PAYMENTS UNBOUND

LIGHTS, CAMERA, TRANSACTION!
WHY PAYTECH IS
ENTERTAINMENT'S NEW
BREAKOUT STAR

LISTEN UP
THE ACQUIRED HOSTS
ON THE MONEY
REVOLUTION

OPEN BANKING IS . . .

JUST GETTING STARTED

THE GLOBAL SHIFT
REWIRING FINANCE

J.P.Morgan PAYMENTS

TAPPING THE INNOVATIVE MINDSET

Siemens Treasury transforms through tech

It all began with a simple question: How could Siemens Treasury build a real-time, always-on infrastructure to transform its global operations and drive business value?

See how this dominant force in the tech field leveraged a suite of J.P. Morgan Payments solutions to get the job done.

TAKE AN INSIDE LOOK

PAYMENTS UNBOUND

CONTRIBUTORS

Here are a few of the thinkers and innovators who have contributed to the volume…

Contents

The future of payments is being written in code

A s innovation in treasury and payments continues to enable competitive advantage and unlock new business models, it's becoming essential for leaders to understand the digital capabilities making it all possible. That's why this issue of Payments Unbound is themed around builders: the people creating the fast, optimized and secure technologies that are defining the cutting edge of the field.

Traditionally in treasury and payments, developers have mainly worked behind the scenes. But with application programming interfaces (APIs) becoming increasingly used at the front-end to create company-to-company connections and optimize checkout, developers are playing a more strategic and outward-facing role in their organizations.

It's a shift that is also being driven by powerful external forces such as open banking and artificial intelligence (AI). As you might expect, AI is a recurring theme in this issue. On the one hand we explore the big questions, like whether artificial general intelligence is likely to emerge and what that could mean for the payments world. But we also look at AI's nearer-term implications. For instance, AI can make it easier for developers to discover, integrate, and test new solutions, shortening the innovation cycle. Meanwhile, in the treasury space, we see that AI has great potential for cash flow forecasting due to its ability to analyze large data sets, make accurate predictions, and even recommend next-best actions.

As technology and finance become ever more intertwined, businesses will need to rethink how they operate. One benefit is that as manual tasks are increasingly automated, treasurers will be able to focus more on high-value, strategic activities, increasing their overall productivity and improving the finance function. However, treasurers will need to understand and embed with technical teams more closely in order to maximize the potential of new ideas. To that end, we spoke with a number of developers at the cutting edge of payments tech to hear their advice for business leaders, including how to work best with technical teams to harness innovation and set their companies up for success.

Our conversations underscored a key insight: It's vital to put data front and center. We firmly believe that without a data strategy, you don't have a digital strategy. Data silos within organizations can hinder digital transformation. So, breaking down internal barriers and consolidating information in more accessible locations will be essential. But this is just the beginning. An effective data strategy can help drive smarter decisions throughout the organization and empower builders to create the treasury tools of the future. In support of this, companies should also start creating effective developer portals—centralized locations where engineers can get all the tools, resources, and documentation they need to build high-quality solutions. These portals must be easy to navigate, provide access to available APIs and have sandbox environments for testing and prototyping.

Whether it's builders developing applications, treasurers looking to integrate new technology or companies launching digital payment solutions, the key is to harness the capabilities of a partner to make the process as frictionless as possible. J.P. Morgan Payments can help remove complexity by providing a technological ecosystem, an advanced Payments Developer Portal, advisory support and a scalable platform that clients will not outgrow.

And as the developers of today forge the payments solutions of tomorrow, it's fascinating to think what kind of world they will be building for. To help explore that future, this issue also spotlights a number of game-changing ideas that payments professionals ought to have on their radars, from spatial computing and the rise of agentic micropayments, to bold new opportunities in the entertainment industry.

We hope you enjoy this issue and it inspires you in whatever you may build next.

Lisa Davis,
Head of Digital & Design Commercialization,
J.P. Morgan

The AI shopping revolution

Visa's Global Head of Growth, Rubail Birwadker, on agentic AI for ecommerce payments

Would you let an AI agent shop on your behalf? Right now, an ecosystem of startups, tech titans and payments companies are betting that you would. One of them is Visa, which recently announced Visa Intelligent Commerce, an initiative that empowers AI agents to take an active role in ecommerce. With an integrated suite of APIs, including tokenization, authentication, controls, and more, Visa will equip AI agents with the tools to make payments on behalf of consumers, transforming the shopping experience. We spoke to Rubail Birwadker, Visa's Global Head of Growth, about the initiative.

Rubail Birwadker,
Global Head of
Growth, Visa

First things first: Is this a real, concrete product with a launch timeline, or is it something closer to a concept designed to position the brand in the market narrative?
No, no—it's real. We have partners actively integrating and giving us constant feedback to make sure we'll be ready for general availability sometime towards the end of 2025.

What are the main use cases you're imagining?
One simple thing that we're trying to solve for is a native commerce experience. Any Visa credential, as long as it's tokenized, should be able to natively work while you're still in the AI platform that you're using, like ChatGPT. The idea is the transaction happens on that platform—you're not sent to another website to make the purchase—and in a few milliseconds, while you're still in the context window, the AI says, "Here is what was bought, the receipt has been emailed to your inbox, what else would you like me to do?"

How do the use cases increase in complexity from there?
Imagine you're planning a camping trip. You could say, "My budget is $1,000, I need the best available tent by next Friday"— and as long as it meets these conditions, you don't care what tent it is. And the AI goes and buys it.

One of the other things we're super excited about is our personalization capability—we can provide some very insightful and helpful signals for a better discovery experience. If you're looking for a hotel in Manhattan, and have opted in your card, the AI could analyze the types of hotels you have stayed at and those frequented by others with similar spending patterns, and suggest, "We think you would really love to stay at this place."

Are you imagining the human will be asked for approval before AI makes a purchase?
This is the question we talk about a lot: "What is intent?" In ecommerce, there's a clear indication of consumer intent as you click to say, "I want to buy this." But in a natural language interface, what counts as a real intent to buy? That's a complicated question. We're still testing and learning, but we may have it so, at least for the first few transactions, the agent asks the consumer, "Are you sure you want me to buy this?" Now, over a period of time, if you as a consumer don't want to do that, you may have controls where you can get away from doing it, as long as you have a consistent pattern of how you purchase things.

If an agent makes a high-value purchase that the user never intended, who eats the loss: the user? The merchant? Visa?
You're asking the all-important question. I think that there's a lot of work for us to do to figure out what that looks like. The way we're designing this is we're trying to root out as much fraud, and as much potential of rogue behavior, up front in the provisioning and the tokenization and authentication of the cards. The scenario where we end up in a debate on liability comes to a very, very, very narrow use case, and then we fall back on our existing world of how ecommerce works. Now, over a period of time, does this evolve where we introduce new vectors of how this works? It's a very good possibility. But we're not there yet.

Do you think agents are likely to be paying in fiat currency, or do you think this is going to shift towards stablecoins?
We are big believers in stablecoins. Our view is, regardless of how a consumer chooses to hold money, whether it's fiat, whether it's stablecoins, whether it's a commoditized way of holding money, ultimately there has to be an interoperable layer where the exchange of whatever the form of stored value is needs to happen. Could we see some of these transactions shift to stablecoins because they are a better medium of exchange or value? Probably. And if it is, I think we welcome it, because we are making sure that our network is interoperable, and we are adding a real interoperable value, with options even like stablecoins. *By WIRED*

THE INSIDE TRACK

START

How payments ate the world

Acquired is ranked among the best business podcasts. Its deep dives into the world's leading enterprises reach over a million listeners an episode. *Payments Unbound* asked its co-hosts, Ben Gilbert and David Rosenthal, for their exclusive take on how payments went from back-office function to corporate strategy essential

At *Acquired*, we tell the stories of many of the world's greatest companies, discovering the playbooks that helped them achieve their outsized success. Over the past 10 years, we have spoken to the founders and CEOs of some of the world's most impressive businesses. One thing that has been noticeable through these conversations is just how central digital payments have become to the strategies of running dynamic, fast-paced, innovative businesses today.

What was once just a back-office function has, almost invisibly, become an opportunity for competitive advantage. Whether it's the embedded payment that just "happens automatically" in the background when you use a ride-hailing app, or the one-click checkout on an ecommerce store that reduces cart abandonment, there are examples everywhere of successful businesses using payments as an innovation lever. New industries like streaming, and new business models like online marketplaces, have emerged over the past 15 years because of the ability to take fast, seamless payments from virtually anywhere in the world. It would be

Ben Gilbert,
Co-Host and
Co-Founder of the
Acquired podcast

David Rosenthal,
Co-Host and
Co-Founder of the
Acquired podcast

impossible to build these sorts of applications with the payment systems of old. When designing a new product or service, payments are now one of the first considerations—look at video games, where in-app transactions for character skins and other upgrades have become a major revenue driver. Given that these are often low-value transactions that need to happen in real-time in potentially any currency, this entire $100 billion-plus market would not exist without payments innovation powering it all.
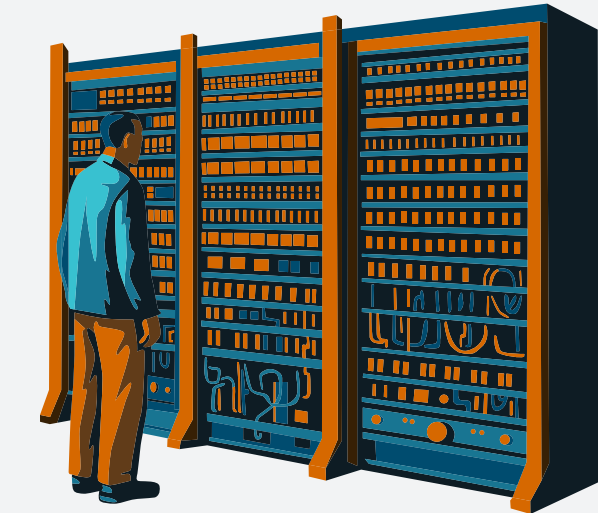
It wasn't always like this. Let's take a quick jump back in time. We could go all the way back to the invention of the coin, check or credit card, but let's start in recent history. After all, we don't have our usual four hours to tell this story!

It's 2010. The fastest way to move money on the same day from New York to London is to catch a flight and carry it with you. Over 90 percent of all transactions globally still happen in cash. Ecommerce is a niche industry, and sales are less than five percent of global retail. It's crazy that this was only 15 years ago.

Compare that to the situation today. Now, two-thirds of all payments globally are digital—around 1.5 trillion transactions per year. With a simple tap of a card, swipe of a thumb on a smartphone or click of a mouse, people can pay for a practically limitless array of goods and services from virtually any location on the planet.

So how did we get from there to here? This is the story of how payments ate the world...

Growth of connectivity

Great design is about abstracting away complexity from the user. That's why, to a customer, a digital payment might seem simple. Yet behind the scenes, it's anything but.

Data has to be securely transferred between a number of platforms. The card terminal connects with the payment gateway, then the merchant's bank, then the customer's bank and so on. This all requires high-speed, reliable internet connections. The recent explosion in digital payments has therefore only been possible due to massive improvements in global connectivity.

Between 2010 and 2025, internet speeds have risen ten-fold, while the number of global internet users has almost tripled to 5.5 billion. A key element of this increase has been mobile internet. The rollout of 4G and now ultra-fast 5G cellular networks has enabled people to access high-speed internet from their mobile phones at low cost, allowing them to browse, shop and transact with ease.

Smartphone surge

Of course, cellular internet is only useful if you have a device to connect to it. When smartphones were

first launched around 1993, they were considered premium products aimed at a niche market. But as new manufacturers piled into the space, prices plummeted and access broadened. By 2026, over 90 percent of the world is expected to have a smartphone, giving people immediate access to the internet, as well as instantaneous communication across voice, video and text.

In the US, the birth of smartphones meant more devices. You were probably already internet-connected, but now you could do more computing more often. In low- and middle-income countries, it was much more binary. Many such countries never had robust, fixed-line internet infrastructure, so the combination of cellular connectivity and cheap smartphones resulted in hundreds of millions more people joining the online economy for the first time.

This all had a major impact on digital payments. Half of all online transactions are now made with mobile wallets, which allow you to store details of bank cards or other payment methods on your smartphone and make contactless payments. This shift is a quiet giant that many in the general public now take for granted. Plus, with the addition of built-in biometric identification, smartphones can be more secure than chip-and-pin. This was technology that most people thought they'd never use, and then, very quickly, they couldn't imagine life without it.

B2B payments: The behemoth beneath the surface

Speaking of the general public, most people don't realize that consumer payments make up only a small fraction of global money movement. Although it doesn't get the headlines, it's the drive to cut friction in the far larger

---

HOW COMPUTING CHANGED PAYMENTS

The data-driven arena of payments has been radically transformed by shifts in computing, making the process of moving money more efficient and convenient. Here's how.

1950s
Transistor and integrated circuit computers

The dawn of the commercial computer. Transistors began to replace vacuum tubes in computer designs, making them smaller, cheaper, and more reliable. This enabled applications such as the automation of check processing, fund clearing, and automated teller machines (ATMs).

