

# Embedded finance: **The new gold rush in financial services**



## Contents

3 [Introduction](#)

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5 [Why – and how – should you embrace embedded finance?](#)

Modernize digital infrastructure.

Prepare to open your ecosystem to others.

Plan your data infrastructure to generate revenue and monetize embedded finance opportunities, while getting to know your customers.

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16 [Do it at scale: Three API must-haves](#)

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18 [How Google Cloud can help](#)

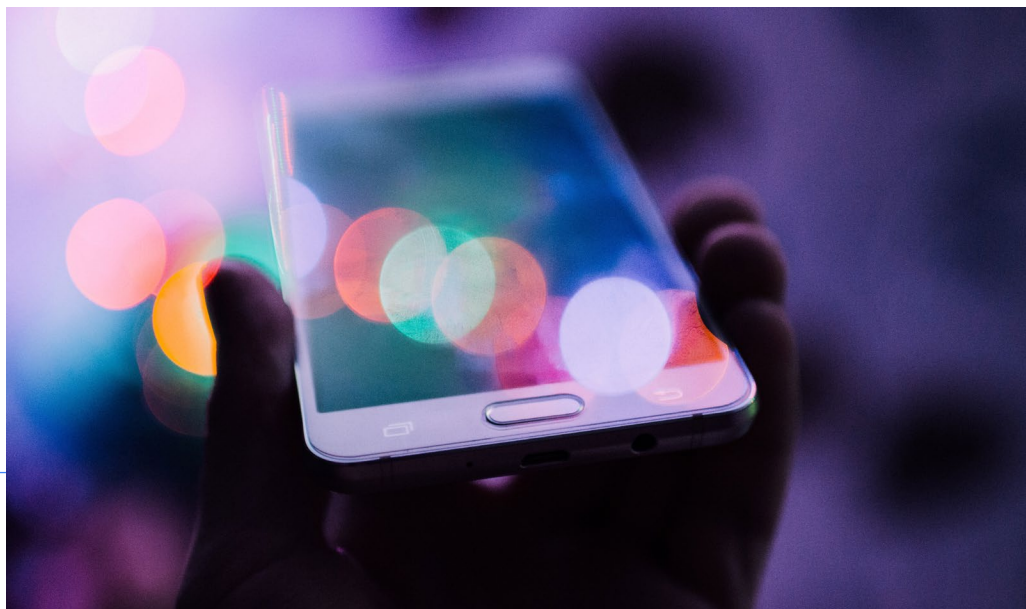
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20 [Apigee: An API management platform with an API developer portal](#)

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22 [Conclusion](#)

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## Introduction

Banking used to mean, literally, going to the bank – to the building that housed the loan officers, tellers, advisers, and other financial services personnel. Managing our finances meant meeting all those professionals on-site and in person.

Online finance has changed all that.

Now, most financial transactions happen via mobile apps, websites, email, text messages, and other digital communications. More than 4,000 bank branches have closed in the U.K. in the last six years alone. Some experts<sup>1</sup> predict that physical bank branches could become extinct in the U.S. by 2034. And use of physical currency is also dropping: According to Pew Research<sup>2</sup>, more than one-third of adults under age 50 report making no cash purchases in a typical week. We now frequently deposit or withdraw money, apply for loans, make insurance claims, and engage in other financial transactions without ever seeing another person. We live in a world of digital commerce.

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We live in a world of digital commerce.

1. Ghosh, Palash. (April 23, 2021). *3 Major Banks Plan More Branch Closings As Thousands Shutter—In U.S. And U.K.—Amid Covid, Digital Growth*. Forbes.com. <https://www.forbes.com/sites/palashghosh/2021/04/23/3-major-banks-plan-more-branch-closings-as-thousands-shutter-in-us-and-uk-amid-covid-digital-growth/?sh=423f26f35bc6>

2. Perrin, Andrew. (December 12, 2018). *More Americans are making no weekly purchases with cash*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2018/12/12/more-americans-are-making-no-weekly-purchases-with-cash/>

The shift from brick-and-mortar finance has been a long time coming. But the COVID-19 pandemic sped up the process<sup>3</sup>. Businesses of all types raced to accelerate digital transformation as consumers switched to remote work, shopping, and financial transactions.

