

PAYMENTS UNBOUND

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GAME CHANGER

LIVE SPORT REWRITES ITS PLAYBOOK

WHAT'S NEXT?
VCS REVEAL THEIR
SEASON PREDICTIONS



HEALTHCARE FRAUD:
ARE BIOMETRICS THE
LAST LINE OF DEFENSE?





ACQUIRED

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WITH MARK ZUCKERBERG AND SPECIAL GUESTS

SAN FRANCISCO PRESENTED BY J.P.Morgan PAYMENTS

Check out Acquired Live from Chase Center featuring Mark Zuckerberg, Daniel Ek, Emily Chang and other surprise guests. This one-night only event, recorded in front of 6,000+ Acquired listeners and fans on September 10, 2024, was a celebration of technology and the community around it. Tune in for the newest season of Acquired, starting this fall.



Source: Ticketmaster

PAYMENTS UNBOUND

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The future of treasury is already here

FIRST WORD

Through our partnership with the Formula 1 Crypto.com Miami Grand Prix, J.P. Morgan Payments has witnessed the excitement of motor racing firsthand. And it's not just what you see on the track that's so remarkable. No less spectacular is the intricate coordination on display. Success in the sport hinges on diverse teams—engineers, technicians, analysts, pit crew, and drivers—working seamlessly together.

As new technology disrupts industries, companies are increasingly compelled to achieve that same level of internal cooperation. Many businesses have organizational silos without enough sharing of information between teams. As the pace of change accelerates, companies are finding they need to break down these barriers if they are to stay at the front of the pack.

Consider treasury. In thriving businesses, treasury teams are no longer just back-office functions. They partner with groups across their organization to drive the business forward. This includes working with different departments to develop unique go-to-market strategies, data-driven, direct-to-consumer models, and enhanced user experiences. Treasury teams also collaborate in key areas like ESG. Smart, invisible payments are supporting decarbonization initiatives such as green transport—something we explore further in this issue's feature on sustainability.

So how should treasurers adapt to this new paradigm? As the role of the treasurer evolves, new skills are becoming essential.

A tech-savvy treasury is crucial. Combining an effective accounts strategy with advanced tools, such as intelligent liquidity modeling and automated payments and collections, can propel business growth. Meanwhile, data analytics and machine learning can aid cash-flow forecasting, customer insights, and better visibility of supply-demand curves.

In addition to technical know-how, treasurers must also develop soft skills, learning to communicate more effectively with colleagues and clients, and translating technical, financial, or regulatory terms into everyday language. Business and finance functions need to work in lockstep, and understanding partners' concerns and challenges is vital for successful collaboration.

Finally, treasurers must cultivate a global outlook. Technology is connecting the world, but treasurers must be mindful of regional differences and ways of operating. For example, innovation in countries like India and Brazil is making real-time payments a reality, giving consumers and businesses access to same-day liquidity. Treasurers at global companies need to adapt to these trends while

maintaining a clear-eyed view of their markets' digital maturity, cultural landscapes, and strategic priorities.

In this issue, we explore how real-world treasurers are navigating these shifts. We also examine a number of broader sector trends, including how payments are transforming the fan experience in sports, helping health insurers fight fraud, bringing financial services to underserved populations, and enabling the green economy.

We hope you are inspired by the possibilities ahead. Enjoy the magazine.



By Lori Schwartz
Global Head of
Treasury Services,
J.P. Morgan

SOURCES: WWW.JPMORGAN.COM/PAYMENTSUNBOUND/SOURCES
ILLUSTRATION: ADI GILBERT

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Capital ideas

Five VCs share their payments intel

There's a reason futurists tend to befriend VCs. The world of tomorrow will be shaped by the startups of today—and leading investors understand their sectors inside out.

The payments sector has become white hot over the past ten years. Once a sparse corner of the startup scene, today there are thousands of payments companies, all vying to make payments faster, cheaper and more frictionless. A recent report estimated that paytech now constitutes 25 percent of all fintechs, and is valued at more than \$2 trillion.

So how to separate the signal from the noise and glimpse the path ahead? We asked five VCs for their insights...

Question 1: What's your hot startup of the moment?

Will Orde: "Atoa. This is a payments platform that enables merchants to take payments directly from their customers' accounts, rather than via a debit or credit card, which reduces costs. All the customer has to do is follow a link through a QR code."

Julia Andre: "Adfin. It's a UK startup that helps small businesses and sole traders get invoices paid more easily. Using the platform, they can automate every step of the invoice-to-cash process."

Jay Reinemann: "Conekta. There's a big opportunity to improve the payment systems in Mexico. Approximately 50 percent of Mexicans remain unbanked and ecommerce is plagued with fraud and chargebacks. Conekta helps online merchants in Mexico and Latin America accept payments securely."

Lauren Kolodny: "Nala. It enables people to send money into and out of Africa. Remittance flows into and out of the country have risen dramatically in the past 10 years, but most of those payments are expensive and slow. To send money efficiently, Nala has built their own payment rails."

William Bao Bean: "24Seven Apni Dukan, a commerce platform that connects and fully digitizes mom-and-pop stores in Pakistan. By ordering collectively, these stores can order supplies at wholesale prices and, using data from sales, receive trade financing. The app also gives stores a POS so customers can pay digitally. 24Seven will take a cut from the financing, as well as each payment."

Question 2: What payments trend is particularly exciting you right now?

Will Orde: "As fraudsters use AI to optimize their outreach messages, fraud is becoming an even bigger risk for merchants and banks, who foot the bill. Merchants and banks don't want to add extra friction to the process for customers with additional steps in a transaction, so they are embracing AI to identify the fraudulent ones in real time. It's an arms race, and this is creating a new market for AI-based fraud prevention tools."

MEET OUR EXPERT PANEL



Will Orde,
Partner at Passion
Capital

A prominent London VC, Passion Capital has a strong reputation for backing fintech stars, a number of which have since become unicorns.



Julia Andre,
Partner at Index
Ventures

Once dubbed "Europe's startup success factory" by WIRED, Index Ventures is highly active in fintech. Andre has a special interest in businesses that increase transaction efficiency.



Jay Reinemann,
Co-Founder at
Propel Ventures

Before he set up Propel Venture Partners in 2016, Reinemann had a career in banking and payments. Naturally, Propel's portfolio has a hard fintech skew.



Lauren Kolodny,
Co-Founder and
Managing Partner at
Acrew Capital

Acrew Capital believes that "we're still in the dawn of how modern technology can rewrite the world's financial system" and argues that "now is the time to build".



William Bao Bean,
Managing
General Partner
at Orbit Startups

Orbit Startups is a member of the famed SOSV Consortium. It invests in technology that can drive transformation in emerging markets, in particular fintech and paytech.

THE INSIDE TRACK

START



Julia Andre: “A large portion of B2B transactions are still quite archaic in the way they are conducted. The process normally involves sending the customer a paper invoice with your bank information, followed by a bank transfer. But there’s a growing demand among businesses to have consumer-grade, seamless, embedded workflows and the ability to pay, buy, bank, exchange, invest, and borrow in one place. This has created an opportunity.”

Jay Reinemann: “It’s hard to beat card payments—but open banking payments, which allow shoppers to directly pay from their bank through an account-to-account payment (A2A), are quicker, easier, and more secure. For businesses, open banking payments are also cheaper, and they don’t have to worry about a chargeback or fraud.”