1959: Electronic Recording Machine Accounting System GE-100 was the first banking application of transistorized computers.

1967: The first ATM allowed customers to access cash outside of banking hours with paper vouchers and a personal identification number.

1968: Bankers' Automated Clearing System introduced.

1970s
Microprocessors and personal computers (PCs)

Microprocessors further miniaturized and improved computers, enabling the development of compact devices such as PCs and point of sale (POS) terminals.

1971: The first commercially available microprocessor, the Intel 4004, was released.

1979: Visa introduced POS payment terminals.

1980: First instances of home banking: Available via custom PC modems and videotex.

1940s
Vacuum tube mainframes

These room-sized mainframes were the result of government research projects and laid the foundation for electronic financial systems.

1946: The first general-purpose, reprogrammable digital mainframe computer.

1990s
The internet

The arrival of the World Wide Web in 1993 set the stage for a massive proliferation in web-based banking services and—as encryption and security protocols improved—ecommerce, digital wallets, and then eventually cryptocurrency.

1994: First banking services website and the first online purchase (of a Sting CD!).

1995: Secure Sockets Layer 2 encryption released publicly to enable more secure online transactions.

1999: PayPal launched, pioneering digital wallets, peer-to-peer payments, and enhanced security features to address customer concerns over sharing financial information online.

2000s
Mobile internet

The smartphone boom placed powerful computing power in the hands of millions, paving the way for payment apps and digital wallets going mainstream.

2010s
Cloud computing

Combined with new regulation, the rapid growth in cloud computing heralded the era of open banking, the fintech boom, and the rise of challenger banks.

2010: First Bitcoin transaction, for the purchase of two pizzas.

2011: The first banking app. Phones start to adopt contactless payment technology.

2016: A revised Payment Services Directive (PSD2) in Europe mandated banks to share customer data with third parties securely via APIs, leading to a proliferation of innovative fintech services.

business-to-business (B2B) payments ecosystem that has had the bigger impact on the growth of digital payments.

Getting here has involved overcoming some serious challenges. The infrastructure that powers B2B-specific payment rails was built in the 1970s and 1980s. These systems are reliable and secure, but they are also slow, inflexible, and hard to replace. Try ripping out I-95 and see what happens to traffic in New York! That's why, in the US, 75 percent of businesses still use paper checks, because that is what the core infrastructure is built for. But by using a network of APIs—protocols that allow software applications to speak with each other—banks are increasingly able to connect their systems with each other and work around legacy platforms, which is facilitating much faster electronic payments and encouraging people and firms to switch their payments over to digital systems. These digital interchanges can now allow some domestic B2B payments in the US to complete instantly by directly connecting the bank accounts of the payee and recipient, although this is not available everywhere.

The use of APIs and other digital technologies has also accelerated times for cross-border payments by facilitating the sharing of information between banks in different countries. You no longer have to jump on a plane if you want to deliver cash quickly. The majority of payments on SWIFT—an international information network that helps banks to facilitate money transfers—can now settle in under an hour.

Rise of real-time

Digital transactions are not without issues. When a business accepts a digital payment, it can take hours or even days for the money to appear in their bank account. There are also charges—merchants paid an astonishing $138 billion in processing fees in 2022. These friction points are now being addressed with the creation of real-time payment (RTP) systems, which work by transferring money directly between bank accounts without intermediaries like card networks. The transactions are typically completed in seconds and are

often completely free, which has made them attractive to consumers and merchants alike. Consumer real-time payment systems, such as India's United Payments Interface (UPI), normally involve a simple app and are easy to sign up for, which has made them accessible even for people who have been outside of the formal financial system. UPI has over 350 million users, many of whom were previously unbanked. It completed 170 billion transactions in 2024.

Creating new forms of value: How digital payments are reshaping the economy

Innovation in digital payments has gone beyond enabling the simple transfer of funds and is now creating new forms of value. Digital banks—called neobanks—have emerged, which allow people to complete all of their banking services online without the need to visit a branch. Buy Now, Pay Later technology has revolutionized access to credit. Instant payouts are allowing gig workers and creators to get access to their earnings much faster.

Wherever you look, digital payments are disrupting and displacing traditional business models. Consider the rise of super apps. As technology and connectivity has improved, some online businesses have scaled massively to become all-encompassing platforms. These apps aggregate large numbers of different services, allowing consumers to transact seamlessly across them all. Think of a ride-hailing app where you can not only order taxis, but also scooters, e-bikes and food delivery. Some even offer financial services like loans or insurance. Typically, the glue that holds everything together is an embedded payments system that allows consumers to easily pay for anything they want, without ever having to leave the app.

Over the coming years, we believe that innovation will only accelerate in the payments space. For a deeper dive into how we got here—plus an exploration of what's coming next—scan the QR code to watch us discuss further in our exclusive *Acquired x Payments Unbound video.*

HOW COMPUTING CHANGED PAYMENTS

2010s—2020s

Machine learning (ML) and GenAI

ML drove fintech innovation. It not only automated data analysis, improving core functions such as security and credit checking, but enabled more personalized customer experiences.

2010s: Rise of modern Buy Now, Pay Later providers.

2020s: New, GenAI-powered chat interfaces are bringing together further benefits, such as improving financial literacy and promoting more informed customer payment decisions.

The future

Quantum computing

Widespread adoption of quantum computing is forecast to happen in the decades to come. This technology stands to drastically speed up transactions and improve financial risk management, customer analytics and algorithmic trading.
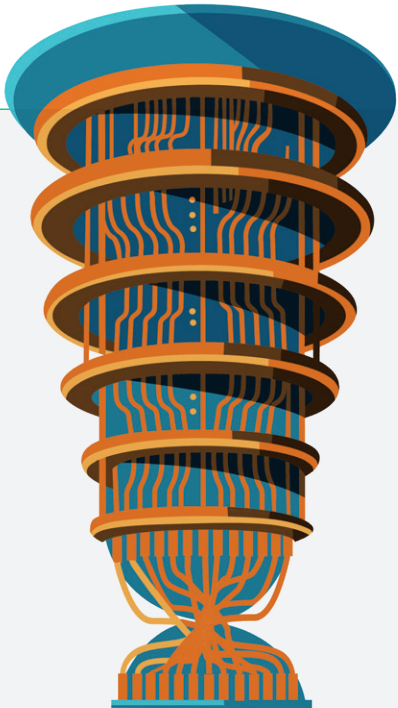
Is AGI the future of finance?

Artificial general intelligence (AGI) is a hypothetical stage in the evolution of artificial intelligence (AI) where it can match human ability in any cognitive task. If that were to happen, everything would be touched by it, including finance. Not only would it unlock extraordinary progress behind the scenes, but it would also likely change the nature of financial transactions themselves, with "machine customers" accounting for an increasing share of global transactions. Yet experts are torn about whether AGI is really possible. Should the finance world see it as a pipe dream—or something more? We asked a thought leader on each side of the debate for their perspective.

AGI is inevitable—and we're getting there bit by bit

Rachel St.Clair,
Co-Founder and CEO of Simuli

"As a society, we have been thinking about AGI for a long time. We're at the point where AI can outperform humans on a single task, and now many in the field are pushing for human-like cognition and beyond. There are lots of great minds working on this, and we are advancing bit by bit.

It's inevitable that we will get there. We already have the collective expertise among humans: We have the computational power, and we're developing new learning algorithms and advanced mathematical systems.

AGI can come in various different forms with a range of different cognitive abilities. At Simuli, we're working towards an agent that can understand the world in the way we understand it.

There are various important stepping stones as we move towards our version of AGI. For one, it needs to be able to learn indirectly from its surroundings. As human beings, we can learn about gravity by dropping a pin and watching it with our eyes; by closing our eyes and hearing the pin hit the floor; or by having the pin hit our hand on the way down. These three different sensory inputs all lead to the same conclusion. The next step with AI is developing a rich, cognitive set that can learn deeper concepts about its reality from the environment. We're also looking for emergent cognitive phenomena— something like spontaneous types of thinking, creativity or new skills for which the developers didn't explicitly program the agent.

AI is not currently able to do all of these things, but it will, and we're already seeing it. So all industries— finance and beyond—need to be following progress carefully."

We won't surmount the barriers to AGI— but AI will still be transformative

Richie Etwaru,
Co-Founder and CEO at Mobeus

"Some things that seem impossible today may eventually become possible, but there are also things that are so fundamentally impossible it's hard to even imagine how they could ever come to life.

AGI falls into the truly impossible category.

For AGI to exist, three major hurdles must be overcome. One, systems must learn faster than humans, which is a monumental challenge because human intelligence evolves at lightning speed. Two, we need to be able to capture all the data there is. We have vast amounts of untapped data—some we can't capture, some we don't know exists and some we lack the mechanisms to access.

But most importantly, to evolve as rapidly and organically as humans, AGI needs a new generation of models. Current mathematical systems—built around rigid, black-and-white logic—are too limited.

AI's capacity for errors and hallucinations, and its inability to understand true intent, exist because we're already bouncing at the boundaries of math. Currently, the math is probabilistic. The formulas determine the likelihood of an event occurring by analyzing the data. They must return an answer, and in the absence of enough data, they'll make it up, which is called a hallucination. Even if we have enough data, they'll never be able to show or understand emotion or intent.

To evolve in the way humans do, we therefore need to break through these probabilistic boundaries and move toward math that can thrive in the gray areas.

Nevertheless, the current advancements in generative AI will still have a major impact. In fields like financial services and payments, I believe AI will democratize access to data and insights, enabling everyone to have a personal banker, just as rideshare apps have made private drivers accessible to all.

Regardless of the AGI issue, AI is going to be transformative." *By WIRED*
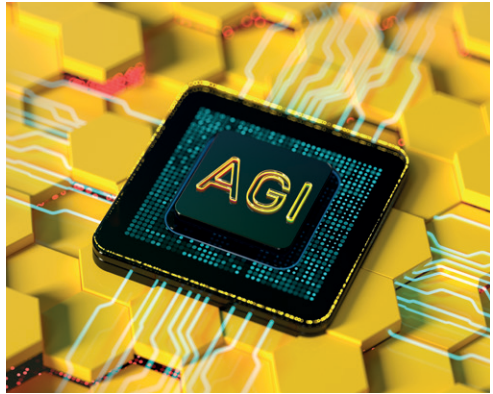
Tech and the city

How New York City became the fintech world's new hotspot

Boasting 25,000 tech startups and 178 unicorns—privately held companies with a valuation greater than $1 billion—New York City has emerged as the second-largest tech hub in the world, after California's Silicon Valley. Record numbers of tech workers are relocating to New York, while local tech venture capital (VC) investments are booming. Due to its proximity to Wall Street, fintech has been a particular area of success. In 2024, fintech deal values increased to $6.71 billion, up 50 percent compared to 2023.

So, what's behind the boom? Why is New York proving such a pull for the tech industry?

Network effects

Julie Samuels is the President and CEO of Tech:NYC, a non-profit that represents New York's tech industry to both local and federal government. She founded the organization in 2016 and has played a key role in the growth and visibility of the city as a major tech hub over the last decade. Key draws include NYC's impressive digital infrastructure and strong VC base, as well as the large talent pool that is already in the city. "Thousands and thousands of engineers work in financial institutions. Thousands of engineers work at fashion companies, at advertising agencies," says Samuels. "I think that increasingly, every company is a tech company."

But another key differentiator is the breadth of New York's economy, which few cities can match. "NYC is incredibly economically diversified. I think that the days of just getting your head down and building a tech company in a vacuum… those days

Julie Samuels,
President and
CEO, Tech:NYC

JULIE'S FIVE NYC FINTECHS TO WATCH

Ramp—Manhattan-based Ramp specializes in corporate charge cards, spend management and bill payment software. With a valuation of $13 billion, it's a certified decacorn.

Rho Technologies—Award-winning Rho provides financial and accounting software for startups and other scaling companies.

Propel—Based in Brooklyn, Propel allows low-income families to easily track and manage the government benefits they receive.

Alloy—Founded in 2015, Alloy was one of the early stars of the NY tech scene. Its end-to-end fraud prevention platform enables financial services companies to verify the identity of new customers during the onboarding process.

Nivelo—An innovative paytech that provides simplified and automated payroll solutions for payment service providers (PSPs) and professional employer organizations (PEOs).

are over," she says. A company being located close to different industries can inspire ideas and provide vital guidance and support during the development phase. Imagine you are creating an app for sustainable apparel—there are over 900 fashion companies headquartered in New York, a huge ecosystem to tap into to test ideas or find customers.

No wonder fintech is represented so prominently. With almost 4,000 startups, New York is a world leader in the space, and that is directly related to the city's position as a major global financial center. "You can build a technology anywhere in the country that's related to fintech or payments. But, when it comes time to figure out who's paying for that technology, who's using that technology, how does that technology function in a broader financial ecosystem, who knows how to market it, who knows how to sell it? That's all happening in New York," says Samuels.