Today, financial institutions face another challenge: Because digitizing existing services is no longer enough to satisfy consumer expectations, the future is about embracing embedded finance. Simply put, embedded finance democratizes the financial experience for consumers by embedding financial services into non-financial apps and other digital experiences. For instance, with embedded finance, rideshare drivers can get paid and insured directly through their platform apps, and hungry college students can order pizza with a simple tap.

With embedded finance, companies can meet customers where they are, at their convenience, and on their own terms. It makes transactions and interactions simple, seamless, and continual – it's like omnichannel for finance, with added features.

Embedded finance also enables banks, insurers, and wealth management companies to form valuable partnerships with companies in other industries such as technology, retail, and telecommunications, not only for delivering superior customer experiences but also to open new revenue streams and expand their customer bases.

These embedded experiences will soon permeate all aspects of our lives that involve money – and they'll feel so frictionless that users won't be aware of the underlying work financial institutions are doing to support these transactions. This is why financial services companies must build the data infrastructures to capitalize on that data so that they can foster and sustain robust customer relationships.

This white paper explores embedded finance, the technology, and concepts that power it, and why financial services providers currently ignore – at their peril – the enormous opportunities embedded finance presents.

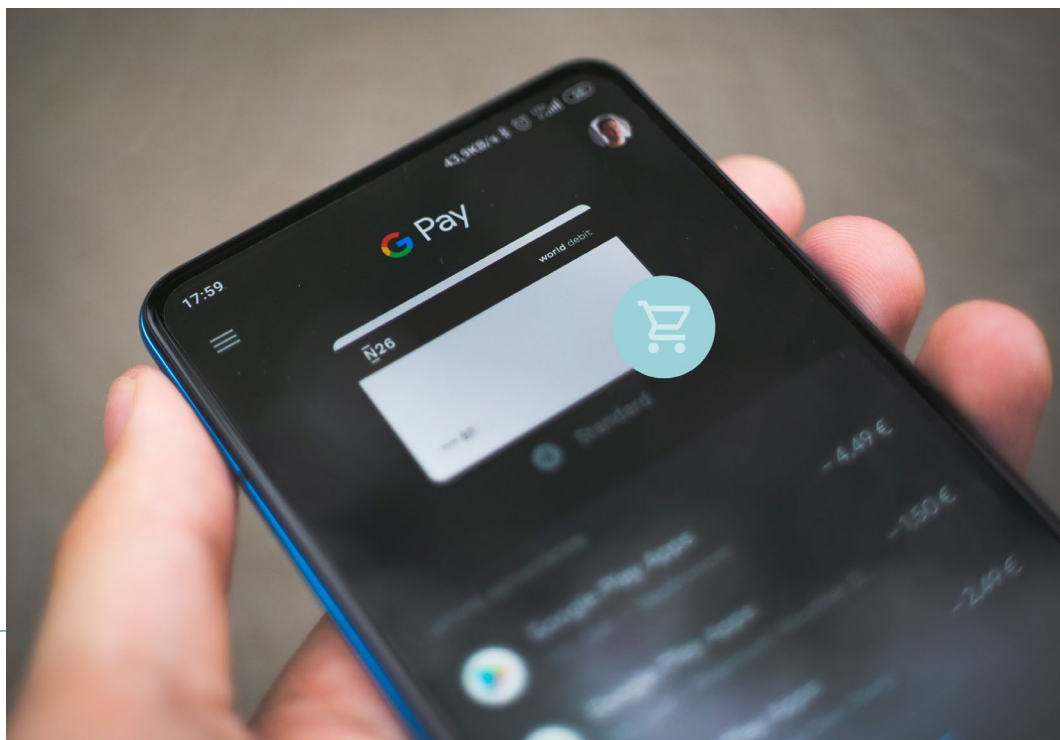
With embedded finance, companies can meet customers where they are, at their convenience, and on their own terms.

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3. *Reset your cyber strategy, evolve leadership roles for the new times*. PwC. <https://www.pwc.com/gx/en/issues/cybersecurity/digital-trust-insights/cyber-strategy.html>

# Why – and how – should you embrace embedded finance?





## Three steps – how you should embrace embedded finance

Embedded finance<sup>4</sup> means, simply, embedding your financial services in the non-financial products, services or technologies consumers already use and love. Since they spend much of their time in non-financial applications in their everyday lives -- but only a fractional amount of time in financial applications -- the growth opportunity for financial services companies is considerable.