Lauren Kolodny: “We are on the brink of a significant transformation in the paytech sector, propelled by the ability of large language models to clean, structure, and standardize formerly unused financial data. Long-sought-after advancements in paytech such as true payment automation, dynamic pricing and software-driven dispute management will be achievable.”

William Bao Bean: “In many developing countries you’ve got hundreds of thousands of people working online doing freelance work. But their biggest challenge is getting paid. If you’re in Africa, for instance, it can be hard to receive USD or GBP so people get paid in stablecoins, then turn it into their local currency so they can pay for food and rent. An increasing number of companies are tackling this problem by offering good stablecoin exchanges.”

“We are on the brink of a significant transformation in the paytech sector, propelled by large language models.”

LAUREN KOLODNY

Question 3: What’s the biggest misconception in payments today?

Will Orde: “That we’re dependent on the US for innovative paytech. We’re going to continue to see lots of innovation come out of the UK and Europe because there are good founders and a blanket regulatory system in Europe. We’re also going to see some interesting solutions come out of emerging markets; with less regulation, people can move quickly.”

Julia Andre: “There is a lot of focus on AI, and how that’s going to shape payment technology, and it’s easy to get lost in that. But don’t lose sight of something more straightforward: Most transactions are still done in an inefficient way; they’re expensive with a lot of manual back and forth, which means there are many opportunities to push new products that streamline how money flows.”

Jay Reinemann: “It’s very easy to underestimate the complexity of ensuring that paytech reaches a broad user base, including those in underserved, remote regions. Enabling accessibility presents more challenges than some imagine, such as infrastructure development, user education, integration with existing systems, security and regulatory compliance.”

Lauren Kolodny: “Apart from a handful of consumer P2P payments apps, few payments companies have figured out how to build real k-factor [a measure of virality] into their products. This is ironic because payments are the ultimate network effect. There is a massive (and, to date, missed) opportunity for the next generation of payments companies to get this right.”

William Bao Bean: “The biggest misconception is that the payment itself is the hot space. The hot space is actually not just processing payments, but also connecting merchants to customers in return for profit share. The most powerful way to do this is to directly integrate other services into your payment app.” **By WIRED**

COINAGE CORNER



As the pace of change quickens, the jargon arrives thicker and faster. Here are four terms to make you sound plugged-in

FLEXIBLE CREDENTIAL

Is it a debit card? A credit card? A rewards card? Yes—all three. This single card number can draw on different funding sources as you (or an AI) see fit.

FINANCIAL MEDIA NETWORK (FMN)

Retail media networks, where retailers let third parties advertise on their digital channels, are all the rage. The finance world has noticed and is leveraging its rich customer data to create ad networks of its own.

SMART CART

A shopping cart with computer vision and sensors that is effectively a self-checkout kiosk on wheels. A growing front in the war on queues.

ATOMIC SETTLEMENT

No, not a defense treaty. In fintech, this refers to a transaction on a distributed ledger [a database held and maintained by a network] in which every part completes instantly and simultaneously, reducing risk.

Latin America's new landscape

Latin America is not a homogeneous block. It is a tapestry of different political environments, economies and cultures, all with their own nuances. This has created a diverse payments landscape. For example, “buy now, pay later” (BNPL) is popular in Argentina, account-to-account transfers lead the way in Brazil, Colombians are increasingly adopting digital wallets, and debit cards are on the rise in Chile.

Still, there are some major trends impacting the whole region. One of the most important is the expansion of instant payments schemes, giving millions of consumers access to fast, low-cost money transfers. Another is a rapid expansion in mobile payments, which has caused a boom in ecommerce. Smartphones now account for two-thirds of online retail transactions in the region. Finally, a LATAM-wide wave of regulatory reforms has helped spur the development of fintech sectors. Mexico, Brazil, and Chile have all taken significant steps to adapt their regulatory frameworks to embrace the digital financial era.

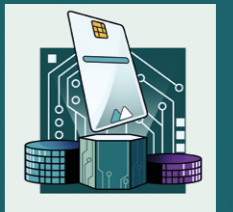
As macro trends meet local contexts, key shifts are emerging to which businesses and professionals need to adapt.



Alejandro Pereyra, LATAM Head of Financial Institutions at J.P. Morgan Payments



Harvey Colli, LATAM Head of Corporate and Ecommerce Sales at J.P. Morgan Payments



4 CHILE

LEADING THE WAY IN DEBIT CARDS

Debit cards now account for 81 percent of payments in Chile, the highest in the region. This is thanks to an ever increasing penetration of CuentaRUT, a “universal” debit card from BancoEstado, Chile’s public bank, that anyone with an identity card can apply for online, regardless of income or balance. Approximately 70 percent of the population are cardholders, and it is a major reason why tap-to-pay has notably high penetration rates in the country. This shift happens against the backdrop of non-cash payments overtaking cash for the first time as the dominant way to pay in the LATAM region, according to new research from McKinsey.



5 ARGENTINA

INFLATION WORRIES SPURRING BNPL GROWTH

Argentina has been innovative in digital payments (it is home to one of the leading payments providers in LATAM, Mercado Pago), and is seeing rapid growth in BNPL, a sector expected to increase at a compound annual growth rate of 27.8 percent until 2029. In Argentina, installment payments protect against high inflation. In 2023, inflation was 211 percent, so paying for goods in interest-free installments locked in a lower price. Argentina’s new government has committed to dollarizing the economy, which could bring down inflation, but BNPL will likely stay, as even if inflation is reduced, it is expected to remain high by international standards.



1 MEXICO

EMERGING AS A MAJOR FINTECH HUB

In 2023, there were more than 770 fintech startups in Mexico representing growth of 18.9 percent year-on-year. If this steep curve continues, Mexico could soon challenge Brazil as the leading regional fintech hub. One key reason for Mexico’s success is its geographic location, near to Texas and California, which has made it a go-to for fintechs that want to be close to these key US innovation centers and their high concentrations of ideas, expertise, and venture capital. At the same time, Mexico remains closely tied culturally to Latin America, which makes it a popular gateway for new companies targeting the LATAM market.



2 COLOMBIA

DIGITAL WALLETS SURGING

Adoption of digital wallets in Colombia has surged from 27 million active users in 2021 to around 55 million in 2023. This rapid expansion has been driven by economic growth, widespread smartphone ownership and Colombia’s historically large unbanked population. Popular mobile wallets allow people to easily set up online accounts via their phone and then start making free digital payments. Given users never have to visit a bricks-and-mortar site, it is an effective and popular solution for those previously without bank accounts.



3 BRAZIL

REAL-TIME PAYMENTS BOOSTING FINANCIAL INCLUSION

Brazil is making rapid progress in financial inclusion. Today, 84 percent of Brazilians have a bank account, compared to 70 percent in 2017—that’s an extra 30 million people. For comparison, the average banking rate around the world is 76 percent. An important reason for Brazil’s transformation has been the success of Pix, which enables free, real-time, account-to-account transactions between consumers, businesses, and government. The system now eclipses credit and debit cards, processing 8.1 billion transactions in Q1 2023 alone, incentivizing the adoption of bank accounts.

SOURCES: WWW.JPMORGAN.COM/PAYMENTS/BOUND/SOURCES
ILLUSTRATION: JOE WALDRON

Would a cashless society be a better one?