Paytech is especially prominent, accounting for around 25 percent of all fintechs in NYC. "I feel like the payments industry is just completely booming and that is so interesting," says Samuels. "The adoption in payments technology has been really rapid over the past few years." One example was the rollout of contactless payments on the New York transport system, which was completed in under a year during the pandemic, a project on which Tech:NYC consulted. Meanwhile, New York-based startups have been making waves across many areas of payments, from corporate spend management to fraud detection to government entitlement programs.

New York state of mind

One of the attributes that's really helped tech thrive in New York is the ethos of the city itself. "Tech is a really creative industry in many ways," says Samuels. "It's full of young people who like the energy of the city. I think New York really speaks to that culture." With around one in seven migrating tech workers in the US choosing New York—the highest of any city in the country—this is creating a flywheel effect. Tech companies go where the people they want to hire are, which then creates more opportunities and attracts more people.

And to celebrate the impact of the tech sector on the city, Tech:NYC has launched a new initiative, "Obviously New York." Tech companies can request a digital Obviously New York badge, which they can add to their webpage, email or social media profile, to help promote the city as the natural home for the best startups and talent.

All this momentum bodes well for the future of New York. "I think that the growth of the tech industry and the growth and success of the broader New York City economy are completely intertwined," says Samuels. "For New York to continue to be the best city in the world, which I believe it will be, a lot will be powered by the tech sector and the people who work in it."

By J.P. MORGAN

Will spatial computing be the next payments battleground?

Artificial intelligence might be hogging the limelight, but virtual and augmented reality are still a central focus for the tech sector. Will they ever go mass market—and take the payments world with them?

REALITY CHECK

The metaverse. Mixed reality. Spatial computing. Whatever you want to call the concept of overlaying human vision with digital content, one thing is for certain: It has been on quite a journey.

Around four years ago, a forecast emerged that the next version of the web would comprise a multitude of interconnected virtual spaces. The initial excitement was fueled by rhetoric from big tech about a coming wave of immersive, interactive environments that could revolutionize industries from gaming to healthcare. Companies invested heavily in developing the hardware and software needed to bring these virtual spaces to life, envisioning a future where digital and physical realities seamlessly blend.

Businesses of all stripes decided that augmented reality (AR) and virtual reality (VR) were the computing platforms of tomorrow, and that it was important not to be left behind. Investments were made. People were hired.

Then, at the end of 2022, ChatGPT launched and the metaverse hype cycle quieted down, almost overnight. But don't confuse the end of the noise with the end of the story. The field remains a major preoccupation for the tech world. "Many companies are continuing to heavily invest in the hardware," says Ken Moore, Chief Innovation Officer at Mastercard. "So the sector itself is still set for some pretty significant growth. One stat I've seen is that the market could hit just a little bit over $620 billion by 2032. So that's pretty substantive."

Many still believe that spatial computing has the potential to transform how we interact with the world around us. In healthcare, for instance, AR and VR are already being used to train medical professionals, simulate surgeries, and provide remote consultations. In education, these technologies offer immersive learning experiences that can make complex subjects more accessible and engaging. Moore suggests that a major future use case will be entertainment—especially sports. "When you sit at home on your couch and you watch a game on TV, you see things that you don't in the stadium," he says. "You get a data layer of statistics and visual analysis." What if that could be brought to live sports, enhancing your understanding of the game in real time as you watch in the stadium? And, conversely, what if the immersion of a live sporting event could be brought

into your living room? "I think you can start to create really interesting experiences as you bring the physical to the digital and the digital to the physical. Integrating spatial computing with AI will allow our realities to merge, creating new immersive experiences that transform how we interact with the world."

For the companies pioneering spatial computing hardware, it's not just innovation for innovation's sake. There's a motivating factor that is often overlooked: payments revenue. The thesis is that people will want to transact in spatial realms, and those that make the hardware will earn a cut of these payments. A comparison to smartphones is helpful. If you buy something from the App Store, or make an in-app purchase on your iPhone, Apple collects a fee up to 30 percent of the purchase. In 2024, more than $150 billion was spent on in-app purchases.

The use cases for metaverse payments range from the obvious—paying for access to spatial apps, making in-app purchases, buying items you have previewed in AR or VR—to the novel. Imagine buying cosmetic customizations that change how you appear to others when they look at you through their smart glasses. Or opening the door of your fridge, seeing it (via your headset) stocked with virtual items you normally buy but have run out of, and touching the ones you want to have delivered tomorrow. Or watching football in a VR stadium, and placing a bet on the action as it unfolds simply by issuing a voice command.

What would make such experiences so compelling is the seamlessness. The direction of travel for computing is towards ease-of-use, explains Futurist, Author and Entrepreneur Brett King. "And the easiest form of a computer to use," says King, "is one where you don't have any screen or a keyboard, or any input devices—just ubiquitous compute power." AI agents, with their ability to plan and execute multistage tasks, may be key to unlocking this frictionless paradigm, as they reduce the required level of user interaction.

For this vision to become mass-market reality, there are several key challenges to overcome. The first is in hardware. A headset that people want to wear for an extended period of time can't be bulky; it will likely need to take the form of smart glasses. This will have to combine precision optics with a powerful computer and a long-lasting battery, yet somehow also be affordable and small in form factor. Current executions are either bulky but powerful, or lightweight but rudimentary. Moore also notes that 6G wireless technology will be required "to kind of give us the connectivity and the low latency that these virtual worlds will need".

King is bullish that these technical challenges will eventually be tackled. "We are going to be able to get to pass-through AR glasses that are very high fidelity," he says. "Right now, it costs $30,000, but within five years, the glasses will be cheaper than a smartphone." Even then, the hardware itself might never need to make a profit: The manufacturers of some of the world's most popular games consoles make a loss on every unit sold, but make that money back later through games sold via their virtual stores.

A second hurdle is a pair of critical issues that need to be addressed: the development of universal standards and privacy concerns. Universal standards are needed for interoperability so that different systems can seamlessly work together and there is some aspect of quality assurance for customers. Privacy concerns around data collection and user tracking also need to be addressed, given how closely these platforms are designed to enmesh with the user's life.

The third hurdle, however, is more nebulous: how to persuade people to actually wear the things? Ori Inbar, Co-Founder and CEO of AWE and Super Ventures, points out that 35 percent of US adults already use some form of mobile-based augmented reality, and of these, 80 percent use it at least monthly. "They use it for shopping, playing, learning how to put on makeup," he says. This suggests converting them to metaverse-style AR may be possible. But more must-have use cases will need to be found for dedicated spatial computing devices to become ubiquitous, "all-day" devices that users wear for hours at a time.

If that happens, however, it could redefine our digital—and indeed physical—experiences. Whether it's enhanced social interactions, innovative business models, or novel forms of entertainment, a new world would dawn. And, with it, a vast realm of economic connections that, while virtual in nature, would have very real business implications. *By WIRED*

> **"I think you can start to create really interesting experiences as you bring the physical to the digital and the digital to the physical."**
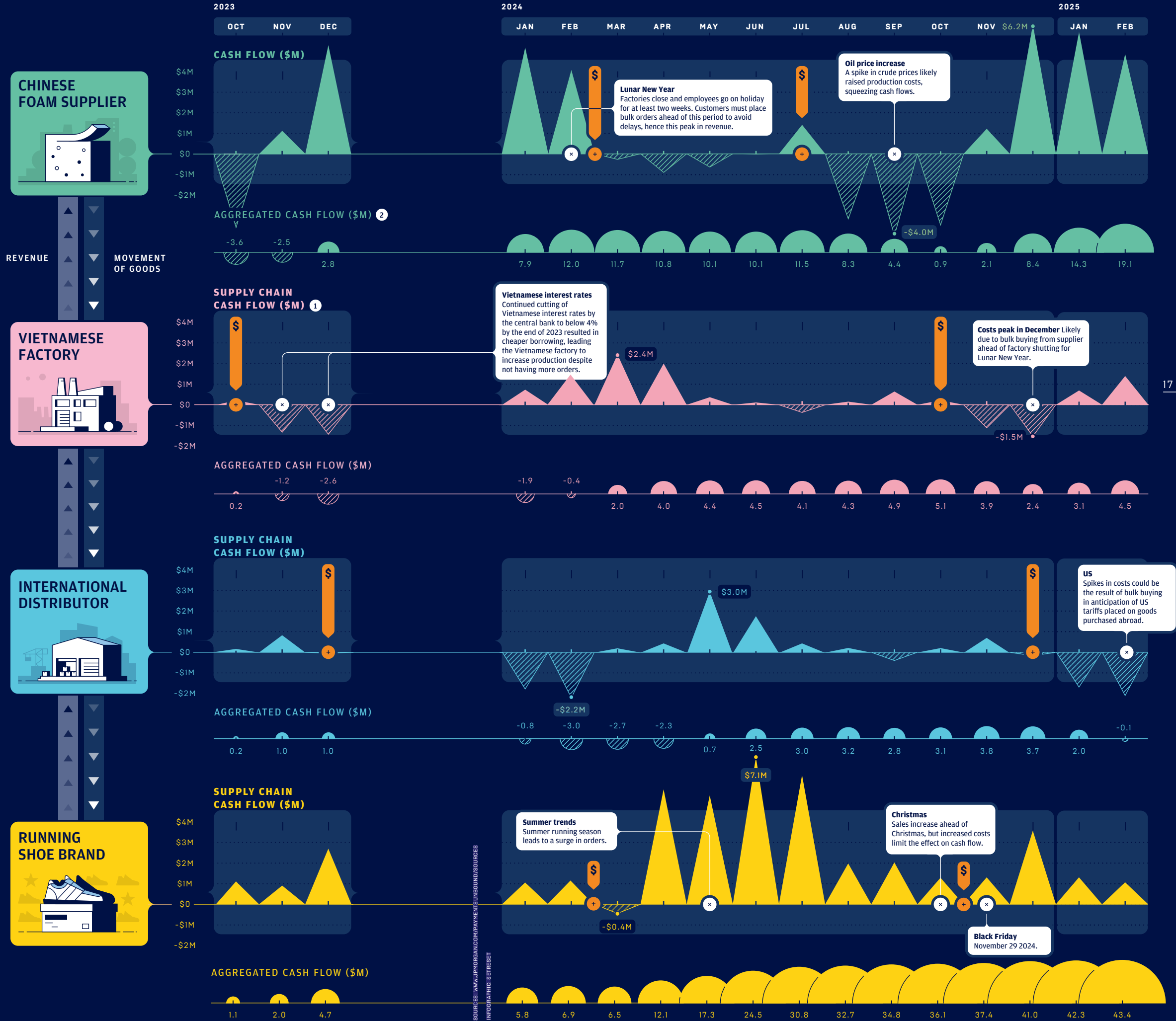
DATA VIZ

Chain reactions

Making even simple products involves intricate financial choreography.
We reveal the payment flows that take a running shoe from components to customer

Supply chains manage flows of goods—but they also manage the flows of cash that make global commerce possible. When a parcel arrives on your doorstep, it represents the culmination of a series of complex financial interactions that began months earlier.

Consider a single product, like a running shoe: It might contain inputs and processes that span a wide range of countries: rubber from Indonesia, foam from China, and eyelets from Vietnam. And payments must be carefully coordinated between all parties—often across different currencies, regulatory regimes and banking systems—to keep production moving.

The challenge, however, is timing. Component manufacturers need funding to produce parts. Assembly facilities must pay for production runs. Logistics companies need capital to ferry the finished goods around the world. In all cases, outgoings precede revenue, meaning that monitoring cash flow is crucial. To avoid operations stalling, businesses need to pre-empt deficits and get finance at the right time. Global events, however, can make this easier said than done.

Using data from Slope, a B2B payments platform for enterprise companies, we visualized the 2024 financial stories of four anonymized businesses, each reflecting a typical player in the global running-shoe supply chain.

16

1 SUPPLY CHAIN CASH FLOW
The monthly revenue from the downstream company, minus the cost of buying from the upstream company

2 AGGREGATED CASH FLOW
The cumulative monthly revenue from the downstream company, minus the cumulative monthly costs of buying from the upstream company

$ FINANCE OPPORTUNITY
The ideal time for each entity to finance, as recommended by Slope

REVENUE   MOVEMENT OF GOODS

CHINESE FOAM SUPPLIER

VIETNAMESE FACTORY

INTERNATIONAL DISTRIBUTOR

RUNNING SHOE BRAND

2023 — OCT NOV DEC
2024 — JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV
2025 — JAN FEB

17

Chinese Foam Supplier

CASH FLOW ($M)
$4M $3M $2M $1M $0 -$1M -$2M

$6.2M ●

Lunar New Year
Factories close and employees go on holiday for at least two weeks. Customers must place bulk orders ahead of this period to avoid delays, hence this peak in revenue.

Oil price increase
A spike in crude prices likely raised production costs, squeezing cash flows.