For example, an airline might embed a travel insurance offering for customers purchasing tickets directly within their app. Or, a lender might offer a monthly payment plan to purchasers of a product with a lower interest rate than they'd pay using a credit card. Buy-now, pay-later company Affirm partners with businesses in many categories – fitness, beauty and health, auto, and more – to help customers easily finance purchases with zero late fees. At the same time, Affirm website links shoppers to its business partners – a win-win for everyone.

4. Embedded Finance: *What it is and What it Means for the Fintech Industry*. Finextra. (October 13, 2020) <https://www.finextra.com/blogposting/19418/embedded-finance-what-it-is-and-what-it-means-for-the-fintech-industry>

# Google Cloud

This way of doing business offers exciting opportunities for the financial services sector. It enables businesses to reach new customers at the moment when they need your services, increasing the chances that they'll buy from you instead of a competitor.

Embedded finance also offers a bonus for financial services companies: The data you collect from each transaction can help enhance customer service experience and innovate new products and experiences.

The possibilities are endless for these kinds of partnerships, with high revenue and business growth potential. Before embarking on the embedded finance journey, however, you'll need to prepare:

- 1 Modernize digital infrastructure to deliver your services everywhere
- 2 Be ready to open your systems to external business partners
- 3 Plan to manage and analyze the vast trove of data you'll be collecting



**Let's look at each of these steps in more detail.**

## 1

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### **Modernize digital infrastructure**

Modernizing begins with understanding your existing partnerships and what those partners need. You also need to know which third-party apps are involved in your chain of services and the data you can glean from them to know what customers are seeing or experiencing when they encounter your embedded service.

Expanding products / services beyond an existing footprint. In today's on-demand economy, customers see banks not as destinations but as enablers of their digital transactions.

For example, when customers order food from a restaurant, they now expect to place and pay for their order from a mobile app and simply pick up their meal when it's ready (or have it delivered) – no phone calls or conversations required.

Similarly, rideshare drivers expect to get paid (and accept customer tips) from within their ride-sharing app without having to transfer funds or even touch credit cards or cash.

This thoroughly modern way of conducting business transactions requires an updated approach to providing products and services – starting with the way your business applications are designed.

When building applications, your teams may have used a monolithic architecture, which unites the software's modules into a single, interlocked system.

This design was great when it was just you and the customer. But, it doesn't suffice for today's financial services business model, which requires, among other features, the ability to interact and transact via third parties. Monolithic architectures don't allow businesses to easily break out individual services to offer in partnership with other, non-financial services businesses.



To serve customers nimbly, financial services providers may choose to restructure their solutions using a microservices model. This type of architecture lets you deploy and update individual services, which your partners can incorporate into their own sites and solutions.

However, there's another legacy technology hindering the popularity of embedded finance: file-based integration.

Until now, many financial services organizations have used host-to-host file transfer or secure file transfer protocol (FTP) to connect their banking services with client and partner systems. These protocols work primarily with monolithic architectures, and perform well with transactions that require only one step.

But for conditional routing, in which the customer has choices – like paying via credit card or PayPal, or adding a tip to the payment – legacy protocols don't work as well. McKinsey<sup>5</sup> lists six challenges when using file-based integration:



- 1 Limited exception handling on format mismatches
- 2 Manual failure recovery following network or system outages
- 3 Weak controls for file tampering and man-in-the-middle security breaches
- 4 Long customer onboarding times—as much as four to six months
- 5 Bulky file formats for enterprise resource planning integration, requiring customization for each component
- 6 Higher operating costs to run and maintain the software

5. Sharma, Sandeep et al. *Reimagining transaction banking with B2B APIs*. McKinsey. <https://www.mckinsey.com/industries/financial-services/our-insights/banking-matters/reimagining-transaction-banking-with-b2b-apis>

## Modernizing with APIs

There is a better way. To tie their solutions with those of their partners, modern financial services providers are using application programming interfaces (APIs) – pieces of code that applications use to communicate.