It's no secret that the use of physical cash is declining rapidly. In countries like the United Kingdom, cards have long since taken over as the dominant payment method, and the pandemic only accelerated the trend. As physical cards, digital wallets and payments apps come to account for ever more of our transactions, some believe we will one day live in a cashless society. Indeed, Sweden is nearly—for all intents and purposes—a digitized economy. It's not a stretch to imagine that others will follow suit, but what would the implications be, and is this the future we want? We asked two experts to weigh in on either side of the debate.

There would be significant downsides...



Lydia Prieg,
Head of Economics,
New Economics
Foundation, a
British think-tank
that promotes
“social, economic
and environmental
justice.”

“I love not having to go to a cash-point machine, but a cashless society would exclude too many people if you were to implement it now. That includes some elderly who may be averse to or struggle with digital technology, and also rural communities who suffer from poor internet and cellular service. A surprising number of people are also unbanked—they do not use traditional financial services—because of a variety of reasons such as having no fixed address,

not trusting the banking system, or not having sufficient funds to meet minimum requirements. So, they need access to physical cash instead.

Only in the future, when essentially everyone is digitally literate and there are no internet blackspots, do I think we should even consider a cashless society.

But I fear it still creates greater privacy and security challenges. One reason people favor a cashless society is because [digital] transactions can be tracked and recorded. People don't want anyone, including the government, being able to monitor their transaction data, and the institutions entrusted to guard this data are vulnerable to being hacked. Plus, cash isn't vulnerable to mass IT failures, which in theory can take down digital payments systems.

On a more personal level, think about the person who is the victim of an abusive relationship. With the absence of cash, they might not be able to buy anything without their partner knowing. Cash also helps people to keep track of spending, which is vital for some low-income households; it's too easy to overspend when you're not looking at a finite, physical sum of money.

Still, I would be surprised if we didn't have a cashless society in the next 50 years. If that becomes the case, then it's crucial that we ensure that the necessary safeguards are in place.”

...But if these can be mitigated, there are major advantages



Mehul Desai,
Author of *August of Money: The Quest for Cashless Society*; Expert-in-Residence at the Polsky Center for Entrepreneurship and Innovation at the University of Chicago.

“The beauty of cashless payments is that they are convenient and becoming ubiquitous.

You don't have to carry lots of coins or notes if you want to buy something expensive. And while cash is easily misplaced, you're usually protected if your bank card is lost or stolen.

There's also an electronic record of every transaction. This is useful for consumers, because they can easily monitor their spending. For businesses it brings traceability and transparency, as they can track all their

incomings and outgoings, and minimize the risk of not being paid on time or at all. On a macro scale, it can help governments in their efforts on financial inclusion and the fight against poverty. Each year, trillions of dollars are in effect stolen from developing nations through corruption and tax evasion. But if you could follow the money, as you could do in a cashless environment, it would enable money to be more efficiently recouped and reinvested into these countries.

My long-term vision of a cashless society is one that leverages a digital currency issued by a central bank, like a state-backed utility, rather than by a private provider. At the same time, we need government to establish safeguards and provisions to protect the vulnerable and help them participate in this system in a way that meets their needs. The priority should not be to eliminate cash entirely, but to instead promote cashless transactions and to develop a robust and scalable infrastructure to support it.

And I think we must embrace this reality now. There's a growing appetite for a cashless society. If a digital currency organically becomes adopted at scale, driven by a rogue agenda and without due checks and balances in place, that leaves us vulnerable. Let's get ahead of this and do it right.”

By WIRED

Black Friday: the global shopping frenzy

In the 1980s, a new term caught on in US retail: “Black Friday”. Falling the day after Thanksgiving (always the last Thursday of November), it's the start of the holiday shopping season.

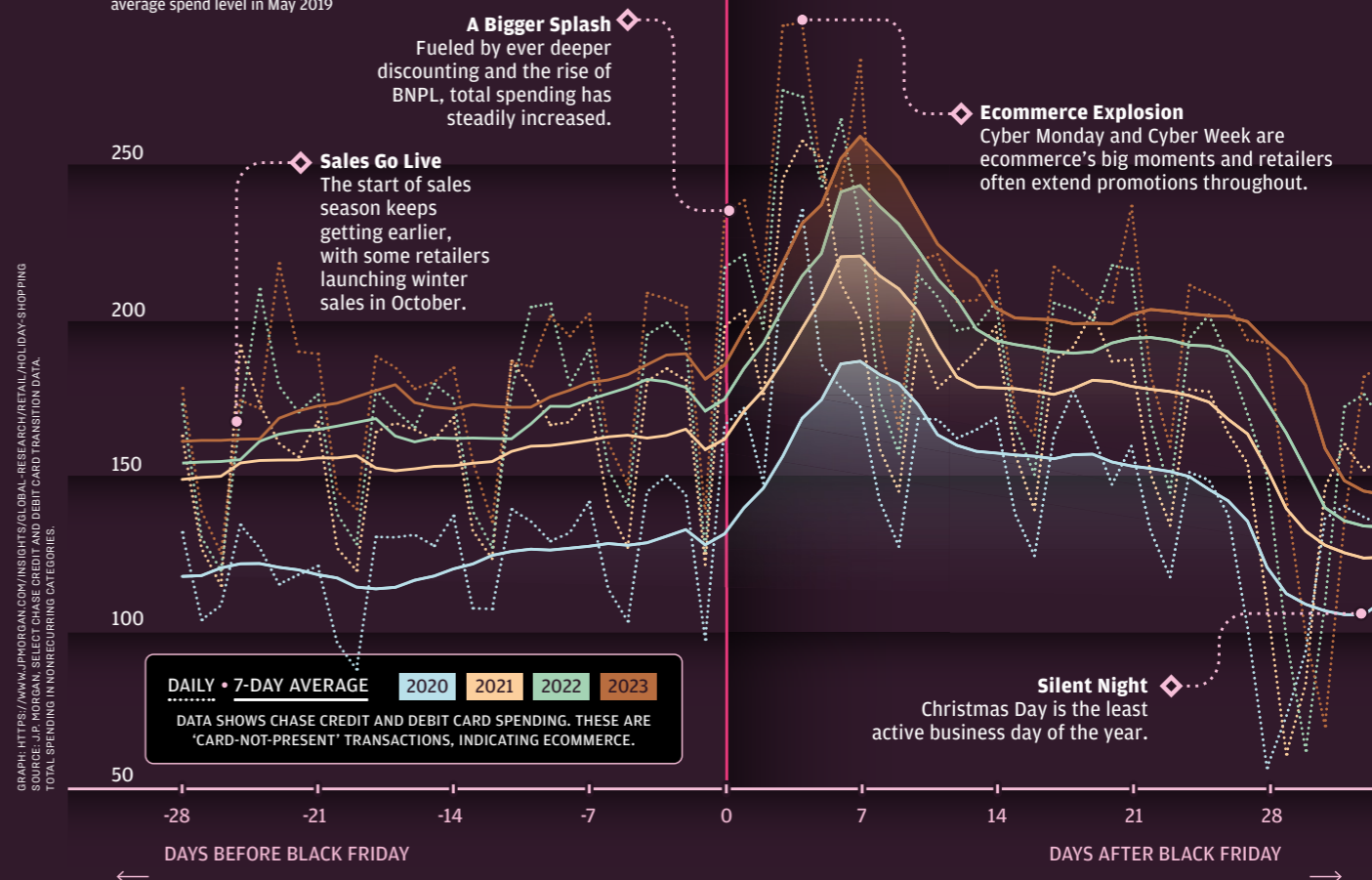
The etymology is uncertain, but one thing is not in doubt: Black Friday has since transformed into a global phenomenon.