AGGREGATED CASH FLOW ($M) 2
-3.6 -2.5 2.8 7.9 12.0 11.7 10.8 10.1 10.1 11.5 8.3 4.4 0.9 2.1 8.4 14.3 19.1
-$4.0M

Vietnamese Factory

SUPPLY CHAIN CASH FLOW ($M) 1
$4M $3M $2M $1M $0 -$1M -$2M

$2.4M

Vietnamese interest rates
Continued cutting of Vietnamese interest rates by the central bank to below 4% by the end of 2023 resulted in cheaper borrowing, leading the Vietnamese factory to increase production despite not having more orders.

Costs peak in December Likely due to bulk buying from supplier ahead of factory shutting for Lunar New Year.

-$1.5M

AGGREGATED CASH FLOW ($M)
-1.2 -2.6 -1.9 -0.4 2.0 4.0 4.4 4.5 4.1 4.3 4.9 5.1 3.9 2.4 3.1 4.5
0.2

International Distributor

SUPPLY CHAIN CASH FLOW ($M)
$4M $3M $2M $1M $0 -$1M -$2M

$3.0M

US
Spikes in costs could be the result of bulk buying in anticipation of US tariffs placed on goods purchased abroad.

-$2.2M

AGGREGATED CASH FLOW ($M)
-0.8 -3.0 -2.7 -2.3 0.7 2.5 3.0 3.2 2.8 3.1 3.8 3.7 2.0 -0.1
0.2 1.0 1.0

Running Shoe Brand

SUPPLY CHAIN CASH FLOW ($M)
$4M $3M $2M $1M $0 -$1M -$2M

$7.1M

Summer trends
Summer running season leads to a surge in orders.

Christmas
Sales increase ahead of Christmas, but increased costs limit the effect on cash flow.

-$0.4M

Black Friday
November 29 2024.

AGGREGATED CASH FLOW ($M)
1.1 2.0 4.7 5.8 6.9 6.5 12.1 17.3 24.5 30.8 32.7 34.8 36.1 37.4 41.0 42.3 43.4

DATA SOURCE: SLOPE, 2025

Ask a dev!

Business leaders have payments questions. We put four of them to top-tier paytech developers

Developers are the backbone of payments technology, building the systems that process billions of digital transactions every day. With 81 percent of companies struggling to keep up with the pace of change in tech, devs have a wealth of knowledge to share on this increasingly strategic area.

We spoke to some of the most forward-thinking developers to hear their takes on four key paytech questions that are front of mind for business leaders.

COMMUNITIES

Is it ever really worth a business building their own payments solution?

"For any company considering building a paytech solution themselves, I'd ask, 'What is the differentiated value you're trying to add?'

Going it alone, by developing products and solutions in-house, is often seen as the most cost-effective route for a really bespoke experience. But if it's simply a question of economics—and you're not after something truly unusual—then it may be more affordable to go to a third party. Payments are complex, and you have to factor in all the engineering and expertise that goes into making a simple, reliable, and user-friendly solution.

Say you're a real estate company. Your core competency lies in delivering a seamless living experience, not payments technology. But you may want to enable your tenants to pay their rent in multiple different ways to minimize the risk of missed payments. Building a solution that allows them to pay with ACH, with credit card, with check, with cash, etc., and then making it easy for the property management company to reconcile all these different payments in a single location, requires an incredible amount of technical skill.

In that instance, it may be better to ask a payment service provider to dedicate specialized engineers to handle the complexity."

Adam Elbaz, General Manager, Consumer Banking, Bilt

Loyalty fintech Bilt enables consumers to build their external credit ratings, and earn rewards points, by making rental payments, in turn creating greater payment stability for landlords. The points users earn can be transferred 1:1 to leading airline and hotel partners, used for rent payments, or redeemed across Bilt's neighborhood partners, including over 20,000 local restaurants, fitness studios, rideshare services, and retail merchants.

What's an under-appreciated consideration when integrating AI with payments?

"With the explosive growth of both digital-first payments and AI, the two are being integrated with exciting results. We are witnessing rapid upgrades to customer experience, for example. As an individual, you can now make payments and get 24/7 support from an AI-based virtual assistant if you encounter a problem.

In this environment, the question of ethical AI is an important consideration when we build and develop these products. 'Ethical' AI can mean many things. For Twilio, a vital element when integrating AI with payments is understanding where your data comes from, how it has been handled, and how it influences AI decision-making.

This is important for several reasons. First, if the training data contains historical biases and those biases can be replicated or even amplified by AI models, it can be difficult to identify or mitigate these biases. Similarly, in payment systems, errors or opaque decisions can quickly erode user trust.

Secondly, regulators may require detailed documentation of the data and models involved when AI makes payment decisions (e.g., fraud detection, credit scoring, dynamic pricing). Without clear data lineage, it's difficult to demonstrate compliance or defend decisions.

In short, successful AI integration in payments isn't just about powerful models—it hinges on disciplined data management. This is why I urge businesses to ask any prospective developer what their communication and payments models are built upon. Likewise, if you're building paytech tools in-house, striving for unbiased, transparent AI systems is something I strongly advise business leaders to keep in mind."

Asha Chakrabarty, Vice President of Product, Builder Experiences, Twilio

Twilio is a customer engagement platform that drives real-time, personalized experiences for today's leading brands. Businesses use its solutions to improve customer interactions across channels such as phone, text, and chatbot with real-time data and AI.

What are the biggest security risks in paytech today?

"Human identity verification is a significant payments security issue for which business leaders should be seeking developer solutions. As AI gets more and more sophisticated, the Turing test is now yesterday's test.

The key payments security question soon will be: 'Are you human—and are you the correct human who's performing this action?' Business leaders should prioritize asking developers to ensure advanced biometric authentication and identity authentication for any payments system they onboard.

Another big security issue is supply chain vulnerabilities. The simple—but vital—questions to be able to answer are: 'How is money flowing through the system we are a part of, and how are we observing and accounting for it?' It is essential to understand and be aware of the payments ecosystem you are operating in. This is where strong relationships and partnerships are important.

In addition, having oversight and understanding of other business functions can be important internally, too. There can be a lot of information siloed within individual departments that, if shared with developers, would help companies progress faster and anticipate security problems.

I'd like to start seeing product councils being created. From both a security and product development perspective, I want to see people coming out of their individual silos and saying, 'Let's all get together into a council and let's aggregate all this information together.'"

Chaitanya Varanasi, Advisory Solutions Consultant, MongoDB

MongoDB is a globally distributed database platform, trusted by millions of developers and over 50,000 customers to power their most critical applications. Whether it's payments, loyalty programs, or rewards systems, MongoDB simplifies data management and drives innovation.

How can companies and external paytech developers work together more effectively to achieve optimal results?

"There are three key things businesses can do to create great relationships with developers.

The first is to ensure that business leaders clearly communicate the company's needs. Too often they might say to a developer, 'I want an AI experience for my customers.' Great. But if they're able to come in and say, 'My business is preparing for a new product launch in Q4, and we need an AI-enabled assistant to launch at the same time to support our customers to make the best use of this new product'—that is a clear ask that allows developers to engage in a much more practical, solution-oriented manner.

The second key thing is to have experts on the business side who understand the company's own technology. The more context they have about how their own existing technology stack runs and operates—and about the issues they've had—the more effective an external developer can be when they come in to help. They can more quickly add value.

The third quality I notice of companies that collaborate successfully with developers is a willingness to experiment. Being able to enter into a dialogue and keep adjusting and working together to find the right solution is an underrated virtue."

Ajay Nair, General Manager, Platform, Elastic

Elastic, the Search AI Company, integrates its deep expertise in search technology with artificial intelligence to transform data into answers, actions, and outcomes. Elastic's Search AI platform and its search, observability, and security solutions are used by thousands of companies, including more than 50 percent of the Fortune 500.

Mapping global shifts

O ur annual payments global trends report details key trends for treasury and corporate finance professionals to track right now. While these developments apply across the globe, they will play out differently in specific regions, nuanced by local technological, economic and social contexts. Understanding these regional trends is important for anyone preparing for the payments landscape of tomorrow. Here's a rundown of five.

Global trend: Proactive working capital management

1 MIDDLE EAST

REINVENTING TREASURY

Treasury transformation in the Middle East is gathering pace thanks to strategic initiatives such as Saudi Vision 2030 and We the UAE 2031. This has led to the region embracing new ideas and major improvements in working capital management. In addition to being at the forefront of broad technological trends—such as real-time treasury, artificial intelligence, and payment factories—the Middle East is spearheading ideas such as in-house banking, where a central entity takes control of all of a company's money-related functions. Companies in the region are also setting up treasury hubs that centralize financial operations across local markets. This improves cash visibility, enabling treasury teams to proactively manage working capital across multiple countries.

2 LATIN AMERICA

INNOVATION IN SUPPLY CHAIN FINANCE

Due to a combination of high interest rates, inflation, and foreign exchange variation, there is a pressing need to find new and effective ways to manage supply chain finance in Latin America. One area that has promise is accounts receivable solutions, which allow companies to offer discounts to customers in return for the earlier settlement of invoices. By reducing working capital lead times, companies can free up cash and mitigate risks, such as sudden currency fluctuations, or harness the opportunities that come with high interest rates.

Global trend: Building the skills of tomorrow

3 LATIN AMERICA

PRIVATE COMPANIES PLUG THE AI SKILLS GAP

The push for greater digitalization, including the integration of advanced AI tools, is driving the need for more technical talent in treasury. Yet this is proving to be especially challenging in Latin America, with 32 percent of companies reporting a skills and expertise shortage in AI, according to a recent IBM survey. The main reasons for the talent gap are the rapid evolution of technology and a lack of investment in education for fields like machine learning, digital work skills, AI, and cybersecurity. Encouragingly, a number of private companies in Latin America are now developing their own AI onboarding programs to train new hires.

Global trend: Realizing value from faster payments

4 EUROPE

SEPA BECOMES A COMPETITIVE BATTLEGROUND

By October 2025, all European Union banks will have a mandate to send and receive SEPA Instant Payments. These euro-denominated payments must be settled in 10 seconds and available 24/7. However, there are concerns that many European banks will struggle to meet these deadlines—not least because they have legacy infrastructure that cannot support 24/7 payments, and the necessary upgrades are too complex to be completed in time. Those banks that are ahead of the curve and are able to meet the regulatory requirements should be able to carve out a sizable strategic advantage.

5 APAC

ASIA IS NOW THE WORLD'S RTP POWERHOUSE

Asia Pacific has cemented its position as the world's largest market for real-time payments (RTP), with a quarter of all transactions in the region now using RTP rails. The next stage of development is to increase integration between the different RTP schemes. Singapore, Malaysia, Thailand, Indonesia, and the Philippines are in the process of building a regional RTP network, based on standardized QR codes that citizens from any of these countries can use when visiting the others.

Treasury tech is getting a long-awaited upgrade

Treasury has long struggled to embrace the full benefits of digitalization, but new thinking is helping solve the problem

Modern treasury operations can still be frustratingly inefficient despite advances in digital technology. Even making a payment involves multiple manual steps since data can often be siloed within different platforms. In other words, there is a lack of integration across the treasurer's "tech stack"—industry shorthand for a collection of software components used to get something done. But emerging ideas and smart thinkers are starting to crack the problem.

What is a typical treasury tech stack?
Treasurers typically manage operations via a series of stand-alone tools. While smaller firms may need less functionality, a large enterprise will typically have some combination of the following components in its treasury tech stack:

• **ERP module:** Links into a company's enterprise resource planning system (ERP), which holds accounts receivable (AR), accounts payable (AP) and inventory information. Treasurers need visibility into this operational information to get a 360-degree view of working capital.

• **Bank connectivity systems:** Allows the treasurer to see cash balances and other important financial information held by the company's banking partners.

• **Payments hub:** A centralized platform that allows treasurers to manage and monitor outbound payments, distributions, and disbursements.

• **CRM link:** Connects to the company's Customer Relationship Management system, so treasurers can understand what contracts and projects are in the pipeline, which can help them to make more accurate cash flow forecasts.

• **Financial risk management tool:** Integrates other types of financial data such as interest rates, commodities prices, and FX rates. Treasurers will also typically manage insurance risk for their company, so they also need to measure, record, and value assets, as well as track insurance claims.

• **Security and compliance:** Incorporates various security, compliance and observability features that overlay all tech components. These protect sensitive data and support effective risk management.

Each component usually comes from a different third-party vendor, which means they're often incompatible with existing infrastructure. Even if they are compatible, they may only have partial co-functionality, and these features may grow obsolete over time.

This can create challenges for treasurers. They might spend much of their day logging into different systems and manually uploading data from one place to another. Not only is this time-consuming, but it could increase the likelihood of mistakes.

How can treasurers build a more effective tech stack?
"Part of the solve is to have the right decision-makers all at the table to ascertain what is the best tech solution going forward, what is really needed and what can be eliminated," says Jeff Norfolk, Product Marketing Strategy Lead at J.P. Morgan.

Those decision-makers should include people from other internal teams such as sales and operations, but also third-party software vendors and consultants who can recommend best practices.

They may recommend a better Treasury Management System (TMS) that can integrate more technologies into a single platform. TMS tools are a key trend in this space. However, even the best TMS has some integration limitations. For instance, none of these tools can undertake effective advanced cash forecasting methods.