APIs are essential to embedded finance. The good news is, you don't have to redesign your applications to use APIs. A strong API management platform<sup>6</sup> will work with monolithic and microservice architectures across various entities. For example, APIs can connect a ride-sharing app to a customer's credit card or bank account to collect payment and then divide those funds between the ride-sharing company and the driver. They can also allow a financing company to charge a paying customer for their purchase over time, breaking up large charges for big-ticket items into discrete, more affordable payments.

## Generating new sources of revenue

APIs are essential when embedding services into a partner's solution, app, or website. Tech-savvy financial services organizations already know this and are using them, but research shows<sup>7</sup> that some financial services companies are underinvesting in APIs when compared to the other industry averages. Innovative enterprises can go even further and build APIs that are so valuable, others are happy to pay to use them.

For example, digital payment processor Stripe has carved out a lucrative niche by offering its services as APIs to e-commerce businesses and retailers. By enabling these companies to securely charge and process payments without building their own complex backend systems, Stripe helps them save millions of dollars and thousands of developer hours – for a small fee that businesses willingly pay.

API management platforms make the integration task so simple that any bank, lender, wealth management company, or insurer can create new ways to serve partners and customers – and boost in the process.

6. <https://cloud.google.com/apigee>

7. [https://pages.apigee.com/rs/351-WXY-166/images/State\\_of\\_API\\_Economy\\_2021\\_Financial\\_Services.pdf](https://pages.apigee.com/rs/351-WXY-166/images/State_of_API_Economy_2021_Financial_Services.pdf)

## 2

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### Prepare to open your ecosystem to others.

Taking on new business partners, especially for those in the heavily regulated financial services sector, requires groundwork. You'll need to lay a firm foundation for success by designing your APIs with these intentions:

#### Ensure security

Secure your APIs<sup>10</sup> to protect sensitive information and ensure compliance. Using an API gateway can help: These portals let you authenticate the traffic flowing through your APIs and control and analyze how (and by whom) they're being used.

#### Enable self-service

Build APIs as channels to existing services, using the built-in account mapping, business logic, and security controls – and enabling easy access for your business partners' developers. For instance, payment APIs let ride-sharing customers pay for their rides via phone apps, rather than having to pay cash or hand the driver a credit card.

#### Provide a developer portal

Design portals that developers can use to link their solutions with yours. If developers can easily and rapidly onboard with your solution or service, they're more likely to connect their applications with your company instead of a competitor's. Bank of America's CashPro API Portal<sup>8</sup> offers easy-to-add APIs for payments, account authentication, commercial card management, and more.

#### Create robust documentation

Ensure that API management and use are documented for compliance reviews. Google's Apigee<sup>9</sup> API management tool provides end-to-end management of APIs, including documentation.

#### Manage community forums

Provide digital spaces where customers can ask questions, share information, and troubleshoot with your team – and support each other, too.

#### Ensure scalability

Give your APIs the ability to handle more or fewer transactions as demand changes, automatically.

#### Supply analytics

Have technologies in place to analyze the data your APIs generate to learn more about what customers want and how to improve customer experiences and services.

8. <https://developer.bankofamerica.com/#/api>

9. <https://cloud.google.com/apigee>

## If you build it, they will come

The good news is, while the proliferation of bank branches has plateaued in recent years, embedded finance is enabling financial services to grow in other ways.

To embed your services into others' applications, you don't need to reinvent the wheel. Digital ecosystems are already here, APIs are already in use, and API management platforms take the mystery out of designing, building, managing, securing, scaling, and analyzing APIs for embedded finance.

Embedded finance APIs are even creating entirely new business models based on safe and secure data sharing.

For instance, neobanks (also known as "disruptor banks") and financial aggregator companies allow customers to view and manage all their financial information in one place: bank accounts, credit cards, and investment accounts. In a single app, customers can control, monitor, and manage their finances. APIs make this at-a-glance, unified-access approach to finance possible.

## API ecosystems make sense for financial services

Many financial services institutions are creating new business opportunities by developing secure APIs for embedded finance, then making them available to non-financial services developers at little-to-no cost. The result: an ever-expanding tapestry of API-connected partnerships.

These API ecosystems enable financial companies to make themselves the core building blocks of new enterprises, businesses, and applications without making any financial investment. For instance, many digital insurance companies connect directly with mortgage lenders to provide homeowners insurance to home buyers.