As the internet took US retailers into new markets, Black Friday followed. Today, Black Friday is less about in-person “doorbuster” sales, as online sales account for an ever-increasing share of profits. It has also outgrown its 24-hour confines. It is now part of a wider shopping frenzy known as Cyber Week, with Cyber Monday—on the other side of the weekend—

being ecommerce's biggest moment. In 2023, the day broke records with \$12.4 billion in digital sales, compared to Black Friday's \$9.8 billion¹. Leveraging J.P. Morgan Payments Customer Insights capabilities and select Chase credit and debit card transaction data, we dissect the whole period's ecommerce activity for the last 4 years.

BEFORE BLACK FRIDAY

INDEX, MAY 2019=100
Data relative to a baseline of the average spend level in May 2019



ON FRIDAY WE WEAR BLACK

Clothing is a leading Black Friday category. Here's how it breaks down, across digital and physical retail...

<p>AVERAGE BASKET VALUE AT CLOTHING RETAILERS</p> <p>Cyber Monday 7% higher than rest of the year</p> <p>Black Friday 1% higher than rest of the year</p>	<p>IN-STORE VS ONLINE CLOTHING SALES</p> <p>Top 10 days for US clothing sales</p> <p>68% in-store</p> <p>Cyber Monday 75% online</p>	<p>WHEN DO PEOPLE BUY CLOTHES IN-STORE?</p> <p>Black Friday 2023</p> <p>35%</p> <p>13.5%</p> <p>Year-round average</p> <p>Proportion of clothes purchases between 6am and 12pm</p>	<p>CLOTHING'S BLACK FRIDAY BOOST²</p> <p>100%</p> <p>up in 2022 and 2023 compared to the next highest day of the year</p>
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DATA SOURCED FROM J.P. MORGAN PAYMENT PROCESSING DATA

¹ <https://news.adobe.com/news/news-details/2023/media-alert-adobe-cyber-monday-surges-to-12-4-billion-in-online-spending-breaking-e-commerce-record>
² Clothing definitions: Merchants Category codes (MCC) including, Men's and Boys' Clothing and Accessories Stores (5611), Women's Ready-To-Wear Stores (5621), Women's Accessory and Specialty Shops (5631), Children's and Infants' Wear Stores(5641), Family Clothing Stores, Men's and Women's Clothing Stores (5651), Miscellaneous Apparel and Accessory Shops (5699)

Treasury breaks free

Treasurers can no longer operate in silos. Here's how to navigate the shift

COMMUNITIES

The information age has shown the power of convergence—not just for technologies but for teams. Businesses have learned that when they break down boundaries within their organizations, they are not only better placed to adapt to digital disruption, but can drive innovation themselves.

Yet within even the most integrated companies, certain teams are so specialized they have often been left in their silos. Treasury is one—but now, that's changing. Treasurers are increasingly compelled to ensure they don't sit in isolation, and identifying opportunities to integrate treasury closely and comprehensively with other facets of the business is becoming essential.

We spoke to treasury leaders who are placing collaboration at the heart of their work about how to do it successfully.

Be a co-pilot for all areas of the business—not just the obvious ones



Felipe Santana Santiago de Lima, Global Treasurer, Embraer. Embraer is a global leader in the aerospace industry

Treasury can—and should—be a partner to all areas of a company. We work closely with many different teams. One is procurement, where we are providing tailor-made support, including inventory financing and export credit support to suppliers, as well as payments solutions to access different currencies or payment types. We also frequently work with sales by providing them with financial solutions that can make our products more financially viable for the customers.

In the future, alongside our usual “hard” skills, which now have to include AI skills, treasurers will also need a bank of “soft” skills. Treasurers need to be able to talk with each internal business area, so we can understand their specific goals and how we can support and work with them.

Become a deft storyteller



Mandeep Rathod, Global Assistant Treasurer, Invesco. Invesco is a global investment management firm

Storytelling with numbers is such a skill—and it can take years to master. If you get it right, it's easier to bring stakeholders into the vision of what treasury and the wider business is trying to achieve.

For example, at Invesco we are constantly deepening our relationship with finance, especially with financial planning and analysis (FP&A). The more we all understand “where's the business headed, from a revenue perspective and an expense perspective?”, the more accurately we can forecast our cash.

With “good” forecast data, we're explaining what that data means month-on-month, quarter-on-quarter, from an actual cash perspective. Treasury can explain to business functions that these are not just numbers on an Excel spreadsheet—this is actual cash, which has real implications for all of us. We can then encourage that stakeholder mindset of, “Treat it as your own money”, and with that mindset we all feel more engaged in what we do.

SOURCES: WWW.JPMORGAN.COM/PAYMENTS/BOUND/SOURCES
ILLUSTRATION: SELMA HOSGOR

Build emotional intelligence to get buy-in



Matt Cornwall, Global Process Owner and EMEA Head of Treasury Operations, Chubb. Global insurance company Chubb has operations in 54 countries and territories

A large element of my role is ensuring other business functions and external stakeholders understand the “why” when treasury implements changes—such as enhancing the financial control framework—and the benefits it will bring.

In practice, this means being able to lobby, negotiate, and ensure expectations are met. It also requires communicating the business's global requirements to get buy-in from local teams, and vice versa—understanding local needs and nuances and parlaying them into our global agenda.

To be successful in the role therefore requires building emotional intelligence. In such a complex landscape for treasury, the ability to foster strong relationships with people to facilitate the work that you're doing is vital. Treasurers cannot be siloed any more. Half of my role is now based on relationship-building and building a good network of stakeholders that understand the broader context and the benefits of our strategy.

WHAT'S NEXT?

Increased collaboration is the treasury trend of the moment, but what other shifts can we expect? We asked two treasurers to make predictions for 2030

Prediction #1:

Treasurers will need to be technologists



Adeline Chua, APAC Treasury Manager, Kimberly-Clark Asia Pacific. Kimberly-Clark is a multinational manufacturer of consumer goods and personal care products

Post-2030, treasury will be more data-driven, technology-centric and strategically focused.

We will increasingly leverage AI and machine learning tools to automate repetitive processes and improve cash flow forecasting. We will also be able to rely on advanced data analytics, resulting in more precise and informed decision-making.

Therefore, it will be critical in the future for treasurers to have the technological proficiency to be able to operate emerging technologies.

In addition, with growing digitalization, cybersecurity threats will become more prevalent and so treasurers will need expertise in managing these risks to protect financial transactions and sensitive data.

Prediction #2:

Serious talent will be drawn to the profession



Charlene Tan, APAC Regional Treasurer, Archroma, a global specialty chemicals company

Treasury historically had a reputation for being a somewhat staid, back-office function. That simply isn't the case anymore.

We're now highly visible, having evolved into a trusted partner that proactively supports the business, optimizing cash resources to meet operational and strategic needs, while safeguarding the company's financial stability. This involves collaborating with finance, IT, procurement, supply chain, investors and rating agencies to hone our processes and boost our company's external profile.