What else can help?
One challenge in integrating tech stacks is that each component can generate data in different formats and locations. Tools that can gather disparate data into a centralized repository are therefore valuable.

"That's where application programming interfaces (APIs), robotic process automation (RPA), and middleware comes in," says Alberto Hernandez-Martinez, Industry Solutions at J.P. Morgan. "APIs enable disparate systems to interact with one another, whereas RPA involves software 'bots' that automate the transfer of data across various tools, and middleware acts as a connector between diverse technologies."

The more that APIs, RPAs and middleware can integrate tech stacks, the more AI can do for treasurers. An AI-based virtual assistant could have all the necessary data at its disposal to perform complex analysis and take logical next steps, for example, while providing a simple natural language interface for the user.

"AI technologies, such as the Model Context Protocol (MCP), that enable large language models (LLMs) to securely connect to tools, data sources and other LLMs, or AI agent-to-AI agent technologies that allow AI agents to securely 'communicate' with each other will be a step towards a more AI-enabled treasury function," says Hernandez-Martinez.

As is often the case, compliance and risk management will be key considerations. Companies would be remiss to have an AI agent complete a $50 million transaction without human sign-off, so these solutions will need to balance automation with human oversight. Hernandez-Martinez adds, "while we don't know how many years it will be until AI treasury assistants are mainstream, we do know AI agents are being developed and deployed now. If treasurers prioritize the tools and collaboration needed to create an efficient tech stack, they'll be in prime position to adopt them when they arrive". *By J.P. MORGAN*

The more we can integrate tech stacks, the more AI can do for treasurers.

FRESH THINKING AND PROVOCATIONS

IDEAS BANK

Businesses need digital identities, too

A standardized corporate digital ID system would help tackle fraud—and much more

The text message on your phone purports to come from your utility company. It says that there's a problem with your smart meter, and asks you to click on a link. The message comes from a five-digit short code, but you don't know how to find out who that code belongs to or whether it was spoofed. You look at the link, and it seems real, but you hesitate to follow it and find out, in case you end up having your bank account drained. So you delete it. Later, however, you discover it was in fact real and, understandably, you're seriously frustrated.

Why is it that the problem of figuring out whether you are dealing with a real company or a fraudster is delegated to the consumer?

Digital identity (digital ID) is the link between things in the real world and things in computers: an online credential that verifies that someone or something is who they say they are when using an online service. The use cases we hear about typically have to do with people. In the payments world, for example, digital ID can help prevent fraudulent card use.

But the identity of businesses is just as important. The incidence of fraudsters impersonating organizations is on the rise, with such scams representing more than $1.1 billion of reported losses in the US alone—three times what it was in 2020. This is not just about spoof text messages—it is also about corporate identity theft, something that is rising alarmingly. This involves a bad actor using information about a company obtained via a cyberattack—their business license, their tax ID—to defraud others.

It is obvious why this crime is growing so rapidly: As more companies conduct business online, they expose themselves to greater risk. And while advances in technology have enabled cybercriminals to undertake more sophisticated scams, businesses (especially small businesses) often lack the knowledge, countermeasures and strategies needed to protect themselves. Simple precautions—such as double-checking that an email from a supplier asking you to update their bank account details is really from that supplier—can make all the difference. But too often this doesn't happen.

Hence the growing conversation around corporate digital ID. The new EU Electronic Identification, Authentication and Trust Services regulation provides a framework that encompasses corporate ID, and China recently announced it will adopt a digitized ID system for organizations pioneered by the Global Legal Entity Identifier Foundation. Meanwhile in the UK, the government-backed Centre for Finance, Innovation and Technology has recently partnered with leading banks and technology firms, as well as the Financial Conduct Authority and the Payment Systems Regulator, in an initiative to create a standardized and verified digital ID for businesses.

The ambition of the latter is to provide something like a digital "business driver's license" that is interoperable with other financial systems for data cross-referencing, enhanced authenticity checks and additional fraud detection tools. This could thwart many common scams, making it harder for a fraudster to spoof a legitimate sender or impersonate a real vendor. Fraud could be stopped before it happens: If a business claiming to be a major supplier is requesting a payment, mismatched credentials could mean the transaction can be halted automatically in real time.

Crucially, to protect privacy, the person or organization asking for the credentials only gets to view the ones that they are authorized to access. So, for example, a telecommunication company might be able to view the trading name of a business that wants to send a text message to its customers. A lawyer might be able to ask for the identities of beneficial owners, and a business partner might be able to ask for payment details.

This kind of idea will become increasingly important to combat new forms of fraud, such as deepfakes. Imagine you're on a video call with the CEO of one of your suppliers, and they're asking you to make a payment. In the age of generative AI, how do you know they are who they say they are? We can imagine a world where identity validation takes place automatically in the background by the ID system, providing reassurance that you are indeed talking to the CEO and not a hacker.

We have a long way to go to get there. Seventy five percent of financial institutions still rely on internet searches to identify beneficial owners, annual filings, and financial accounts in the process of verifying business identities. This is not just an efficiency problem; nine in 10 corporate treasurers have abandoned lengthy onboarding processes for business banking applications, leading to lost revenue and unhappy customers.

What businesses need is a digital identity not only to fight fraud, but also to make business more efficient and productive—something that a company can present to the bank to get an account, or to a payments company when it wants to send money to someone, and also to accountants, lawyers, leasing companies, procurement officers and everybody else.

When the next message purporting to come from the utility company shows up on your phone, it should either be in green (because the corporate digital identity has been checked and validated) or red (because it hasn't).

If we really want to reduce friction and fraud, then it must be that simple. *By WIRED*

> **What businesses need is a digital identity not only to fight fraud, but also to make business more efficient and productive.**

ACCESS GRANTED.

COMPANY DETAILS
ADDRESS
WEBSITE
PHONE
COMPANY REGISTRATION
BOARD OF DIRECTORS
CEO
COMPANY NAME

COMPANY DETAILS
ADDRESS
WEBSITE
PHONE
COMPANY REGISTRATION
BOARD OF DIRECTORS
CEO
COMPANY NAME

Are micropayments about to have their moment?

New technology is breathing new life into the idea of tiny payments, but there are still problems to solve

In recent years, electronic payments have trended toward atomization. Their volume keeps increasing while their value keeps falling. Until recently, however, really small payments—micropayments—were a challenge.

Micropayments have long been a trope of "future of money" discussions. The term tends to refer to payments of less than a dollar. Yet micropayments never took off, chiefly because transaction costs make micropayments prohibitively expensive.

There are, in theory, workarounds. Customers can fund a digital wallet on a closed-loop network so they can avoid transaction costs when they make payments on the platform. Or platforms can aggregate many micropayments into fewer, larger, economically viable transactions. But these solutions are hard to scale, and adoption of micropayments has remained limited.

Recently, however, that has started to change. Account-to-account (A2A) payment systems are making it feasible to send small amounts of money in an affordable way, since the fees are so low. For instance, the Central Bank of Brazil processes six billion transactions per month on its Pix platform, many of them for a single cent. Interestingly, this is often for an unintended purpose. Since messages can be attached to Pix transactions, people use it as an informal communication channel. Everything from marriage proposals to insults have been sent via one-cent Pix.

Microtransactions could unlock various new opportunities for businesses, usually involving "on demand" models for access to resources, content or services. Media outlets could offer readers an alternative to buying an expensive subscription: instead just make a micropayment for each article you want to read. Websites could offer to remove intrusive advertisements in return for a micropayment. Or consider charities—the ability to make regular small donations, perhaps as part of rounding up the value of a purchase, could create valuable new revenue streams.

Micropayments never took off, chiefly because transaction costs make micropayments prohibitively expensive.
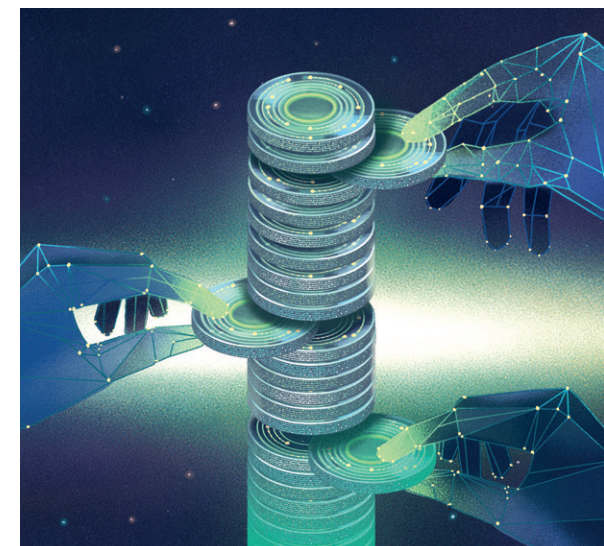
Just when we thought the problem had been solved, however, a new use case has emerged that may require a new solution altogether: AI agents. Broadly speaking, an agent is an AI model that can use digital tools to achieve a given goal. Imagine you want to arrange a business trip. The idea is that you could explain your needs to an AI agent, and it would carry out its own research to create an itinerary and perhaps even make the bookings. Or maybe you could ask an agent to complete a complicated research task that would otherwise have taken you a month. These are all use cases that leaders in the AI space say are coming.

In achieving your goals, agents may need one-time access to gated APIs or premium data sources. They may also need access to specialized machine learning models, perhaps for enhanced abilities such as price negotiation. It seems reasonable to think the agents will have to pay to access these things. But this presents a new challenge. An agent may need to ping any number of APIs and models to get something done. Some imagine that we may have many thousands of agents working in concert to crack harder problems, meaning those pings will quickly rack up. It's unrealistic to take out subscriptions for all these services because that would quickly become too expensive, especially as a resource may only be needed once. Instead, analysts imagine a world where agents pay per use. And that the economics will dictate these payments take the form of really small micropayments—perhaps a fraction of a cent. Call them nanopayments.

The problem is that even the low fees associated with A2A rails are likely to be too great to make nanopayments economically viable. And, of course, A2A is not available everywhere. How could we solve this issue? The venture capital community posits that blockchain—particularly stablecoins—could prove effective. Stablecoin transactions can be completed at exceptionally low cost. They are also a good means to pay for services located potentially anywhere in the world, since they circumvent conventional payment rails and therefore don't encounter currency conversion or international payment fees.

The idea of bots continuously exchanging value for services that we cannot fully imagine right now is heading towards the mainstream. Fintechs are already securing venture funding to build payment networks specifically for bots to make autonomous, stablecoin transactions. If this future transpires, it will create a range of new concerns for payments professionals. Take treasurers, for whom it will be important to optimize liquidity in light of high-volume, low-value payments. They will also need to consider how best to integrate stablecoins into their treasury setups. As with all things AI, there is one piece of advice you can rely on, however events unfold: track the space closely and be prepared to act fast. ***By WIRED***

DEEP DIVES INTO A CHANGING WORLD

FEATURES

SHOW BUSINESS

From interactive TV ads and pay-by-voice buying, to the complexities of handling money behind the scenes, entertainment companies are making payments the star of the show

ILLUSTRATION: RAVEN JIANG

The current era in the entertainment business has been characterized by one thing: disruption. The winds of change have buffeted the industry from a number of directions—the creator economy, artificial intelligence, new forms of hardware—but one of the most significant forces has been the evolving economics of streaming services.

The impact of on-demand content has been playing out for more than a decade. Legacy companies were initially wrong-footed, before getting in on the game themselves. Internet-enabled entertainment has given us an explosion of new options, new power players, mega-mergers and market dynamics.

For consumers it has been something of a golden age of entertainment, as they have gained greater access to more music, film, TV, sports or user-generated content than ever. But behind the scenes, all that glitters is not gold. While some major streamers have reached or neared profitability, others continue to face steep losses as they attempt to scale.

There is now a growing acceptance of practices that are designed to drive revenue. After years of heavy investment to grow subscriber numbers, entertainment companies are now increasingly shifting their focus to reducing customer churn, improving balance sheets through new business models, and streamlining back-office operations to cut costs.

And in this picture, payments is taking on a leading role. Here's how…

PREVENTING SUBSCRIBER CHURN

The subscription model has been transformative in the entertainment industry. The average American now has five different subscriptions. But in many ways the sector has been a victim of its own success—the new challenge is subscriber churn. With so many different streaming options to choose from, customers will often bounce around different providers, signing up for a few weeks or months and then ditching their plan. For some streamers, the churn rate can be up to 50 percent per year.

Media companies are employing a number of strategies to fight high cancellation rates. One approach is to prevent involuntary churn, such as when a customer's card has expired and automatically declines a payment. Many streamers now receive information directly from the card issuers, so customer card details can be automatically updated upon expiry.

Another approach is to shift away from a strict reliance on subscriptions. The idea is that someone may cancel their monthly deal, but could be enticed to keep spending on the platform if different kinds of payments were possible. This could include allowing stand-

alone purchases for certain products, or pay-as-you-go options.