## Regulators won't stand in the way

Recognizing the power and potential of open banking, financial services regulators are writing new legislation to enable it. They aim to reduce the regulatory barriers to entry for financial services and adjacent businesses.

In the UK, for example (as detailed by Deloitte<sup>10</sup>), the 2018 revision to the Payment Services Directive (PSD2) mandated that banks must share data through APIs to allow for easy exchange of data. APIs need to be open so that third parties can engage with them. Open APIs foster partnerships among banks, technology providers, and the businesses that want to integrate with them.

As regulators increasingly favor, support, and enable digital disruptors and embedded finance applications, financial organizations must make APIs fundamental to their operations.

Open APIs foster partnerships among banks, technology providers, and the businesses that want to integrate with them.

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10. Tomlinson, Neil et al. (2017). *How to flourish in an uncertain future: Open banking and PSD2*. Deloitte. <https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/financial-services/cz-open-banking-and-psd2.pdf>

## 3

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### **Plan your data infrastructure to generate revenue and monetize embedded finance opportunities, while getting to know your customers.**

Once you've established your embedded finance foundation, you can start to generate revenues from your APIs.

For instance, what about all the data that APIs collect? And what about the data that financial services companies already own?

Providers can share that data securely with developers and partners by building an API facade over various data sources. By leveraging your APIs, your partners can speed up the development of new experiences.

For established financial institutions, embedded finance APIs can be a gateway to innovation. Using APIs, they can create new business models without having to develop new financial processing systems from the ground up.

If innovation is the backbone of digital financial services, customer relationships form the heart. And the primary area poised for this type of innovation is customer relationships – meeting customers where they are, fulfilling their ever-changing needs, and solving their challenges while continuing to adhere to the sector's high standards for privacy and security. Trust must continue to be the primary driver for any financial services firm.

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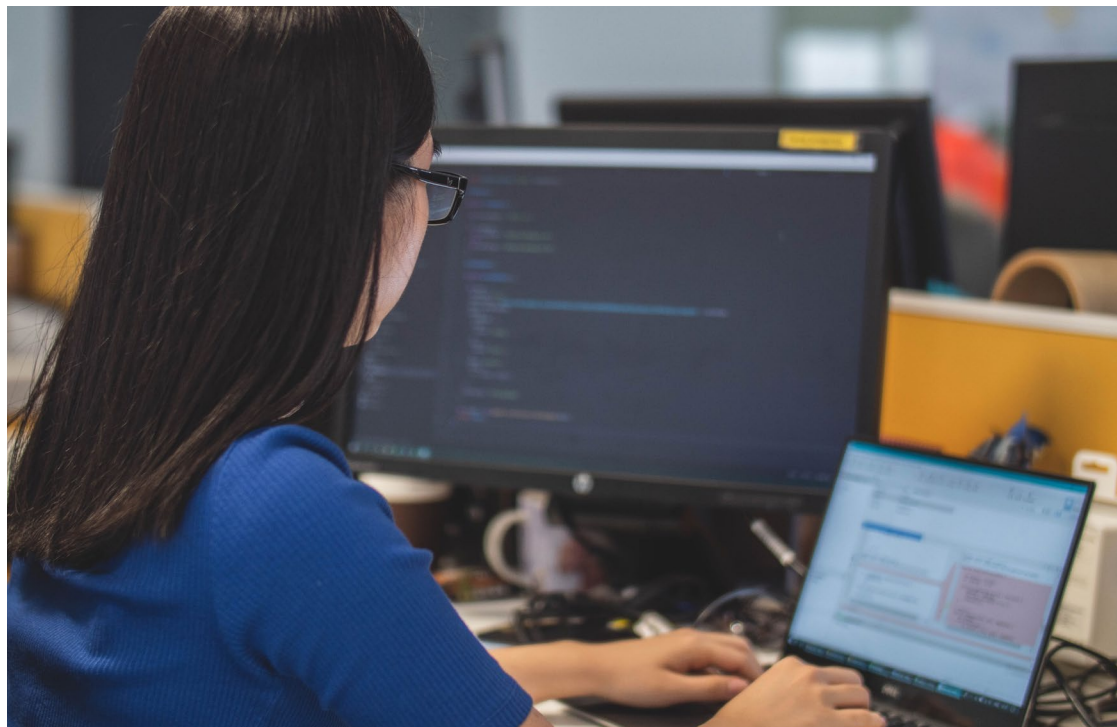
## Weaving a strong financial fabric

What's needed to expand the adoption of embedded finance? It will likely involve several key concepts—and, perhaps most important, a change in culture.