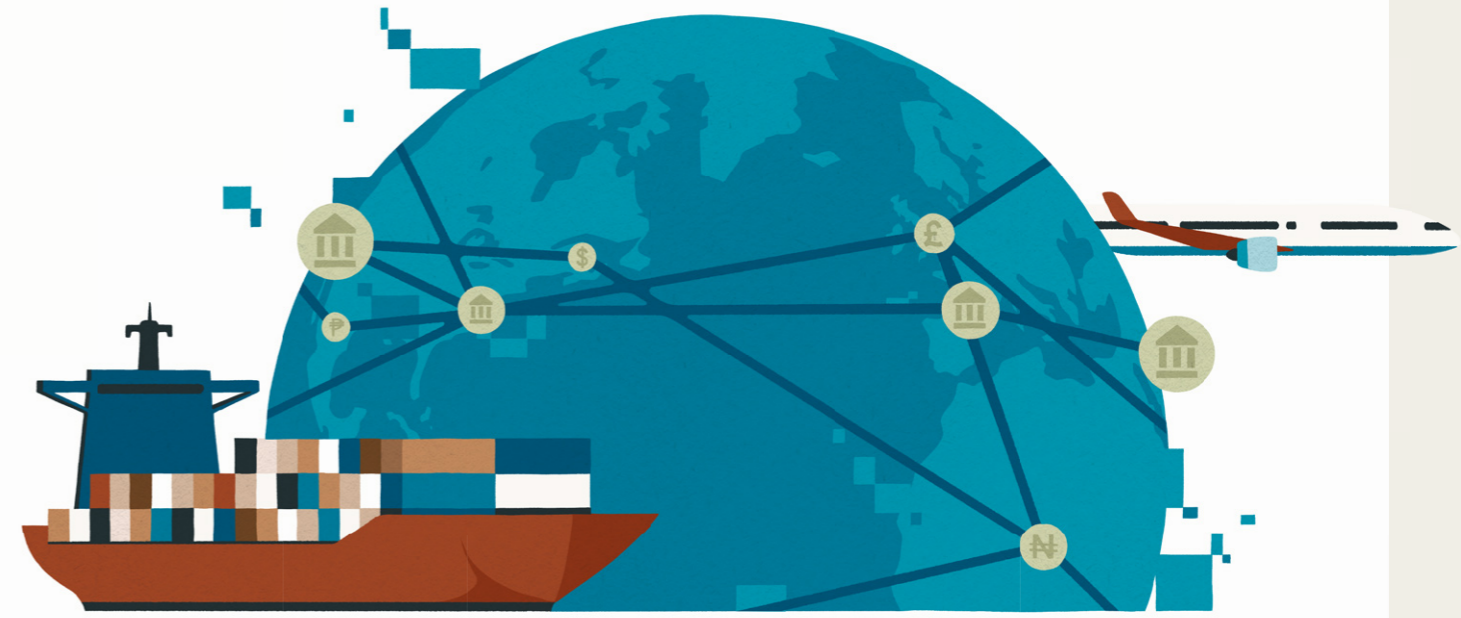
The most relevant, exciting treasurers I encounter are engaging with emerging tech and ever-changing regulations. They're dynamic, willing to be visible and engage with new people and ideas. They're leading by example.

This will influence who is drawn to the profession: I predict that, in the coming years, we'll see some serious talent join our ranks as we head to 2030.

VISUAL TIMELINE

From merchant ships to microchips

Back at the dawn of recorded history, when merchants began making their first forays into far-off markets, they needed working capital to fund their trading activities. This gave rise to trade finance, a catch-all term describing financial strategies that aim to help international commerce thrive. As civilization advanced, global trade and its financing co-evolved, with progress in one fueling developments in the other. Here's how.



Roman banking system develops

The Roman Empire established a robust legal framework, including contract regulations and rules around debt recovery, within which both trade and finance could flourish. Letters of credit were used to guarantee payment for goods shipped over long distances, contributing to extensive trade networks that spanned the Empire.

Establishment of the Bank of England in London

London became the heart of the trade finance world, and bills of exchange (a written unconditional agreement to pay a specified sum in the future) issued there supported transactions globally.

Open account trading and international trade cooperation

The use of traditional risk mitigation instruments, such as letters of credit, began to decline in favor of trade on open account terms, where goods are delivered before payment is made. Spurred by multi-national pacts such as the Southern Common Market Agreement and the North American Free Trade Agreement, alongside the emergence of major trading hubs in Singapore and Hong Kong, the rise of globalization in the 1980s and 1990s resulted in a surge of open account trading.

Digitization of traditional trade instruments

In 2017, the United Nations Model Law on Electronic Transferable Records (MLETR) was established. The UK and others then passed their own laws to legalize electronic bills of exchange and bills of lading (the latter being documents issued by carriers to acknowledge receipt of goods).

c.3000 BCE c.300 – 300 CE

1694

1760s

1821

1919

1944

1947

1980s–1990s

2000s

2017

Present

Future

Letters of credit and promissory notes emerge in Mesopotamia

First recorded on clay tablets, these formal promises to make a payment at a later date are the oldest known forms of trade finance. They were used then as they are today: To facilitate business activities and enhance trust.



Industrial Revolution

As the Industrial Revolution unfolded over the following 80 years, modern banking and credit models emerged, increasing the volume and velocity of global trade.

Export Credits Department

The first formal export credit agency was established in the UK post-WWI in response to economic disruptions, aiming to support national exporters and facilitate trade.

Gold Standard

In 1821, the UK tied the British pound to a specific quantity of gold, leading other economies to adopt this as a standard. This international gold-based monetary system provided stability to international trade and investment.

Bretton Woods Conference and Agreement

Established the rules for commercial relations between 44 countries. A new international monetary system was established, in which the USD was tied to gold and other currencies tied to USD, and the International Monetary Fund (IMF) and World Bank were born.

SOURCES: AS PER WIRED, SEP 2024
ILLUSTRATION: DAVID BORAN

The General Agreement on Tariffs and Trade (GATT)

The GATT was signed by 23 countries aiming to reduce tariffs and other barriers to promote international trade and economic recovery post-WWII.



Supply chain finance (SCF) emerges

Aided by digital technologies, SCF allows buyers to extend payment terms while offering suppliers early payment on their invoices.

The machine learning era gathers pace

A multitude of AI innovations have recently emerged, such as optical character recognition for better document processing and checking, as well as generative AI tools for improving credit underwriting, particularly for smaller businesses. These make global trade more seamless.

Programmable payments

Smart contracts, based on blockchain, may simplify operations, including the issuance of letters of credit, management of supply chains, record keeping and document verification.

What if your phone knew your entire purchase history?

A platform that tied together people and their purchases could improve everything from recalls to fraud prevention. But there's one big question: who could actually make it happen?

Payments have evolved radically since currency first emerged around 4,000 years ago, but they are still just a single moment in time. Most people enter a store or shop online, make a purchase, then go their own way. Afterwards, there is essentially no ongoing connection related to the purchase.

Over the years, this dynamic has been enhanced in some ways. Your credit card statement shows where you shopped and how much you spent, and the store's records indicate your name and card data. Plus, there are countless bespoke loyalty schemes that build a post-purchase, brand-centered rewards structure. But the store couldn't get in touch with you based on the payment transaction alone, and if you wanted to know what items you bought, you'd have to refer to your receipt, assuming you kept it.

