The Embedded Finance Journey: Innovation That Differentiates the Customer Experience
Introduction

To understand why Banking as a Service (BaaS) has taken off and how it’s evolving toward more sophisticated implementations that will embed financial services seamlessly in a growing number of business activities, consider a typical pattern of business growth.

A company might begin around a core product that outperforms existing competitors. Then, as the enterprise reaches scale and acquires a stable customer base, leadership naturally looks for other ways to deepen and monetize its customer relationships. How does a company move away from its original product and its core expertise? Many businesses will choose either to invest in new capabilities to diversify their customer offerings or to partner for the same end. While there are valid arguments for each approach, depending on circumstances, a partnership becomes especially appealing when the required outlay to independently develop the needed capabilities is going to be high.

Embedded financial services fall in this category. The provision of banking products requires deep expertise to manage regulatory, legal and compliance matters. It demands significant technology investments and specialized skills to operate the services at scale. The cost for most businesses to offer financial services to their customers will be high, should they decide to develop the capabilities entirely on their own. This matters—and not just for financial companies—because the majority of customer relationships today include some type of financial interaction beyond a simple sales transaction. Businesses across sectors want to expand in this direction. When viewing the natural evolution toward more businesses offering more financial products against the backdrop of the longstanding structural barriers to entry in financial services, it’s easy to see the forces pushing companies to join with banking partners—and recognize the business imperatives favoring the BaaS model.
1. The Rise of BaaS

In recent years, BaaS has graduated from niche product to mainstream business trend. A wave of new players that includes established banks and fintech startups have entered the BaaS arena with financial products that range from consumer wallets to sophisticated investment services and lending solutions. Demand has risen, with more business use cases emerging—largely driven by what the end-customer wants. Why now? To answer that question, it helps to review a longer history of financial services partnering, which goes back before the recent explosion of interest in and recognition for BaaS.

**Branded cards**

Branded credit cards are a great example of a BaaS partnership—and they predate the very existence of the phrase banking as a service. Retailers, airlines and hotel companies found branded cards useful as they sought to expand relationships with their customers, and banks were more than willing to provide standardized card services, ready out of the box, that could carry the logo, colors and marketing of another company.

One key dimension to examine, though, is how tightly coupled the financial product is with the customer experience. In the branded card example, initially at least, such connections were fairly loose. The financial product only comes into the picture at the end of the customer journey when it’s time to pay, and there is little differentiation at that step. One could argue that ties to the customer experience grew tighter as branded cards merged with a growing array of rewards programs, but again the financial service itself is not a differentiator for the organization with its brand on the card.

More broadly, technology platforms in the past were not designed for BaaS, leaving scalability, resiliency and security as significant concerns—and making it difficult to go beyond something like branded cards to more sophisticated and seamless embedded finance implementations. Companies have long been hesitant to depend on the technology platform of another company to power an important part of the customer experience. And, historically, only banks were able to offer financial products, which led to a fairly limited set of offerings. Now, this is changing.
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From SaaS to BaaS

Recently, a number of developments have converged to drive broader acceptance of BaaS and trigger greater innovation in the field—none more key than the emergence of our modern tech infrastructure. The proliferation of cloud computing and the growing use of application programming interfaces (APIs) have been major catalysts to make embedded finance possible.

The shift in technology began outside of financial services, with software providers moving toward software as a service (SaaS). This transformed the business, pricing and integration models around the development and sale of software and dramatically changed how businesses pay for their IT resources. As APIs matured and security improved, the creation of more integrated solutions became possible, and the benefits of SaaS came to the fore.

SaaS enabled the creation of entirely new products by allowing companies to focus their resources on the innovative and disruptive while consuming best-in-class API-based foundational blocks. This LEGO brick approach helped create a snowball effect, lowering the entry requirements for newcomers and getting them to market faster. The reduction in total cost of ownership of IT systems and tools, and the shortened time to market, were achieved without compromise on the product or the customer experience. SaaS is, in many ways, responsible for the growth of technology-first enterprises and the startup scene.

Case study

Goldman Sachs Transaction Banking (TxB) has entered a partnership with Stripe that enables businesses to embed financial services seamlessly into the user experience. The Stripe Treasury partnership allows for a frictionless transition between services that are provided by Stripe and those that are powered by TxB to Stripe businesses. For example, Stripe businesses can open TxB-powered wallets via calls to the Stripe Treasury API without ever interacting directly with the TxB user interface.

