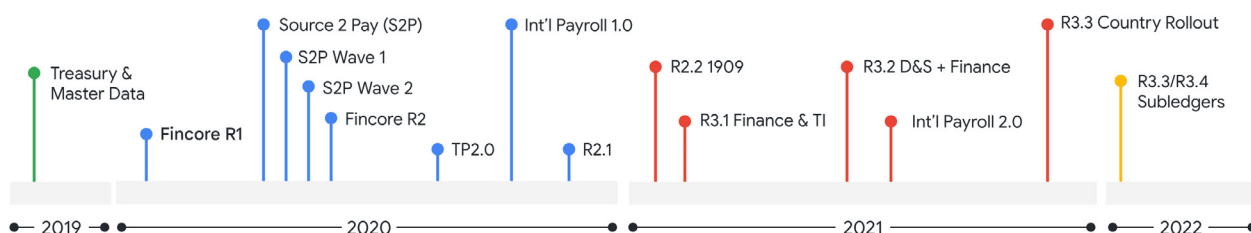
## Project scope

Google's finance employees (Finooglers) needed a robust, futureproof financial platform to support the enterprise. The team started by identifying guidelines for the project:

- Out-of-the-box **system** should be tightly connected
- End-to-end **processes** should be fully integrated and automated
- Underlying granular and accessible **data** should support a single source of the truth
- Ways of working should be reinvented to improve our **operating model**

The scope of the transformation project covered multiple back-office functions over a condensed timeline, including:

- **Finance core:** General ledger, period-end close, intercompany and consolidation, cash accounting, tax, FP&A, internal reporting, statutory and international reporting
- **Source to pay:** Supplier enrollment, sourcing to contracts, procure to order, invoice to pay
- **International payroll:** In-source payroll for emerging countries, automated payments, and accounting
- **Subledgers:** Assets and inventory, accounts payables, accounts receivables



## Building the solution

The Google team knew that the key to a successful and impactful enterprise transformation project was to implement a standard ERP solution, combining data and innovative technologies while improving end-to-end processes. The team selected SAP S/4HANA Cloud for central finance, extended edition on Google Cloud to get the job done.

Google's implementation was 94% standard with only 6% optimized, key to enabling innovations for true finance transformation. SAP was selected to deliver a core model for finance processes and data, while [Google Cloud](#) supported non-SAP data and digital solutions like massive data storage ([BigQuery](#)), machine learning ([TensorFlow](#)), and blockchain. Using a greenfield approach, they based the project on SAP S/4HANA Cloud for central finance, extended edition and structured the solution across three layers:



### **Build the Foundation:**

SAP implementation: a trigger for more comprehensive process changes

Targeted 94% out-of-the-box SAP functionality to ensure tight systems integration and reduced reliance on custom systems

Single SAP instance for all finance and partner business units



### **Improve End-to-End Processes:**

Dedicated process reengineering team to ensure SAP design compliance, approve design decisions, and direct data-driven efficiency capture

Use best-practice process taxonomy to ensure consistency across functions

Deploy best-of-breed systems to complement SAP gaps

Co-innovate with SAP to fill functionality gaps



### **Enable Intelligent Finance:**

Touchless close throughout the period

Self-service queries and dashboards with BigQuery (BQ), sourced from SAP and non-SAP financial and operational data

Leverage BQ for supply chain spend management, invoice and expense analysis

Deploy machine learning where appropriate to drive automation and compliance

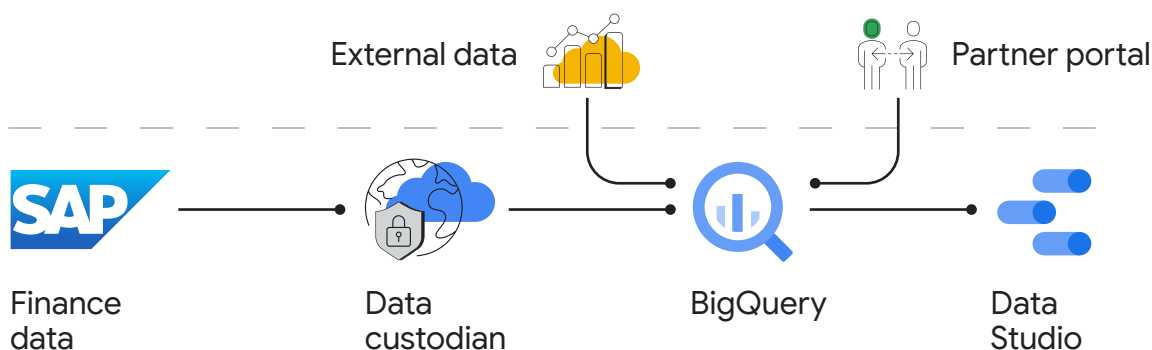
Deploy blockchain to invoice large vendors