Soon, financial institutions will be known for their “financial fabrics” instead of their branches and ATMs. A financial fabric is an API-rich layer of digital infrastructure that can be easily woven into a variety of applications and experiences, ranging from online marketplaces to e-commerce and fintech apps.

A strong financial fabric is well engineered and designed for deployment in a variety of ways. Its modular structure means organizations only use the parts they need for each application.

Just as many institutions have succeeded or failed on the strength of their balance sheets, modern financial services companies will sink or swim on the flexibility and durability of their financial fabrics.



# Do it at scale:

## Three API must-haves





## 1

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### **A strong and coherent API governance framework**

To manage their embedded APIs, financial services providers will need to manage them as products at every stage: prioritization, development, deployment, version control and withdrawal.

## 2

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### **An accelerated cloud adoption strategy**

To manage and analyze the vast amounts of data coming in via their API-enabled embedded partnerships, financial services providers will need on-demand, variable-cost cloud computing.

## 3

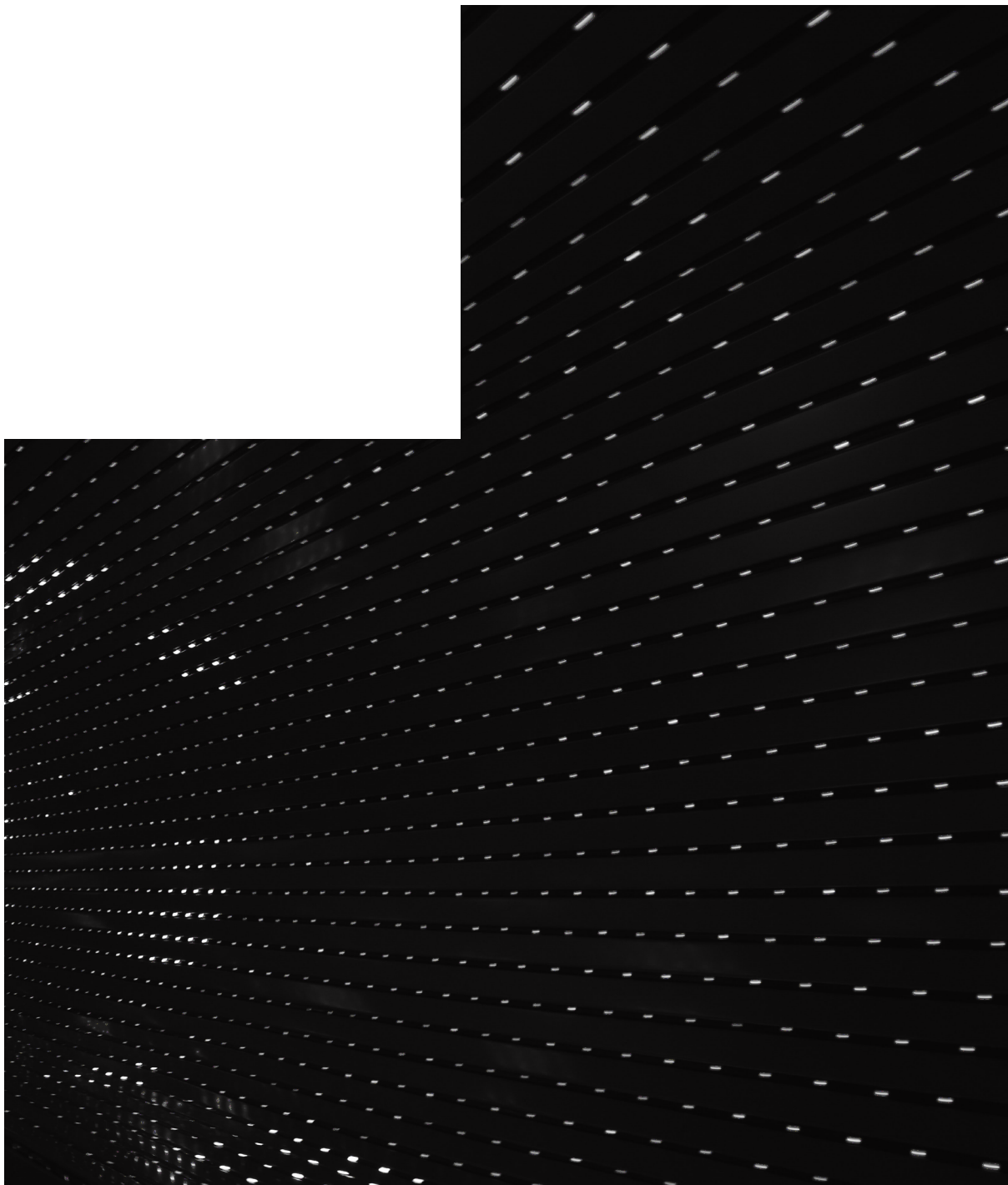
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### **Clear and robust consent policies**