In other words, despite the wealth of advances that have come with the information age—wireless internet, AI—the system is much as it was. “Since time immemorial, we’ve been able to barter by simply taking out our drachma or our pound and giving it to the guy on the other end. I could get my pig or my cow and go on with my day. Sadly, that pretty well summarizes what we’ve got going on up to present day,” says Peter Lugli, a payments veteran who has worked at major credit card and tech companies, and is now Principal at payments consultancy Digital Pylon.

It's hard to envision how this can be changed, though some experts believe it's not only feasible, but could create a whole new source of value for businesses.

Imagine a world where every card transaction included data about the specific items you purchased down to the “stock-keeping unit” (SKU) product information that retailers hold. It might also include details about provenance: Where and when was it made? Who was involved in its production or distribution? Such a set-up would join the dots between manufacturer, retailer, consumer, and product, allowing payments companies to facilitate ongoing post-purchase interactions between these parties. All within the bounds of consumer-determined permissions and consent, of course.

This would unlock a number of use cases.

Consider product recalls. If you had bought a pack of biscuits from a flawed batch—perhaps they contained nuts when they weren't meant to—the retailer or even the manufacturer could send you a push notification informing you and automating a refund. This could be potentially less costly than having to recall

REALITY CHECK

every unit of that product sold nationwide; it would be a more effective way of notifying you than a media announcement; and it would make it more likely you would get your money back. Perhaps the retailer could make the best of a bad situation by also offering you a coupon on a future purchase, rebuilding the customer relationship.

Other applications could include more frictionless reward schemes. Currently, customers have to do something additional to ensure they get points on their purchases, such as scanning a loyalty card or typing in their membership number. This is a friction that would be removed with a platform that enabled businesses to track what their customers had purchased.

And think of the new kinds of customer experiences that those businesses could then offer post-purchase. Perhaps they could make AI-driven suggestions, such as how to cook that beef tenderloin you bought at the market, and what it pairs well with from all your wine purchases historically.

To Bob Solomon, Founder of Software Platform Consulting, who has worked with credit card networks and food industry supply chains, there is one particular benefit that should especially appeal to the payments industry: fighting fraud. Many transactions on bank statements appear as a jumble of letters and a price, so it's hard to determine what's been purchased. That makes it “impossible to tell whether it's fraud or not,” he says. “That's sort of extraordinary in this day and age.” Imagine if instead you received an itemized notification on your phone every time a transaction went through your bank account. If consumers could proactively flag and cancel fraudulent pending transactions, this could be a boon to merchants and card companies. And if those credit card companies had a more granular picture of a customer's spending, they may be better placed to identify fraud using AI in the first place.

But is it realistic to think that any of this could actually happen?

Erin McCune, an Expert Partner in Payments and Fintech at Bain & Co., says that the idea in principle is not impossible. She notes that analogous systems to this already exist in B2B supply chains. “Some of the best use cases I've seen for B2B supply-chain blockchain are to trace the provenance of food,” she says. “This is where they're tracking all the way from the field through to the bag of greens that the grocery store is selling.”

However, McCune thinks that extending this idea forward

“Just as phones are now about much more than calls, the payment event could be more than just the exchange of money for a good or service.”



from the grocery store to the customer's fridge—taking it from B2B to B2C—might be a harder sell. The core reason is that merchants, she says, will be wary of opening up detailed SKU-level data to third parties like payment networks or card companies. “What the consumer is actually buying is the Holy Grail. The merchants don't want other merchants to know.”

Whoever would implement such a system would therefore need enough leverage to persuade merchants to share that precious data. They would need to be sufficiently influential within payments such that they had the clout to persuade merchants to participate—and whose platform merchants would rather be part of than not. That player would also need an iron-strong reputation for security and privacy, otherwise consumers and businesses would be reluctant to opt in.

Lugli has a hypothetical candidate: a major smartphone manufacturer that offers a digital wallet. By 2027, digital wallets are forecast to account for 49 percent of all ecommerce and

in-store transactions. And since the tech giants that operate them are not traditional payments players, they may have greater appetite—and innovation budgets—for paradigm-shifting ideas. Perhaps such a tech company could function as the prime mover to encourage the kind of multi-party collaboration necessary for getting this kind of system up and running—not only persuading merchants to approve the use of SKU and provenance data, but convincing payment processors to include it in transaction records, and card providers to capture and track it.

It would be a profound shift for the industry. But it could be a significant opportunity. “Just as phones are now about much more than calls, the payment event could be something more than just the exchange of money for a good or service,” says Lugli. “It could unleash, as the smartphone did, a massive new value ecosystem as a result. It could be the beginning of whole new relationships.” **By WIRED**

Banking the unbanked

Fintech innovations are driving financial inclusion

SPOTLIGHT

Some 1.4 billion people globally are currently unbanked. This has a serious impact on economic development: Without access to a bank account, individuals are prevented from being able to safely save money, earn interest, accept and send digital payments, and access credit. There are societal consequences, too. Unbanked people are vulnerable to exploitation, less likely to be homeowners, and experience low social mobility.

Fixing the problem has become an urgent priority. The United Nations (UN) names financial inclusion as a key enabler for many of its Sustainable Development Goals for 2030.

Christine Tan, Head of Financial Institutions Group, APAC J.P. Morgan Payments, is a leader on the bank's financial inclusion work. Tan notes that key banking access pain points include "accessibility to banking infrastructure—both physical and digital, high costs and fees, financial literacy, and limited access to identification documents." Many of these are long-term, systemic issues, and so "building trust and security in the formal banking systems both for individuals and wider communities who have previously been denied these services is crucial," she says.

Here are three efforts that show how payments innovation is helping overcome these challenges.

UNITED ARAB EMIRATES

Al Fardan Exchange: Supporting migrant workers

The UAE is a hub for migrant workers, who make up around 80 percent of the total workforce. A large proportion work in areas like construction or domestic services.

A key problem they face is that many local banks will not accept people earning below a certain threshold, around \$1,400. This leaves low-income workers unable to formally save, access credit, or send money abroad.

Al Fardan Group is one of the leading family-owned conglomerates in the Middle East. The UAE-based financial services arm Al Fardan Exchange was launched in 1971, as the region witnessed a rapid influx of expatriates and overseas businesses, to address the access-to-banking problem. Exchange houses like theirs allow people without access to the formal banking system to transfer money abroad. "The genesis of the business was based on a genuine need," CEO Hasan Al Fardan says. "It was to enable foreign residents who had migrated to the UAE for work to have legitimate and safe ways to send money home to their loved ones."

Often, low-income workers can have little in the way of savings, so an unexpected bill can leave them in financial difficulty.



SOURCES: WWW.JPMORGAN.COM/PAYMENTSOUND/SOURCES
ILLUSTRATION: ANDREW NYE

To further drive financial inclusion, today Al Fardan is leading a digital transformation effort with online services. In the UAE, the majority of remittances from low-income workers are still transacted in cash through physical locations, impacting financial inclusion. "Now, we're one of the largest players within our market in terms of digital trading volumes," he says. This means users don't have to visit branches, which can be difficult if they are in isolated areas, or if they are working shift patterns and can't get to a location during opening hours.