But arguably the most novel strategy has to do with diversification. Entertainment companies are going beyond the familiar practice of simply bundling platforms together into single packages that cost less than taking out multiple subscriptions. This can still be powerful—it is estimated that bundles can reduce churn by 20-50 percent as they broaden options and offer value for money—but the big new idea is to shift towards in-person experiences. "Tapping into things like live sports and other live events is at the forefront of what the streamers are doing right now," says David Shaheen, Head of Media and Communications of Global Corporate Banking at J.P. Morgan. One streamer, for instance, has created physical spaces where fans can enjoy interactive experiences from their favorite shows and buy merch, while a number of others have started selling tickets to concerts or sports events.

As streamers start to straddle the physical and digital worlds, they are leaning into a key trend in modern payments: omnichannel. In a nutshell this means a single payments platform that integrates

all payment channels—online, in-store, mobile—so the business has a single view of customer interactions and the customer has a consistent, joined-up experience no matter where or how they pay. Having all physical purchases tied to the same online customer account means that refunds and disputes are easier to manage, for example, while recommendations and targeted

As streamers start to straddle the physical and digital worlds, they are leaning into a key trend in modern payments: omnichannel.

offers can be made based on entire purchase histories.

State-of-the-art payments technology can help elevate the omnichannel experience in physical settings. Biometrics now allow people to pick up items and pay for them with a swipe of their palm or by scanning their face—sometimes ambiently, enabling them to walk out of the store without visiting a checkout—with the transaction automatically charged to the online account which already has the payment credentials. This speeds up the checkout process, reduces queues and allows the customer to be more present and immersed in the live event.

Jennifer Acosta, Global Head of Media and Communications at J.P. Morgan Payments, describes an ideal consumer journey wherein fans "pay for the ticket via a simple click on the app and immediately enroll in a biometric capability. From entering the venue, to paying for merchandise and buying concessions, you can use your face or hand to check out and spend less time waiting in line and more time experiencing the event. The idea is that you enjoy your visit from start to finish without multiple friction points."

THE RISE OF AD TIERS

Along with building more diversified offerings, streamers have also started adding commercials as a way to raise revenues. This has been controversial, as one of the great advantages of streaming in the early days was that the viewing experience was not constantly interrupted by ad breaks. It was an important factor in the rise of these platforms, as they competed against traditional ad-based TV channels. But relying only on subscriptions has proven economically unsustainable, and most streamers now offer tiered pricing models, with a premium price charged for ad-free viewing.

In 2024, there were five streamers with more than $1 billion in ad revenue each, and growth is expected to be rapid, aided by innovation. Since streaming happens over the internet, ads can be interactive, allowing users to get more information on a product or buy it instantly. One popular format is "pause ads," which appear on the screen whenever a viewer stops the action. These ads have high engagement rates, compared to standard video ads, as they are seen as unobtrusive. But they also require a fast path-to-purchase, or they can quickly turn into a frustrating inconvenience.

Typically, interactive ads on a TV require the viewer to scan a QR code, which adds multiple extra steps to the process. The viewer needs a second device like a smartphone, which they have to find and unlock, and then they must scan the code before going through

the purchase journey, all the while not watching their show. As a result, many streamers are now developing their own embedded checkout systems that are integrated with smart TVs, and allow customers to order and pay for products with a click of their remote. According to streaming specialist Roku, shoppable ads that use a remote for purchase have a conversion rate that is four times higher than QR codes.

There are other novel approaches around audio. It's now possible to run interactive audio ads that allow listeners to get a voucher, request product information, or book a trial through a voice command. Going further, pay-by-voice is an emerging technology that could allow listeners or TV viewers to complete an entire purchase with their voice. It works by linking that device's virtual assistant to the customer's preferred payment method, be it a digital wallet on a phone or a card-on-file on the streaming platform. The user can then prompt the assistant to initiate the purchase on their behalf in response to the ad. For the transaction to complete, the user will have to confirm it with another voice command, such as a password, or with a biometric identifier, like a fingerprint or facial scan. Voice-based payments are still in their infancy, but are expected to reach $14 billion by 2030.

In 2024, there were five streamers with more than $1 billion in ad revenue each.

CREATORS—THE $500 BILLION OPPORTUNITY

In the ultra-competitive entertainment landscape, user-generated content platforms have a significant advantage—they don't have to pay billions of dollars to produce the content up front. Instead, they either share ad revenues with creators, or pay them from a dedicated "creator fund" based on performance and milestones. At the same time, creators can augment their earnings by selling merchandise, conducting affiliate marketing or by receiving donations from fans.

As revenue streams multiply, the creator economy is growing rapidly and is expected to reach around $500 billion per year by 2027, as more entertainment companies look to augment their offerings with user-generated content. One streamer now allows viewers to save their favorite scenes from the shows they watch and share them with other users, and these types of features are only going to become more common. But with increasing scale comes more complexity. Creators frequently cite payments as a major obstacle they face, whether it's receiving payments on time from brands they have partnered with, disputes over chargebacks, or dealing with irregular cash flow.

In response, a new generation of payment facilitators (PayFacs) are emerging that act as financial intermediaries and sit between the creators, their partners, their audience, and the platforms. They can help to ensure creators get paid quickly by allowing them to draw down earnings early, as many content platforms operate on a monthly billing cycle. They also generally

offer robust fraud protections, such as using machine learning to identify fraudulent transactions or chargebacks, as well as data encryption to prevent breaches.

By selling merch or getting tips, many creators also receive micropayments, which can result in very high processing fees. To support this segment, PayPal now offers specialized pricing for small transactions under $10. Other PayFacs are also moving into the space. Buy Me A Coffee provides a link that can be included in the bio of a social media or YouTube profile. It allows creators to easily receive one-off or recurring donations with relatively low transaction fees and instant payouts.

Such is the opportunity that a number of banks are looking to provide even more specialized services for creators, as a way of targeting this potential customer base. This includes creating dedicated accounts that have tailored features such as automated invoicing, expense management tools, and ways to automatically put aside tax or other contributions. As independent operators, many creators do not have access to health insurance or pension plans, and some banks are helping them access tailored programs that meet their unique circumstances. They are also launching education programs and advisory services to help creators improve their financial literacy and grow their operations. In many ways, creators are media companies unto themselves and must look to optimize back-end functions in order to boost profitability in what is an increasingly competitive environment.

Creators frequently cite payments as a major obstacle they face.

TREASURY OPERATIONS

A growing focus on smart treasury management as a way to improve operations is a strategy that major entertainment firms are also following. Streamers have seen rapid international expansion of their subscriber bases. But exposure to foreign currencies means that any volatility can significantly impact earnings, while making it harder to forecast cash. J.P. Morgan Payments has recently partnered with a major streamer to implement a comprehensive FX hedging management program.

Strategies include forward contracts across multiple currencies to lock down FX rates and protect against volatility, as well as layered hedging, in which a small fraction of the currency exposure is hedged each month to smooth out the overall forward rate. More streamers will look to work with experienced treasury partners in this area in the coming years, as they lack the in-house skills and infrastructure to manage complex hedging strategies.

Treasury is also becoming the silent star of many productions. In recent years, cross-border payments have increased to vendors and creators involved in the process. "Major blockbusters can be filmed across the world," says Brooke Tilton-Foley, Vice President, Treasury Operations at Paramount. "A single movie can be filmed in Italy, in Dubai, then in Morocco. This is not done on a sound stage—we have film crews on-site in these locations. And they can be filming for a very short time period, so we need to have payments and payment systems, accounts, petty cash facilities, and liquidity in the local currency to pay vendors how they want to be paid."

While shooting movies and TV shows abroad can be about maximizing the visual spectacle, it can also be a way to save money due to lower labor and production costs, and the generous tax incentives that are on offer in certain locations. To make this possible, it's key for the entertainment companies to have a consistent and centralized technology base, so that when production managers travel to different places, they don't have to use new treasury systems or passwords in every location. They must also be able to pay in any currency they need and have the flexibility to approve payments remotely or while on-the-go, but still within a controlled and secure environment. J.P. Morgan Payments recently partnered with Paramount to streamline and speed up the studio's cross-border payments and to provide tools to manage and analyze these transactions. Its solution allows Paramount to send payments in 120 currencies across 200 countries in real time.

These types of tie-ups will grow in importance in the coming years as entertainment companies place as much emphasis on the back-office as the box office. Disruption is here to stay, and those companies that can innovate their businesses while remaining disciplined with costs will be best placed to succeed in the new entertainment landscape. Mastering payments will be a crucial pillar in that strategy as the industry continues to transform in the coming years. Stay tuned—this is just season one. **By J.P. MORGAN**

More streamers will also look to work with experienced treasury partners in the coming years, as they lack the in-house skills and infrastructure to manage complex hedging strategies.

WHERE OPEN BANKING GOES NEXT

With global momentum building, these are the big ideas set to change our financial lives

ILLUSTRATION: ANDREW NYE

Imagine a world where your financial life runs quietly in the background—smooth, seamless, and automatic, like a well-tuned engine. Your banking apps reshuffle funds to prevent overdrafts before they happen. Paying online just involves a frictionless bank-to-bank transfer. All the information about your money is accessible in one spot—no tab-hopping or multiple portals to navigate.

This is the promise of open banking: a global shift in the financial world's plumbing, unfolding at different speeds and in different ways around the globe. All initiatives, however, share the common aim of creating a financial ecosystem that is more transparent, efficient, and ultimately more beneficial to consumers and businesses alike.

At its heart, open banking is about consumers granting third parties access to their banking data—account details, spending history—in exchange for more personalized and innovative financial experiences. The idea is underpinned by application programming interfaces (APIs), a term that refers to rules and protocols that let one program request services or data from another. Think of these as digital bridges that allow multiple parties to share information, managing the associated risk of doing so between themselves.

This kind of data sharing can enable valued-adding services. Account aggregation services, for instance, allow consumers to view and manage multiple financial accounts from different institutions in a single interface. "Open banking is about giving people control over their financial data," says Helen Child, CEO of Open Banking Excellence. "It democratizes banking information, and ultimately helps you manage your money better." The same technology also makes it possible to send payments directly between bank accounts, though this currently lacks the same protections as traditional card networks, which are governed by clearly defined rules and facilitate the whole transaction.

Ninety-five jurisdictions around the world, from the Middle East to Asia Pacific to the Americas, have now adopted some form of open banking initiative. One forecast predicts that, by 2029, there will be 645 million total open banking users, up from 183 million in 2025.

DIFFERENT PATHS TO SUCCESS

Countries vary in their implementation strategies, but approaches fall into two broad camps: market-led or regulation-driven. Both have their own advantages.

Studies show that regulatory-led open banking is typically implemented around 22 percent faster than the market-led approach. The UK and Europe are key examples of places where open banking is governed by robust regulatory frameworks. The Revised Payment Services Directive (PSD2) set the regulatory bedrock for these markets in 2015—this aimed to create a standardized framework for open banking across the EU. It mandated banks to allow third-party providers access to customer account information, so long as they have the customer's consent. This has led to a Cambrian explosion of fintech companies that see an opportunity to transform how money and financial data move around.

The US, on the other hand, is an exemplum of market-driven open banking. A vibrant ecosystem has evolved organically over decades, with innovation coming not only from fintech challengers, but also from large banks and other financial services companies. Today, millions of Americans use open banking practices in their financial lives. Non-binding principles, such as those issued by the US Consumer Financial Protection Bureau (CFPB) in 2017, have helped the country build a robust data sharing market.

Despite every market having its own dynamics, open banking as a broad ideal has gained significant traction internationally. Some of the greatest impacts have been felt in emerging markets—places that are in the process of rapid growth and industrialization, increasing economic development and improving standards of living—since it has radically transformed financial inclusion. Take India, for example, where open banking was implemented as part of the "India Stack" of state-run technologies and APIs. The stack included Aadhaar (a national ID scheme), the Unified Payments Interface (an instant payments system), and an Account Aggregators (open finance) framework, all part of an initiative to increase access to financial services. As of March 2025, the country reported more than 550 million accounts had been created.

"Open banking is just one leg of a three-legged stool. Payments are the second leg, and the third leg is digital identity," says Ozone API's Eyal Sivan, who is also the host of the Mr. Open Banking podcast. Digital identity is the online persona or representation of an individual or organization, encompassing attributes such as usernames, passwords, and online behavior that are used to authenticate and verify identity in digital interactions and transactions. "The three of them move together, and regions that have had those three things as separate initiatives are starting to realize these are fundamentally related. Places like India completely understood that early on."