## Innovation in supply chain management

While most of the finance data originates in the SAP environment, supply chain data typically lives and breathes in various boundary systems. The same applies to partner data as well as external data.

Decision makers wanted to bring these into one central, harmonized dataset that would enable them to run certified reports and ad-hoc queries with [Data Studio](#). They achieved this by leveraging BigQuery's data integration and collection capabilities on Google Cloud. This architecture also supported continued operations while the underlying SAP system was implemented, thus reducing the impact on thousands of business users.

Data quality, security, and governance across the enterprise is now supported by the SAP Data Custodian Model. And Google can now share selected data with partners through [BigQuery APIs](#) without having to transfer the data.



From this federated data model, Google can connect powerful Google Cloud technologies to deliver innovative solutions:

- Leverage [Machine Learning with TensorFlow](#) to reduce manual efforts, optimize spend, improve supply chain business processes, and reduce lead times.
- Combine data stored in [BigQuery](#) with the [Document Artificial Intelligence](#) platform to parse thousands of supply chain service invoices to validate deliverables. This solution also integrates back to SAP Ariba to trigger payment to the service providers. Our partners appreciate our facility to generate documents like invoices in local languages.
- Validate and enrich parsed information with Google Knowledge Graph to make the data even more useful — checking company names, addresses, phone numbers, and other details against entities on the internet.
- This setup is now available to Google Cloud customers as Procurement DocAI.

## Innovation in contract management

Like many other companies, Google relied heavily on outsourced manual processing for their Source-to-Pay operation. With machine learning and data lake solutions like BigQuery on Google Cloud the team created a seamless invoice submission and validation experience that scaled operations by reducing manual process steps and eliminating the dependency on an extended workforce. The new process also helps protect Google with automated contract-to-invoice validation, reduces supplier escalations with a fully transparent invoicing process, and delivers a streamlined experience for Google employees.

Not all of Google's suppliers are fluent in blockchain protocols and technologies. As they mature, they can increase their integration and automation capabilities with us in a number of ways:

- Manual: Manual invoicing and reconciliation
- Classic Integration: EDI, VMI, etc.
- SAP Integration: SAP Ariba
- Lite Blockchain: Common node
- Full Blockchain: Own supplier node



## Innovation in period-end closing

At the end of every period, finance analysts and controllers try to perform three core analyses across increasingly large volumes of complex data: pattern analysis, variance analysis, and trend forecasting.



Pattern  
analysis



Variance  
analysis



Trend  
forecasting

One of the challenges for controllership is to analyze operational expense (OpEx) activity to identify and explain anomalous period-on-period variance drivers during an already short close window, such as:

- **Numerous data sources:** Analysts pull across numerous reports and tools to consolidate data needed to perform analysis
- **Manual processes:** End-to-end workflows, such as flux identification, analysis, and commentary generation, are manual and spreadsheet-based
- **Methodology:** Fluxing methodology based on analysis of period-on-period comparisons; potential outliers may not be easily detectable.

To simplify the period analysis, the team collected SAP and non-SAP data, financial and non-financial, into [BigQuery](#). Then, general purpose analytics utilities were built using the [Google Cloud Machine Learning](#) stack and adapted for multiple specific use cases, including:

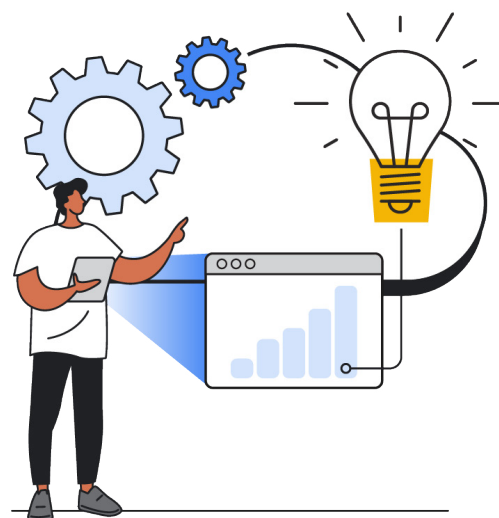
- **Controllership:** Credit & Collections, Period-End-Close Analytics
- **Treasury:** Accounts Receivables, Cash Collections
- **Business Verticals:** Revenue Analytics, Lifetime Value Analysis

## Sharing our innovations with the SAP community

Google is now one of the largest [SAP customers on Google Cloud](#) and we want to share our first-hand knowledge and new innovations with other SAP customers. Along its enterprise transformation journey, Google co-innovated with SAP to accelerate the integration of data models, end-to-end business processes, and advanced Google Cloud technologies and frameworks.

**We are now able to make these co-innovations available to you:**

- [Google Cloud Cortex Framework](#) to replicate the success of this project with a quick and simple implementation
- Building blocks and templates for SAP environments to expedite time to value with a rich data foundation, including a scalable data cloud foundation to combine the best of SAP and non-SAP data to drive new insights
- Pre-defined BigQuery operational data marts and change data capture (CDC) processing scripts to take the guesswork out of modeling and data processing
- BigQuery ML templates, which provide advanced machine learning capabilities for common business scenarios such as product recommendations and customer segmentation
- [BigQuery Connector for SAP](#) for a fast, simple, cost-effective, and massively scalable way to make SAP data fully accessible within BigQuery. As the first SAP SLT direct, near real-time connector for BigQuery, it enables you to leverage your existing SAP Landscape Transformation Replication Server (SLT) tooling and skill sets. Google now has real-time access to SAP and non-SAP data for timely inventory and other key decisions.



## Delivering on the future of finance with SAP and Google Cloud

Between 2018 and 2021, Google combined SAP's data model and end-to-end business processes with Google Cloud for innovation. This enterprise transformation journey impacted all of its 130,000 direct employees, 160,000 indirect employees, and many of its close vendors and partners.

### **The new environment delivers:**

- More granular, secure, and accessible data
- Reduced number of systems and integrations
- Fewer manual steps and corresponding efforts
- Tighter integration between systems and end-to-end processes

### **Effort reduction:**

- Reduced scope for Business Process Outsourcing (BPO)
- Reduced number of manual steps and efforts for data extraction and manipulation
- Reduced number of boundary systems

### **Overall improvements:**

- Data is more granular, secure, and accessible
- Increased end-user satisfaction
- Increased productivity
- Tighter system integration
- End-users can rely on certified standard reports and self-served ad-hoc queries

### **Lessons learned:**

- Change is hard, especially when moving from one ecosystem to another
- Change management is critical and impacts the project team, end-users, and even external stakeholders, like vendors
- Close collaboration between vendors, like SAP and Google Cloud, enables innovation for all customers

## Google Cloud for SAP customers

Through this deployment Google has taken advantage of several [Google Cloud for SAP capabilities](#), including increased innovation, reduced risk, and simplified deployments, all on the industry's cleanest cloud. The [SAP and Google Cloud ecosystem](#) is already supporting Google revenue to pass the \$200B mark and beyond.



### Drive innovation as a practice

Maximize the insights you derive from your SAP data with Google's advanced analytics, AI, and ML. Kickstart insights and reduce the time to value with Google Cloud Cortex Framework.



### Reduce risk

Increase security and performance with Google's premium global network. Support SAP applications with significantly reduced downtime with live migration.



### Simplify deployment

Take advantage of migration assistance for both traditional and RISE with SAP deployments. Deploy OLTP and OLAP environments with the industry's largest VM sizes.



### Achieve sustainability

Instantly reduce your IT emissions by moving SAP applications to our smart, efficient data centers. Leverage data-driven innovation to drive sustainability goals.



Our goal is to make it as easy as possible for SAP customers to modernize in the cloud. With readily available Google Cloud reference architectures and tools, customers can now design, build, and deploy advanced cloud solutions and accelerate business outcomes.

**Abdul Razack**

VP, Solutions Engineering, Technology Solutions and Strategy, Google Cloud