For this to work, we designed APIs that collect referential data from Stripe to assist TxB in complying with regulatory obligations and APIs that expose to Stripe how we open accounts, how we make payments and receipts, how we control incoming debit and credit transactions, and so on. Our Stripe Treasury partnership allows Stripe to fully control all transactional activity and authorize payments based on other products clients have at Stripe.

We believe this level of embeddedness is the future of BaaS. When services are more fully embedded, it becomes possible to fully customize the products the consumer encounters—and it becomes easier to create a differentiated experience.
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1. The Rise of BaaS

The advantages of applying a BaaS model for financial services may outstrip the benefits that have stemmed from SaaS. The total cost of ownership for systems and processes necessary for even simple financial products rises sharply when they are developed in-house. Being in the middle of financial transactions and handling customer funds requires significant operational, financial and engineering investments. The costs can be prohibitive for a business outside the financial industry. BaaS solves this. A company can embed financial services directly in their customer ecosystem by calling the APIs of a BaaS provider that offers its core financial capabilities as a service.

**Regulatory underpinning**

Alongside the technology changes helping BaaS gain traction, the financial regulatory landscape has markedly evolved. The rise of fintech players pressed governments to level the playing field and create an arena for nonbank companies to participate in providing financial services.

For example, financial regulations such as the 2015 revision of the E.U.’s Payment Services Directive (PSD2) and the establishment of the U.K.’s Open Banking Standard, along with the ability to obtain a money services business license, have helped London become one of the world’s most important fintech centers.

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Other countries are at different stages in the journey, but one thing seems clear: The democratization of financial products and services enabled by forward looking governments, central banks and regulators is progressing globally.

Modern technology underpinned by a more flexible financial regulatory environment gave birth to BaaS in the form that exists today. But the real driver is the growing demand from technologically advanced businesses working to create new, sophisticated implementations for embedded financial services. There are numerous examples, ranging from online marketplaces that provide working capital solutions for clients and suppliers to accounts payable and accounts receivable automation systems that aim to simplify user workflows.

**BaaS core principles**

The solutions that are being built on the BaaS model may vary, but they share certain principles. When financial services can be seamlessly embedded, it removes friction and elevates the customer experience, leading to improved customer retention or stickiness and to increased revenues. Properly implemented, such solutions are win-win for all involved.

In basic terms, BaaS is the act of integrating a financial product as a service and offering it to customers. There are several critical players in this ecosystem.

- The customer is the end user of the financial products offered in the ecosystem. The customer may or may not be aware that they are using a BaaS product.

- The BaaS partner, at the middle of the ecosystem, integrates the financial services into its own technology systems. The BaaS partner will often be a fintech company.

- The BaaS provider operates the financial services and makes them available, exposing them through APIs to the BaaS partner.

The best names for each player in this ecosystem can be tricky to define. For example, the BaaS partner might be said to consume or be a customer for
1. The Rise of BaaS

the services from the BaaS provider. Still, the fundamental structure of embedded finance can be easily understood with the customer or consumer as end user, the BaaS partner in the middle and the BaaS provider as the underlying operator of the services.

In between the BaaS provider, the BaaS partner and the end-customer, there may or may not be technology players to facilitate or simplify the integration. We refer to these players as BaaS enablers, and they fall into two main categories. On the one hand are companies that make it easy to interact with a large, varied and often inconsistent collection of APIs. On the other are companies that provide infrastructure to easily expose APIs on top of an existing platform.

Levels of embeddedness

As BaaS offerings evolve, a key parameter to watch is how deeply the financial products are embedded or interwoven into the customer experience. The level of embeddedness will impact the ability to differentiate the financial products that the customer encounters, and this is emerging as an important consideration for BaaS partners. Large technology players that excel in providing a state-of-the-art online customer experience are pushing for increased differentiation.