"Open banking is about giving people control over their financial data."
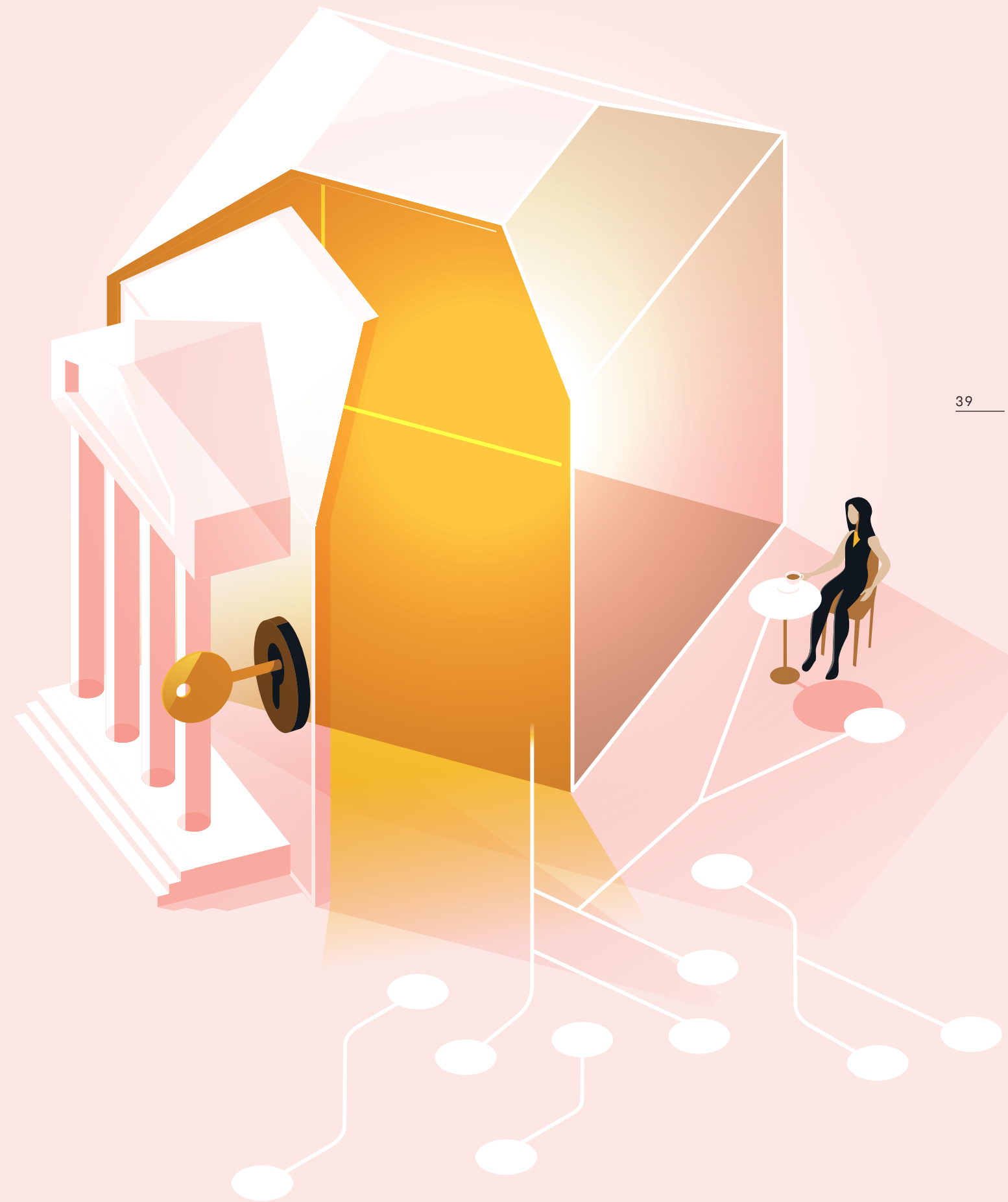
GET READY FOR THE FUTURE

Interest in open banking is growing sharply. "We are now in a situation where everyone around the globe is talking about how they can do open banking and how fast they want to go," says Stefano Vaccino, CEO of Yapily, a UK-based open banking API platform. "A few years ago, it was 'if', now it's actually 'when' and 'how fast'. It is happening everywhere."

A few recent developments are attracting particular attention. The upcoming PSD3, which is currently under development, aims to harmonize open banking rules across the European Economic Area to create a better user experience by introducing common standards across the continent and simplifying the ability to access user data.

"Common shared standards for the secure exchange of financial data, based on your consent, means that no matter who you're dealing with in the financial ecosystem—big bank, small bank, credit union or fintech—all of them work the same way," says Sivan. He likens this to the way the USB or HTTP standards work in computing. Nobody owns them, but everybody can use them.

"It changes everything," he says. "The second you introduce common open standards, you lower the cost of entry, you invite many more participants to play, and you create a common foundation for a whole universe of innovation to be built."

The desire for common standards has also put open banking in the spotlight for America recently, too. Although American progress has been driven primarily by the market, in recent years regulators have aimed to formalize data sharing practices. The CFPB finalized its data aggregation rule at the end of 2024. However, the CFPB is reconsidering the rule at the end of 2025 in light of litigation, and is now reviewing its statutory authority and potential risks to data privacy and information security arising from its original rulemaking. In some quarters this has caused consternation, but others have accentuated the positive.

"The US actually has the best open finance market in the world," argued one notable fintech commentator, who contended that it now should embrace its late-mover advantage in light of the fact that "where robust regulation exists, open finance hasn't lived up to its promise," and seize the moment to build "a better ecosystem even without regulation." In particular, they continued, the US system should take a cue from the card networks, which realized that a clear liability framework was essential to develop user confidence in the system, and put this in place themselves.

As open banking regimes emerge and mature around the world—whatever course they chart—the prospect grows of greater standardization and interoperability across borders, and with it a more globalized era of financial services comes into view.

So, the question is: As open banking quietly, steadily re-wires the financial system, what are the emerging trends that stand to reshape our financial lives in the years to come?
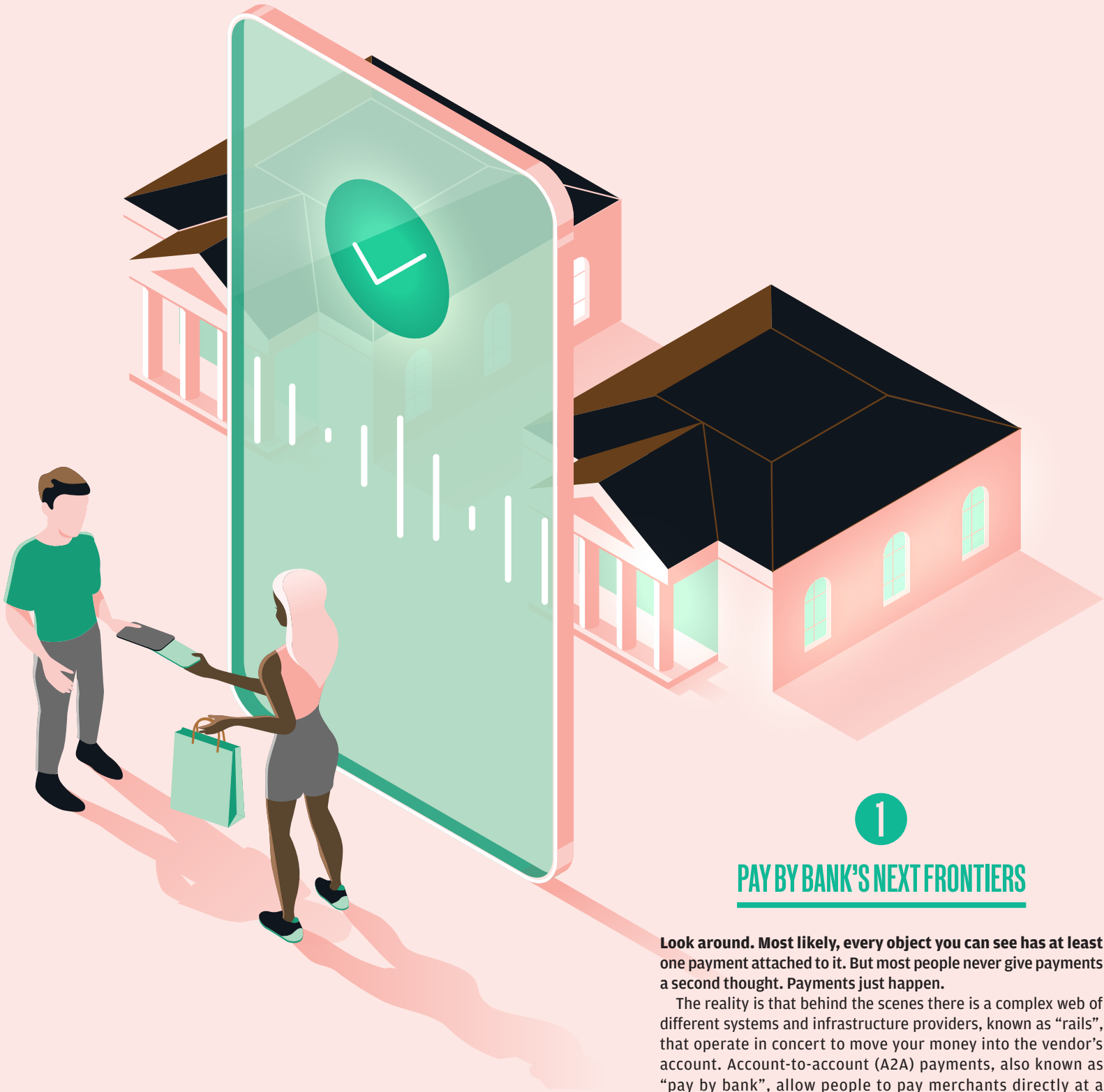
"A few years ago, it was 'if', now it's actually 'when' and 'how fast'. It is happening everywhere."

① **PAY BY BANK'S NEXT FRONTIERS**

Look around. Most likely, every object you can see has at least one payment attached to it. But most people never give payments a second thought. Payments just happen.

The reality is that behind the scenes there is a complex web of different systems and infrastructure providers, known as "rails", that operate in concert to move your money into the vendor's account. Account-to-account (A2A) payments, also known as "pay by bank", allow people to pay merchants directly at a lower cost to the merchant.

The name may be confusing because every payment goes ultimately from one account to another. But A2A refers to doing that via national clearing systems. While it has long been possible to send money between bank accounts via an online transfer, this hasn't been a standard way to pay. Open banking A2A payments make the process quicker and less manual, by mandating the automatic sharing of the necessary information to initiate a payment.

There are other benefits as well. Since it's facilitated by banks, A2A enjoys bank-grade security, such as strong customer authentication. And as countries adopt real-time payment systems, A2A also becomes a notably fast way to transact. "This is why open banking adoption will be very significant in the US," says Vaccino. "Payment schemes were super slow for many years. But you now have real-time payment rails such as ACH, RTP and FedNow, and we are seeing banks adopting them."

"There is a cheaper, simpler way to move money."

Open banking payments are growing. Simone Martinelli, CEO of open banking payments company Volume, says A2A adoption in the UK was "extremely low" in the first five years of open banking, but that is now rapidly changing. "Since the start of 2023, we've seen growth above 20 percent month-on-month, reaching a peak of 40 percent. So it is skyrocketing," he says. In absolute terms, however, they are still relatively small fry for consumer purchases. Globally, just seven percent of ecommerce transactions happen as A2A. Yet proponents are bullish. "I think we will move to instant, easy payments over national infrastructure," says Todd Clyde, the CEO of open banking payments fintech Token.io.

The question is: What will it take to get from here to there?

One aspect is elevating the user experience. Some companies are exploring how QR codes, for instance, could bring A2A to physical point-of-sale. Others are addressing the online A2A experience. Volume, for example, provides a "one-click" button for online merchants to integrate into their checkouts with minimal setup. This connects to users' banking apps, allowing them to initiate a payment with just one action rather than moving between multiple screens and apps. Others still are convinced that integrating with digital wallets is the key, noting that countries with large numbers of A2A transactions are ones where those payments happen not via open banking protocols, but through national, digital wallet-based schemes. Open banking payments, they argue, need to follow suit.

Another crucial aspect is security. Of particular importance is how dispute resolution mechanisms work under A2A payments. Credit cards hold a strong reputation for security and consumer protections against unauthorized payments fraud, with part of their costs going directly to fraud prevention and making customers whole even if the money is not recovered from a merchant or scammer. By definition, no cards are involved in an A2A payment, meaning those safeguards don't exist. An argument could be made that the reduction of friction—and the interconnected nature of open banking through a web of third parties—in fact presents new opportunities for cybercrime, as fraud prevention is more challenging in a real-time context.

Ian Morrin, Head of Payments at open banking platform Tink, says that this is an area where progress is being made. "When it comes to improving protections, there is strong industry momentum at the moment," he says, noting that in June 2025 the next stage of Visa A2A was announced. "That's bringing an enhanced framework to Pay by Bank, and Tink is excited to be one of the first members of this new solution. Visa A2A connects banks and third-party providers under a common rulebook, which will increase buy-in and boost consumer trust in Pay by Bank. UK consumers and businesses using Pay by Bank will benefit from a similar level of protection typically associated with card payments."

The jury's out on how long A2A could take to go mainstream in consumer payments, and what it means for the payments landscape of the future. Clyde predicts, simply: "There is a cheaper, simpler way to move money."

② FINANCIAL INCLUSION

Lending has one universal truth: Giving out the money is easy, but getting it back is difficult. The greater the uncertainty, the higher the interest rate to compensate for the risk. Traditionally, lenders have used credit bureaus to score this risk as well as to cut out "bad" borrowers.