Trust always comes first for financial services providers. Regardless of regulatory enforcement for data sharing between financial services companies and non-financial services providers, customers must have access to easy, transparent ways to acknowledge, communicate, and manage consent about how their data is collected and used. Informed, actionable consent is imperative for gaining and retaining customer trust; without it, your financial services brand can't survive.

Google Cloud

# How Google Cloud can help



## How Google cloud can help

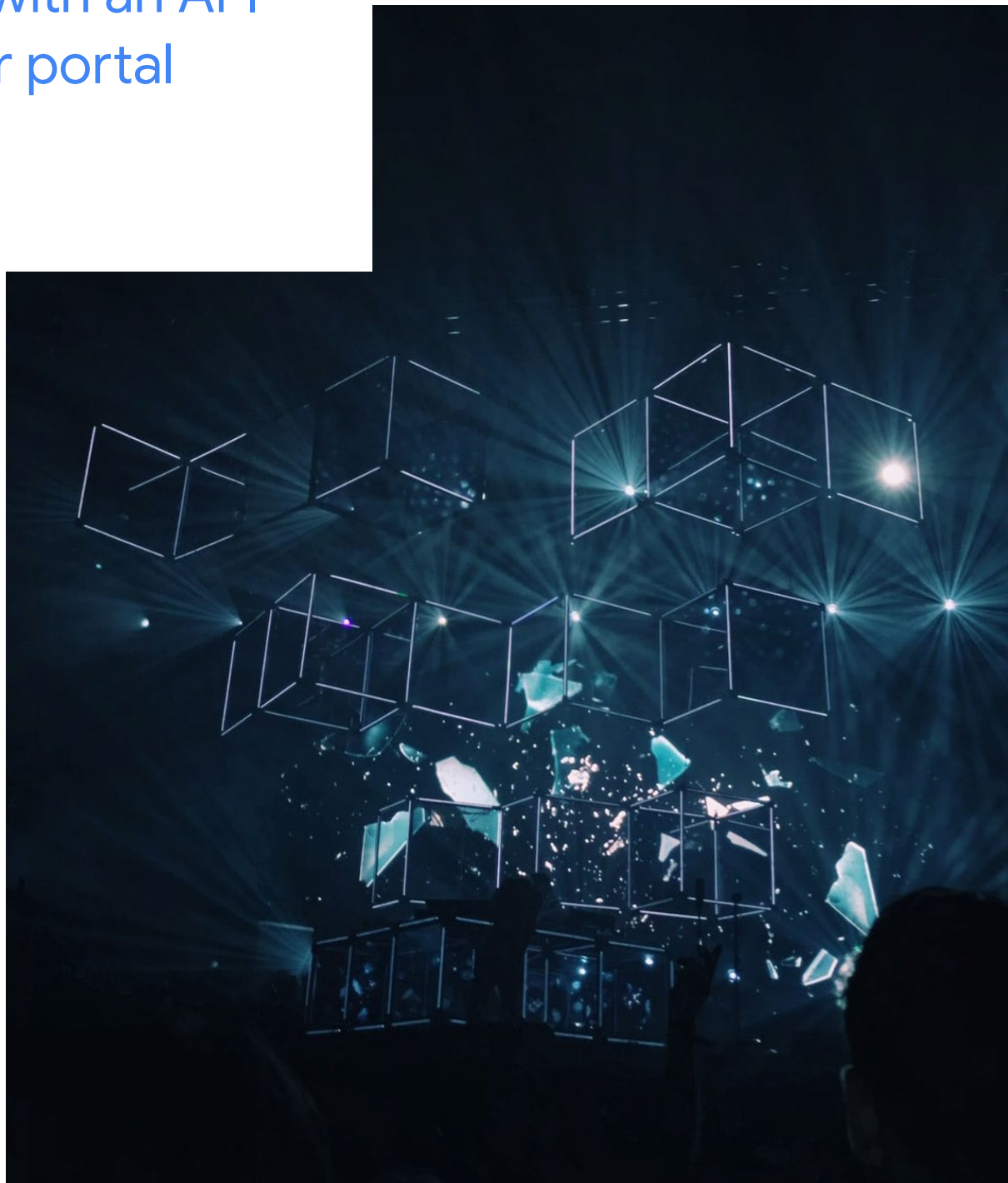
Google Cloud helps to design, build, manage, share and refine the secure and seamless experiences your customers want.