The company is adding additional services. This includes the ability to borrow against earned wages in the middle of a pay cycle. Often, low-income workers will have little in the way of savings, so an unexpected bill or expense can leave them in financial difficulties. Being able to access their wages ahead of time can be helpful, preventing them from turning to predatory money lenders.

Al Fardan Exchange is also investigating voice-enabled smartphone transactions, "so the customer can dictate, by voice, which transaction they want to carry out, so they don't need to be able to read or write." This can help make financial services more accessible, as many workers may struggle with literacy, especially when it is not their native language.

BANGLADESH

BRAC Bank: Addressing the economic needs of the unbanked and underbanked

Established in Bangladesh in 1972, BRAC is an international development organization that focuses on helping communities suffering from poverty and inequality. It is currently the largest non-government organization (NGO) in the world. In 2001, BRAC's founder Sir Fazle Hasan Abed launched a banking arm with the goal of aiding fair, rapid and ambitious economic growth in Bangladesh. BRAC Bank is now the largest collateral-free financier of small-to-medium sized enterprises (SME) in the country.

Bangladesh is set to graduate into an upper-middle-income country by 2031, and emerge as a developed country by 2041. As it does so, "new technology will shape the financial landscape in

Bangladesh will become an upper-middle-income country by 2031, and a developed one by 2041.

Bangladesh, absorbing millions of unbanked people into the formal banking system," says CEO Selim R. F. Hussain.

BRAC Bank wants to drive this shift. One priority is supporting people living in remote locations without access to banks or their

own digital devices. BRAC Bank's "Agent App" banking service sees approved BRAC agents visit individual customers to provide real-time digital banking transactions at their doorstep. The transactions are secured by two-factor authentication, with both the customer's and the agent's thumbprints used to validate the transaction via a biometric device.

The bank is also rolling out faster, simplified loan disbursement to SMEs and individuals, to provide greater access to finance in marginal areas of the country. These digital loans can be applied for via mobile and without traveling to bank branches or filling out physical paperwork.

"We have proved that SMEs can flourish when given support within the formal economy," says Hussain. "The banks that invest in financial inclusion now will reap a harvest later."

INDONESIA

PT Bank Rakyat Indonesia (BRI): Bringing microlending to island communities

World Bank data reveals Indonesia has the fourth largest unbanked population in the world, at around 98 million adults. This is equivalent to 48 percent of the country's adult population. One of the key reasons for this is the country's unique geography, comprising over 17,000 islands, with most citizens living in small villages.

BRI is one of the largest banks in Indonesia and has been in business for more than 128 years. President Director of BRI, Sunarso, says the bank's current inclusion work is focused on "penetrating financial products and services in the micro and ultra-micro segments." Microlending—allowing those who lack collateral or conventional credit records to borrow small sums at low interest—can be a lifeline for new or small businesses, or people beginning their journey into using regulated banking and lending.

Microlending allows those who lack collateral or conventional credit records to borrow small sums at low interest.

BRI's microlending initiative, Holding Ultra Micro, facilitates access to financing for micro, small, and medium-sized enterprises (MSMEs). MSMEs make up 61 percent of Indonesia's GDP. Three years after its launch, Holding Ultra Micro has

provided 36.1 million new customers with financing, savings and insurance products.

It also runs education initiatives: 1,000 villages have participated in the "Brilliant Village" program. This provides training on entrepreneurship, sustainability, innovation, and communication, and also connects standout village startups with national incubator schemes.

With the national economic structure dominated by MSMEs, many of which are run by women, providing low-cost loans to these players "creates a high multiplier effect," Sunarso says. "It will have a significant positive impact on the Indonesian economy and on women who have long been underserved by the banking community."

Biometrics could be the cure for health insurance fraud

The complexities of healthcare payments make them vulnerable to criminals. New forms of biometrics could provide an answer

IDEAS BANK

If data is the new gold, then medical data is the 24-karat version. At least, that is certainly what the hackers think. A single stolen electronic health record (EHR), which includes the patient's complete medical history and social security number, can fetch hundreds of dollars on the black market, more than even a credit card number. Stolen EHRs can be used to swindle health insurance companies and receive reimbursement for procedures that never happened.

It is estimated that fraud costs health insurers between five and 10 percent of annual revenue. An area that shows promise in tackling this is biometric authentication. Biometrics verify the identity of an individual via unique physical characteristics, such as a fingerprint or iris, making it harder for bad actors to impersonate them. Precedence Research forecasts the global healthcare biometrics market will reach up to \$22 billion by 2030.

One scam involves fraudsters posing as healthcare providers and using stolen medical records to submit false claims to insurance companies. Darren Snoxell, Executive Director, Head of Insurance, EMEA at J.P. Morgan Payments, has heard stories of some insurers reporting entire fake hospital units that were set up just to commit fraud.

Linking biometrics to a patient's health insurance policy could be a solution. As Snoxell explains, "Whenever a claim or a payment is made against the policy, it would trigger an

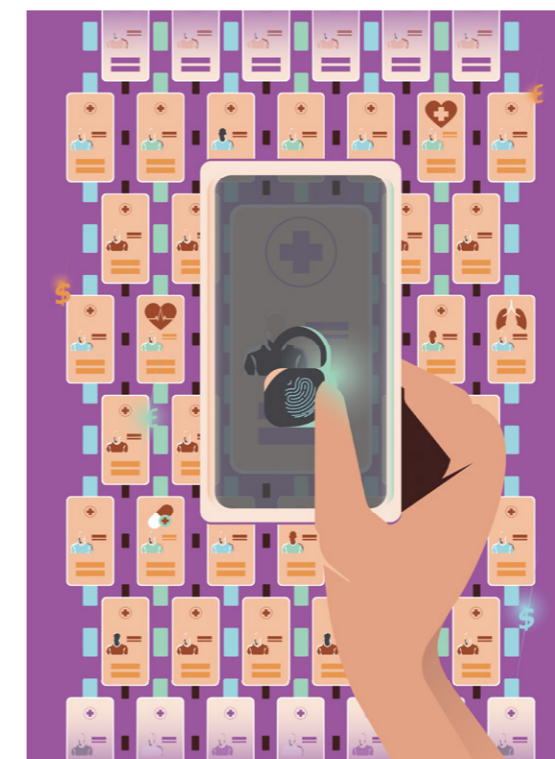
automatic biometric authentication with the patient to ensure everything being claimed is accurate." This authentication could entail a link sent to the patient via their email or device, prompting them to scan a fingerprint or other identifier.

There are other scams that biometrics could help crack. In several countries, patients pay for medical procedures or pharmaceuticals out-of-pocket and then make a claim to their health insurer and receive reimbursement. But fraudsters can make fake claims and receive the compensation themselves. France's health insurance system is currently developing a biometric version of its national insurance card, Carte Vitale, that authenticates the patient and links directly to their bank account, creating a far more secure path for reimbursements.

Despite the many potential use cases, biometric adoption in the health sector still remains relatively limited. Partly this is due to the complexity involved at large healthcare organizations. A large biometrics project "could require buy-in from IT, security, compliance, legal, as well as your tech platform group, to all be involved in order to drive a project from pilot to completion," says Noah Dermer, Head of Payment Security at J.P. Morgan Healthcare Payments, which provides payments and billings solutions for the health industry. In addition to the cost and complexity involved for organizations, for patients there is the annoyance of having to on-board and provide their biometric information.