To achieve differentiation, the BaaS partner has to develop the ability to integrate the financial product as part the customer experience—in a way that achieves a seamless transition between the services that are owned and services that are operated by a provider. BaaS partners must be willing to completely own the customer journey. And the BaaS partner, in turn, needs a BaaS provider that can expose fine-grained APIs, often with bespoke behaviors. This is hard to do from a technical perspective, and it requires a very flexible platform. It also requires strong collaboration between BaaS provider and BaaS partner.
All companies that are looking to implement BaaS are striving for a seamless experience for the end user—their customers. What does this mean in practice? The latest and most sophisticated BaaS implementations are not simply about exposing off-the-shelf financial products using APIs. Rather, they are focused on the task of enabling a truly seamless experience for the customer through embedded finance.

An embedded finance solution makes it possible to provide better interoperability between the services in an ecosystem. For instance, if you offer payments and lending services and partner to acquire the products from different providers, you will be able to link these offerings in ways that improve your customer’s experience—and create a stickier offering.

One way to illustrate the full promise of embedded finance offerings is to look at online marketplaces.

**Online marketplaces**

Marketplaces have been early BaaS adopters as they attempt to solve for two problems: Allowing buyers to easily buy products listed on their platforms; and managing sales proceeds and supplier payments.
For the first need, a marketplace may use one or more payment service providers (PSPs) or merchant acquirers to offer a broad set of payment options. In this way, BaaS plays an important role in the customer journey, allowing the marketplace to offer a smooth checkout process. These BaaS offerings have been standardized over the years, and there are a wide variety of PSPs with off-the-shelf products for the point-of-sale process.

The second need, managing sales proceeds and paying suppliers on time, presents a greater challenge. When sales occur, the marketplace is responsible for handling the proceeds on behalf of suppliers. It will usually take a cut for potential returns and a commission and then transfer funds to a supplier’s main bank account. Because most marketplaces are not licensed to actually hold their clients’ money, they will typically partner with a PSP—and here the process gets more complicated. Typically, each supplier must complete an onboarding process with the PSP, which means going through KYC procedures twice. Even after the PSP account is established, the supplier has little or no control over it. The marketplace choreographs payments in and out of the account on the supplier’s behalf.

This is not ideal for suppliers. Onboarding may take weeks to complete, and it can take two to three weeks for funds to reach the supplier’s external bank account. Should it be necessary to get paid in a different currency, more complexities and costs arise. From the perspective of the marketplace op-

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Erator, there are other drawbacks. PSPs typically operate in only a few jurisdictions and offer a limited set of prepackaged capabilities, so the marketplace may need to integrate more than one, adding costs and adding friction for customers.

An embedded finance solution provides a better path forward.

The right BaaS provider can provide a marketplace with an FBO account structure that places the marketplace at the center of the money flows and allows it to operate much more like a bank. The marketplace can provision supplier wallets, which for all intents behave like a real bank account, at the time of onboarding with no delays. Suppliers can access funds from their sales in real time, and they can instruct payments in and out of their wallets in multiple currencies and through a variety of payment rails.

This embedded finance solution externalizes the foundations of banking and enables any organization to operate like a bank—without all the requirements and complexities of actually being a bank. This solution is not limited to payments. Rather, it opens endless opportunities for additional financial products.

Opportunities and risks

In the marketplace example, the BaaS provider can enable access to much-needed working capital for suppliers, leveraging the wealth of historical sales and supplier performance data the marketplace owns to inform underwriting decisions and reduce the cost of capital. Because the supplier gains access to this financial service without leaving the ecosystem, the customer relationship is strengthened and the growth of the marketplace is supported.

There is, however, increased risk. The more deeply embedded the BaaS experience becomes, the more the risk typically will be assumed between the partners involved—between the marketplace and the financial institution that’s providing the product, for example. The risks may involve AML requirements, sanctions rules or tax reporting requirements that have to be met.

An experienced BaaS provider will be able to work closely with partners to implement controls to mitigate such risks without impacting the end-user of the services or other parties.

The need to work with a BaaS provider that can effectively manage risk may sound obvious. But it can easily be overlooked when evaluating providers. In our experience, to be fully globally compliant without creating undue burdens requires a level of legal and compliance expertise coupled with sophisticated technology and product maturity that only a select few BaaS providers have.
Much of the promise of embedded financial services depends on the capabilities of the BaaS provider. We see the characteristics that need to be considered falling into five categories—our BaaS Five. Three of these relate to banking expertise and capabilities, while the fourth pillar is having the modern technology needed to integrate into the evolving BaaS ecosystem. The fifth pillar, which may be most important, relates to how the BaaS offering is developed and brought to market, including whether it’s core to the business model or an add-on.