Google Cloud offers the complete suite of solutions any organization needs to digitize and modernize to meet the digital challenges of today and tomorrow, and to fashion a financial fabric that fits your organization like a well-tailored suit.

Google Cloud's open platform means companies can run their apps and use their data in any environment. Its state-of-the-art technologies, which include artificial intelligence and machine learning, Internet of Things management, and API management, ensures that you'll have access to the full array of digital options to suit your enterprise needs. And Google Cloud's offerings include a plethora of security management solutions to help keep your information safe from breaches.



**Apigee:**  
An API management  
platform with an API  
developer portal





## Google Apigee

The APIs behind embedded finance connect digital systems that were not originally meant to communicate with one another. They are the perfect tools for agile, flexible business growth. APIs are essential for doing business in today's ecosystem-centric digital world.

By letting disparate financial and technology systems work in tandem, APIs enable financial services companies to package individual products and services as stand-alone offerings to partners. And their partners can embed those services in their non-financial services applications.

Using APIs, finance can be everywhere. And financial services provider's customers can be anyone. With a digital presence, every enterprise on the planet can better serve customers and even sell more products and services by offering loans and payment plans, recurring subscriptions, credit and debit card payments, and other financial alternatives and incentives.

Google Apigee makes these new transactional relationships possible not only by providing developers with the tools they need to create and share APIs but helping manage, maintain, analyze, and fine-tune them. And because Apigee is a part of Google Cloud, APIs have the infrastructure they need to work as hard as they need to – at scale.

They are the perfect tools for agile, flexible business growth.

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## Conclusion

Increasingly, the financial services industry is moving away from traditional brick-and-mortar branches toward digital embedded finance to enhance customer services and gain new customers. APIs are powering this shift.

APIs allow banks, insurers, wealth managers, and other financial organizations to rapidly innovate new, long-term revenue streams and develop new and better ways to serve customers.

Financial Services providers – traditional and upstart disruptors – using API-enabled embedded finance and staying abreast of emerging digital trends can look to the future with confidence. They're giving their businesses the very best growth opportunities.

APIs are powering  
this shift.

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### Learn more

To learn more about how Google's API management platform can help you unleash the power of embedded finance, visit Google Cloud for Financial Services<sup>11</sup> and our Open Banking / Embedded Finance page<sup>12</sup> to learn more.

11. <http://Google Cloud for Financial Services>

12. <https://cloud.google.com/solutions/open-banking-apix>

## Authors

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### **Aser R. Blanco**

Head of Americas, Google Cloud Financial Services

Google Cloud

[AserBlanco@google.com](mailto:AserBlanco@google.com)

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### **Zac Maufe**

Managing Director, Financial Services Solutions

Google Cloud

[zacmaufe@google.com](mailto:zacmaufe@google.com)

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### **Paul Rohan**

Head of Business Strategy

Google Cloud

[paulrohan@google.com](mailto:paulrohan@google.com)

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## Contributors

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### **Glen Tillman**

Global Marketing Lead, Financial Services

Google Cloud

[gtillman@google.com](mailto:gtillman@google.com)

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### **Ruslan Mursalzade**

Product Marketing Manager

Google Cloud

[ruslanm@google.com](mailto:ruslanm@google.com)

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