Misha Esipov, CEO of credit analytics company Nova Credit, says the existing credit bureau system does not fairly serve a large share of the global population. He estimates more than 100 million Americans alone are "misunderstood" by the credit bureaus, and shut out from access unnecessarily. This includes the credit-invisible segment—those with a "thin file" or no file at all—who are often recent immigrants to a country, young adults, students, or people later in life. Often this segment has real assets, but hasn't been consistently borrowing to be able to show they can afford financing to buy, say, a car.

This is an area where open banking can help. One of the most compelling use cases is in promoting financial inclusion, in particular by bringing credit products to users currently excluded from them.

"It involves using deposit data and transaction-level data to create a more complete picture of someone's financial health," says Esipov. "Some people have also made mistakes through missing a payment here or there, which tanks their conventional credit score, but their underlying financial health is great. They generate consistent income, they're saving, they never reach overdraft."

Transaction data—as opposed to a credit score—can allow lenders to more accurately see whether someone can afford a loan, by modeling and forecasting cash flows in real time. This lets lenders serve a wider range of customer segments while also protecting their own balance sheets. The opportunity is greatest in places such as India and Brazil because credit bureau coverage is only as good as consumer credit penetration. Approximately 119 million Indians monitor their credit out of a population of 1.4 billion.

Lending based on transaction data is itself not new. But in the past this was only an option if you were borrowing from the bank that looked after your money. This new approach changes the status quo, but also, in turn, has the potential to improve the picture for traditional lenders. In the UK, open banking-based lender Salad, for instance, helps borrowers enter the established financial system. "We re-report data back into the credit reference agencies, so we can help borrowers build their credit score," says Alex Marsh, Chair of Salad.

So, how will this play out in the longer term? Esipov thinks there's no reason why the open banking approach couldn't become the norm. "You could see a world where the whole credit bureau system gets replaced with open banking. If you were to rebuild the whole system now, you would rebuild it using open banking," he says. "Because all the information about who you are and how you earn, and your financial health, is captured in your bank account."

If this happens, he says, it would be transformative for so many. "Access to capital accelerates time. You can use your potential from the future to give you the ability to move faster in the present. The availability of funds and capital, and credit access, can accelerate economic mobility and a whole host of other things. That's why the mission behind credit access is so important."

> ## "You could see a world where the whole credit bureau system gets replaced with open banking."

3

NEXT, OPEN FINANCE... THEN OPEN EVERYTHING

Listen to those in the open banking space, and two terms are constantly repeated: open finance and open everything.

While it is still early days for the rollout of open banking, regulators, entrepreneurs, and investors have been quick to foresee the expansion of the model to go beyond basic account and transaction data and to include a wider variety of financial sources and products. This idea is widely called "open finance."

Open finance would be made possible via the same data sharing mechanisms and consent-based flows governing open banking, only covering a wider scope of data. It's the network that would grow, not the technology that would change. Clearly, easy user control of access to data by third parties would be key to building sufficient trust for this to be possible.

"The nub of it is connecting more than just a basic bank account, whether that's access to your investments, your mortgage, your credit card, or tax information," says Paul LaRusso, CEO of open finance startup Akoya. "It's more inclusive of your whole financial life."

What started as a way to transform the banking sector is therefore expected to broaden into additional market segments like wealth management, insurance products, pensions, and other investments.

So what's stopping this from happening right now? Practicalities. The financial services industry is one of the most heavily regulated and intricately organized sectors globally. The complexity problem is further compounded by the typically slow speed of change and the ongoing need to integrate with legacy systems.

These are not seen as insurmountable barriers, however. In the UK, for instance, many are hoping emerging regulations, such as the Data (Use and Access) Bill, will help. Others argue that even with open banking, building other digital infrastructure is also necessary to support this new layer of financial innovations.

But we know that solving the issue is, in principle, possible. In Brazil, which established open banking later than the UK and EU, the expansion into open finance has already begun.

"Today we have 57 million people participating in the open finance system," says Luciana Kairalla, General Manager of Open Finance at Nubank, the Brazilian neobank with nearly 123 million customers across Latin America.

One of the chief motivators is, once again, credit. By incorporating even more aspects of someone's financial picture—more than simply transaction history and cash flow—more people can gain access to the credit they need. "The message that 'by sharing more data, we might be able to give a more compelling credit offer to you' was a message that was really winning with most of our customers, because liquidity is really important for the Brazilian population," she says.

It is not hard to imagine how many of the promises—and risks—of AI could feed into the open finance vision. Its ability to process natural language may allow it to function as a personal financial advisor. "I can see a world where AI becomes more of a decision-maker and action-taker, with permissions and guardrails that the consumer has established," says LaRusso. "An example of that could be looking for the best interest rate or yield on an account."

Think how much time and money that could save. Today, consumers might get notifications of interest rate changes, but researching better rates and switching accounts is an arduous process—and many don't wish to spare the time.

"You could see something in the future where you've given permission to a secure artificial intelligence service to not only find the deal but execute the switch on your behalf," says LaRusso.

And why stop at strictly financial data? The "open everything" thesis is that incorporating even more data sources confers ever greater benefits. Health data might feed into life insurance products to bring you a lower premium, or into pension products to help you more accurately plan for old age. Utilities data could lead to lower bills for consumers by helping them to more easily—perhaps even automatically—compare prices and switch providers.
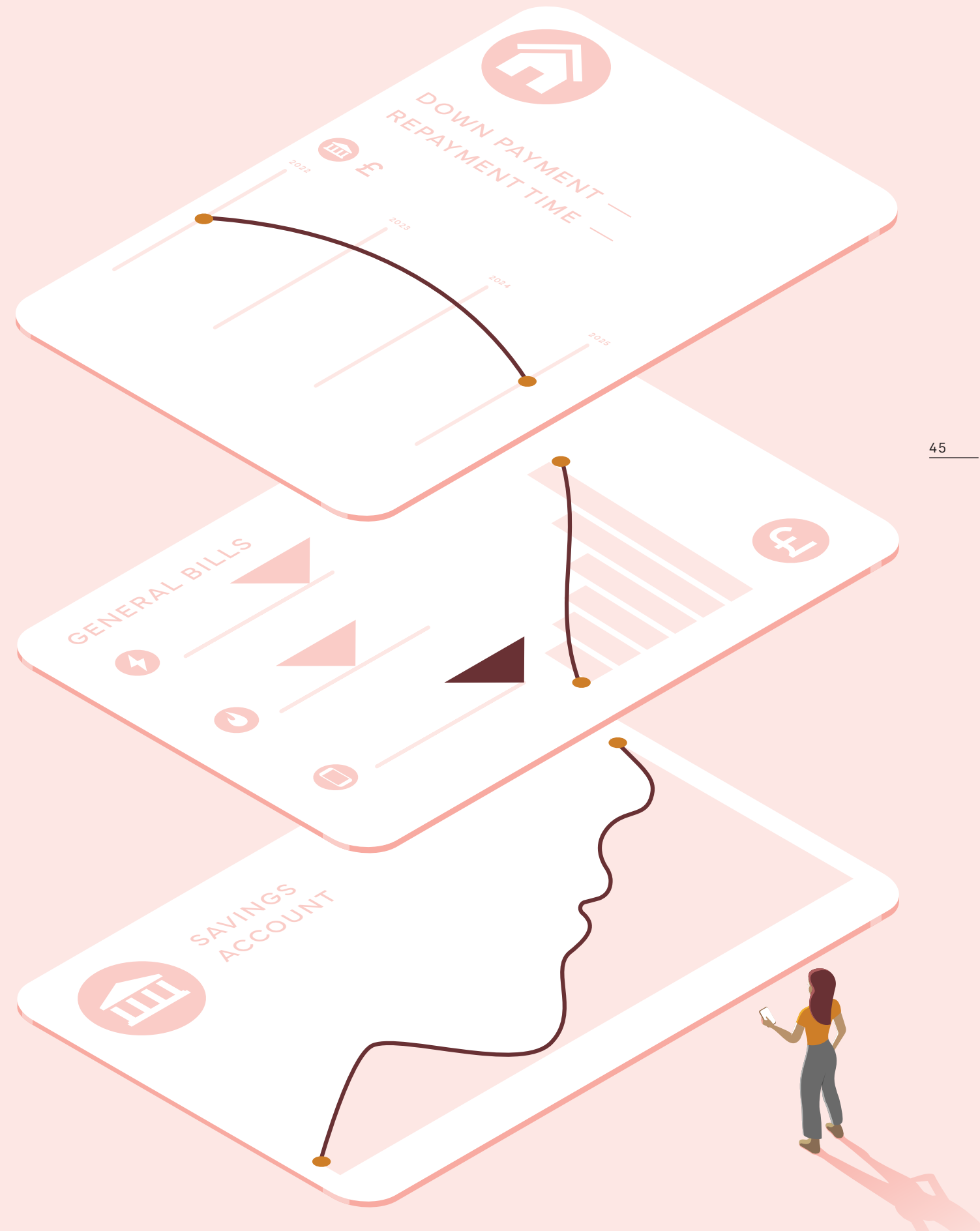
In Australia, open everything is already becoming reality. The country is introducing open data standards across its economy to encompass multiple sectors such as energy and telecoms. "Once you bring all these different data sets together, you exponentially increase the number of use cases you can support, because you've got a lot more data to work with," says Ozone API's Eyal Sivan.

In fact, he says, the sky's the limit. Once people get used to sharing their data based on their consent, and controlling how their data is used, they may naturally say: Wait a minute, what about my social data? What about my search data? What about my ecommerce data? Isn't that also mine?

"When we get there, well, that's a completely new internet," he says. "Open banking is very much the thin end of the wedge."
By WIRED

The "open everything" thesis is that incorporating even more data sources confers ever greater benefits.

BEYOND THE BALANCE SHEET

Josh Proctor

CHIEF FINANCIAL OFFICER, GOLDEN STATE WARRIORS

T he NBA's Golden State Warriors, located in San Francisco, has been one of the most successful sports franchises in the world over the past decade. With the opening of Chase Center—one of the first completely cashless stadiums—it has also revolutionized the commercial side of the live sports experience. Josh Proctor joined Golden State in 2021 as Chief Financial Officer, after previously spending six years at a global leader in sportswear.

In one sentence: What do you do?
I oversee all financial planning and strategy for Golden State, the holding company that includes the Golden State Warriors of the NBA, Chase Center and Thrive City in San Francisco and several other operating entities.

> "If you solve the problem yourself, your team is not allowed to fail and learn, which is critical to long-term success."

What are you working on right now? I've been focusing on the launch of our new Women's National Basketball Association (WNBA) franchise, the Golden State Valkyries. I attended the inaugural game in May 2025 with my two nieces, who are both avid players.

How many people do you manage?
I get to lead a talented team of 60 people across several disciplines: accounting, finance, technology, strategy and analytics, and corporate development.

What do people get wrong about the reality of working in payments?
I'm often amazed at how much people underestimate the volume and complexity of transactions that our team deals with daily. Those outside of payments assume that our tasks are predictable and straightforward. Nothing could be further from the truth.

What has been your proudest moment in the role?
Standing on the court in Boston after we won the NBA Championship in 2022. To see our ownership, players, front office and coaching staff on stage receiving the Larry O'Brien Trophy gave me an appreciation of all the hard work the organization puts in behind the scenes to make those moments a reality.

And what was a mistake that taught you something useful?
Putting off a decision that I knew was the right one for fear of hurting someone's feelings. Ultimately, that does the company and the teammate a disservice.

What's the biggest question facing payments today?
How to ensure bad actors cannot wreak havoc on trusted systems as the industry's speed of innovation continues to accelerate.

What's the most important quality for being a leader in payments?
I'd say a three-way tie between patience, attention to detail, and asking questions.

And what's the trait that's least helpful?
At times, stepping in to help. If you solve the problem yourself, your team is not allowed to fail and learn, which is critical to long-term success.

You can have a fantasy power lunch with anyone in business. Who and why?
George Lucas. I have always appreciated how he managed to balance art and creativity with commerce and business.

What's the advice you wish you could give "past you" as you entered this field?
Don't be in a rush. Enjoy the journey and make sure you love what you do.

What's the cast-iron "work tip" you'd like to share with us?
Always be curious and unafraid to ask questions. Understanding how a process works is key to eventually demonstrating mastery of a role.

What's a secret that only people who do your job know?
How dramatically the scope and scale of the decisions you have to make can change from meeting to meeting.

Make a fearless prediction: How will payments be different in 10 years' time?
I think we'll be surprised by how much blockchain-based payments become the norm.

How do you relax?
I love to read, and I rotate between fiction and non-fiction. I'm currently reading *Tomorrow, and Tomorrow, and Tomorrow* by Gabrielle Zevin after re-reading *The Power Broker* by Robert Caro.

AI: Are you worried?
I am excited by the possibilities. The technology has the potential to make us all more productive and create more space and time for thought-provoking and strategic work.

46

J.P.Morgan x WIRED

PAYMENTS UNBOUND