**Balance sheet**

A large balance sheet combined with a diverse set of businesses will be critical for a BaaS provider to effectively support its partners and their clients and ultimately power their growth. The BaaS partnership requires handling of customer money, and the provider must be willing and prepared to scale as the deposit base expands.

Not all banks have the ability to support a large customer base in a competitive and cost-effective manner. In a world of balance sheet constraints, large global banks have a significant advantage over smaller domestic players in this area. Balance sheet is also important when looking to provide lending products or working capital solutions to clients.

Businesses that find that balance sheet is limiting their BaaS provider may look to diversify by working with a variety of partners. It’s possible to take this approach, but it’s hard to implement without compromising on the customer experience or operational effectiveness.

**Global reach**

Companies that have a global customer base need a BaaS provider that can support embedded finance solutions globally. The ability to offer financial products that behave consistently across geographies and jurisdictions is already a big ask, and ensuring that those products are offered in a BaaS friendly manner further complicates the requirements.

Here again, larger banks have a significant advantage over smaller ones, but even most of the large players with a global network of branches and regulated entities may lack consistency in the services they offer around the globe. Many banks have evolved financial products independently in different geographies, and that creates a challenge.
BaaS partners, as they scale, need a provider that can help them to offer financial products that create a globally consistent customer journey. A young fintech company, which may be focused on one market initially, can easily overlook these future needs.

**Regulatory, risk and legal expertise**

Embedded finance introduces a certain distance between the end user of a financial product and the bank that provides it. Therefore, working with a BaaS provider with appropriate legal and compliance frameworks to manage risk without introducing friction will be one of the most important requirements for success. Depending on a company’s core business, its place of domicile and its licensing, different regulatory requirements are going to apply, and the BaaS provider needs to be able to address these requirements.

Not all companies are, nor do they need to be, licensed money services businesses. In simple terms, an embedded finance relationship requires “sponsorship” by a regulated institution. In practice, this means the bank offers an FBO (for benefit of) account to its BaaS partner, essentially enabling it to participate in customer money flows. Offering FBO accounts will introduce a number of legal and compliance obligations that have to be jointly met by the BaaS provider and BaaS partner in every jurisdiction where services are offered. Such obligations start from simple KYC rules that apply to the end user but extend to money transmission rules that vary by country and may differ depending on the relationship between company and client.

Navigating these nuances and implementing effective controls at multiple client touchpoints is hard. Doing so in a way that doesn’t complicate the BaaS offering or the integration is even harder. Similarly, establishing a symbiotic relationship to ensure that fraud, AML and regulatory risks are identified early and mitigated successfully requires deep expertise from the BaaS provider, especially when the ecosystem reaches into more than one geography and as regulatory regimes diverge.

This is truly what differentiates BaaS providers. Put simply, the goal of embedded finance is to allow non-financial organizations to offer banking services—and to do so in a way that is compliant, secure and safe for both the BaaS partner and the end customer. Being a bank is demanding, and being able to power other parties’ banking services is even harder.

**The necessary technology**

As much as financial expertise and capabilities are going to define the BaaS relationship, technology is what really makes embedded finance solutions successful. It allows the full promise of a sophisticated embedded finance ecosystem to shine.
First and foremost, APIs matter. Having a rich set of APIs to expose core financial capabilities in a modular and flexible way is vital if the BaaS provider is going to enable innovative, seamless and differentiated embedded finance solutions. The BaaS provider’s banking stack must be built to operate in real-time and to be available round the clock without downtime. There is a big difference between an API that gives you the illusion of real-time processing—a façade atop a legacy banking system—as compared to a system with a fully API-based architecture. Imagine, for instance, making a payment through a BaaS provider and only realizing that the payment failed hours or days later.

A BaaS provider must also embrace its role as financial infrastructure. Consumers and corporates alike have come to expect always-on availability, and this dictates that the services from a BaaS provider must always be available in much the same way that electric utility service is expected to never go offline. The provider must also have the industry specific expertise to maintain and manage a technology platform in a regulated financial environment, with strict change management procedures, auditability, traceability and controls.

The more deeply embedded a financial product becomes, the more important are resilience and availability—and the same applies to security. As consumer financial data is shared in the BaaS ecosystem in real-time, security becomes as important as the product capabilities themselves.

In the end, though, the most important competency for a BaaS provider may be flexibility. Every company and every digital platform has a unique set of customers, with varied needs and different challenges. The ability of the provider to flexibly enable financial products in ways that truly work for their BaaS partner is essential. Ultimately this will be about the capability to co-create new products, to radically change behaviors around existing products, to iterate quickly and to respond to part-
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ners’ needs. Flexibility requires a combination of entrepreneurial culture, top engineering talent and a modern technology architecture that can change and evolve without introducing risk.

BaaS DNA

Choosing a BaaS provider is not a decision that should be taken lightly. It’s a partnership for the long term and can have a profound impact on growth. One of the things we have learned while executing on large, complex BaaS partnerships is that not all partners are created equal. The same is true for BaaS providers.

Similar to the recent generation of kids who have grown up with smartphones, Goldman Sachs Transaction Banking (TxB) was born with BaaS. It’s part of our DNA. It’s at the core of our go-to-market strategy and our technology platform.

At TxB, we have a whole team of experts who are steeped in embedded finance—our Solution Architecture team. They are a unique point of contact for our BaaS partners, from the first phone call until their solution goes live. These team members understand that, in the end, products developed this way are part of a broader ecosystem for our partners and their clients. They know that each partner wants something bespoke and know how to make it happen. We also have people on the sales, product, legal, risk and compliance groups who are dedicated to furthering embedded finance innovations.

“Goldman Sachs Transaction Banking has BaaS in its DNA—at the core of our go-to-market strategy and our technology platform.”
Corporations and brands are discovering enormous potential in embedded finance as a way to differentiate the experience they bring to consumers. The customer journey is ever more likely to include financial interactions, and that provides the opening for organizations that can seamlessly implement embedded financial services. We believe embedded finance creates enormous opportunity to deepen and strengthen customer relationships—and that companies that fail to seize on that promise will be left behind.

Successful implementation of embedded finance represents a combination of large bank financial capabilities and state of the art technology. This intersection of finance and fintech is what can make the consumer experience frictionless—and it’s where the challenges lie.

The creation of an embedded finance ecosystem demands that the BaaS partner works with a BaaS provider that has a global footprint, global banking licenses, a globally consistent network and multiple payment rail capabilities. It requires as well that the provider have a large balance sheet and diverse businesses, to support BaaS partners as they scale, and the necessary legal and compliance expertise. And finally, it is necessary for the provider to have a modern cloud-based technology platform with an API set that is flexible to support co-creation of innovative new products—along with the organizational DNA to make it happen.

From the start, TxB’s journey has been informed by both the potential that embedded finance represents and the requirements that embedded finance imposes. Our systems have been built from a blank sheet to serve previously unmet needs as a BaaS provider, and our goal has been to bring together unique global financial industry capabilities and modern, API-based technology. Our organization is all about enabling embedded finance and providing our BaaS partners with what they need to create innovative, sophisticated financial solutions. Are we the only one? Of course not. Many of the BaaS fintechs are also BaaS natives. But to our knowledge, we are the only BaaS-native player who can operate at this scale.
Luc Teboul is responsible for TxB’s engineering team, which he joined in 2018 as one of the first employees of the newly formed business unit. He initially came to Goldman Sachs in 2006 as a developer in prime services risk, and he worked in London for four years before moving to New York. From 2015 to 2018, Luc worked for JPMorgan as global head of market risk technology and then global head of the corporate and investment bank data engineering technology team.

Luc earned a master’s degree in computer science and mathematics from École Nationale Supérieure D’Informatique pour L’Industrie et L’Entreprise in Paris in 2002. He also earned a master’s degree in distributed computing from Université Jussieu that same year.

Angelos Anastasiou leads TxB’s solution architecture team, in which role he works closely with clients and partners designing, architecting and building embedded finance solutions. He joined the TxB team in 2018 to lead the development of our payment systems and in 2020 transitioned to his current role. Angelos has been with Goldman Sachs for 15 years, having joined the firm as an engineer in operations technology. Prior to moving to TxB, he led Goldman’s EMEA intraday liquidity and institutional payment engineering teams.