For biometrics to scale across healthcare we might therefore need to see a wider shift in biometrics in general. Consider how consumers can use their email account to log into third-party apps—a cloud-based biometric identity service could let consumers set up a single biometric account for use across multiple different businesses, including those in the health sector. If a single biometrics provider was used widely enough, that would save time for patients who would no longer need to go through multiple on-boarding processes. It would also make deployment easier for businesses, as biometrics could be integrated as a service into their products. Of course, that biometric identity service would need to have a watertight reputation for security and reliability, if it were to enjoy the required network effects that enable mass adoption. Is it an opportunity for a payments company, perhaps?

By J.P. MORGAN



A new era of frictionless payments is about to dawn

There is a big change coming in the way we pay—and businesses stand to benefit

Taking a payment typically involves a credit or debit card—and a more convoluted process than most consumers realize. The business must obtain card details from the customer and pass them to the payment processor, which gives them to the card network, which sends messages back and forth between various entities before authorization, clearing, and—finally!—settlement can take place.

And in the middle of that, perhaps the customer also receives a code via a telco that they have to type in to prove that it was really them using the card in the first place.

That seems like an awful lot of work—and intermediaries, all taking a cut—to get money from the customer's bank to the business's. In an age when the internet has disintermediated countless industries, you have to wonder why things are still done that way.

Imagine you're a retailer. Wouldn't it be more cost-efficient for you—and more frictionless for your customer—if you could just say: "Hi, it looks like you're buying from us again—thanks for that—why don't you just let our bank take the money from your bank?" And if convenience isn't enough to persuade customers that's a good idea, perhaps you might sweeten the deal by saying: "Oh, and if you do that, we will give you triple points as a thank you"—paid for, of course, with some of that money you're saving.

Soon you will be able to, thanks to "Commercial Variable Recurring Payments" or CVRPs.

CVRPs will let merchants take payment directly from a customer's bank account, provided that the amounts are within the limits and frequencies defined by that individual. In the case of buying household goods from their favorite retailer, for instance, the retailer might be permitted to take a payment of up to \$1,000 no more than four times per month. All the customer has to do is verify their identity using a form of strong authentication, such as a passkey, and the funds are transferred automatically using the instant payment rails. The retailer gets their money quicker, there are fewer intermediaries taking a cut and, best of all, the customer does not have to do anything else to complete.

CVRPs are a major innovation to emerge from open banking, a wider movement that mandates financial institutions to open their data to third parties. We've seen the launch of one form of VRP already: "sweeping" VRPs, which enable individuals to automate payments between their own bank accounts. CVRPs take this out into the world of commerce—effectively a real-time, customizable version of a direct debit. Because CVRPs make account-to-account (A2A) payments so much more frictionless, they are forecast to cause a

In the future, CVRPs could reimagine B2B payments... You might imagine that a whole new class of "supplier-initiated payments" could emerge.

surge in A2A transaction volumes.

Businesses have good reason to get excited. Not only are CVRPs a fast and cost-efficient payment method, but they are also less likely to fail: Card transactions are more susceptible to processing errors, and card details held on file can expire.

CVRPs can also help to obviate the security risks associated with traditional means of payment. CVRPs don't require businesses to store card or bank account details, so if an organization suffers a data breach, there is no sensitive financial information to lose. What's more, CVRPs must be initially set up using strong authentication, which isn't true for direct debits or for all card transactions. At a time when fraud is a significant and growing problem for businesses, that is a boon.

In the future, CVRPs could also reimagine B2B payments. If a supplier is regularly invoicing for providing goods or services, a CVRP could enable this payment to happen automatically. You might imagine that a whole new class of "supplier-initiated payments" could emerge, where trusted suppliers are permitted to circumvent the lengthy, error-vulnerable and admin-intensive invoice payment process by simply triggering the payment process themselves.

These virtues are relevant to all organizations, but CVRPs offer a specific benefit when it comes to subscription services: As consumers can audit and cancel CVRPs all in one place—their banking app—they offer an extra degree of control that may increase the number of subscriptions consumers are willing to sign up for.

The UK—with its expanding open banking ecosystem—is in the vanguard, with CVRP services on the way, and ready to be embedded into a wider range of customer journeys including utilities, subscription services, retail and financial services. Phase one rollout of commercial CVRPs is expected in the latter half of this year, although some commentators have suggested that this may be delayed until early 2025. UK payment providers report that they expected over half of their payment flows to convert to open banking-based payments in the next three years.

So, what has to happen to realize the benefits? Consumers will need to be educated to ensure they not only understand the advantages of this as-yet-unfamiliar payment method, but are also willing to trust CVRPs. Given that businesses do not get

access to any sensitive data other than the name of the consumer, this should be achievable. Perhaps more complex will be incentivizing banks to invest to deliver CVRPs to their customers, and incentivizing merchants to accept CVRPs, with a commercial model that works for all parties. But when the agreements come together, the impact will be

significant. In Brazil, CVRPs in the form of the upcoming "Pix Automatic" is expected to reduce companies' operating costs and collections costs by up to 50 percent, giving them more resources to invest and stimulating economic growth.

In other words: get ready. The frictionless future of payments is about to get a little closer. **By WIRED**

IDEAS BANK



Can Saudi Arabia build a thriving fintech hub by 2030?

As it diversifies away from hydrocarbons, fintech has become a core focus. But there are still challenges to overcome

Saudi Arabia has received over \$65 billion in foreign direct investment (FDI) since 2020, making it one of the leading investment destinations in the Middle East. The FDI boom is a product of Saudi Arabia's "Vision 2030" plan, first announced in 2016. Driven by a desire to diversify away from hydrocarbons, Saudi Arabia is looking to transform its economy by nurturing new industries, attracting investment and positioning itself as an early adopter of advanced technologies.

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One area that Saudi Arabia is focusing on is financial services. The country has committed to creating a thriving fintech hub by 2030, and early indicators are promising. In 2022, there were 89 fintechs in Saudi Arabia, but this number had reached over 200 by the end of 2023. That compares to just 10 in 2018.

Research shows that most planned innovation hubs fail to achieve any meaningful traction. So, what is Saudi Arabia getting right?

According to Christos Kolimenakis, Managing Director, Head of Payments Saudi Arabia at J.P. Morgan, "It's not a specific piece of regulation or legislation. Rather, it is the level of coordination and cooperation between the major local stakeholders in Saudi Arabia which is making the difference."

This is because catalyzing a tech cluster requires more than just capital and ideas. It necessitates support in areas such as regulation, finance, planning, tax, infrastructure, utilities, labor and more. Boston Consulting Group argues that tight orchestration across government agencies is a key requirement for an innovation hub to succeed.

Saudi Arabia has set up Fintech Saudi to help coordinate the country's effort. An initiative from the Saudi Central Bank

IDEAS BANK

and the Capital Markets Authority (CMA), it sits in the middle between government entities, regulators, and the private sector, and helps fintechs navigate the different requirements they need to set up in the country.

Let's say an international fintech is looking to come to Saudi Arabia. First, Fintech Saudi will have a consultation with the company to understand its business model and determine if it needs to be regulated by the major financial bodies. If so, it brings in subject matter experts—law firms as well as other companies in the industry to give the relevant guidance—while involving the main regulators throughout the entire process. Next, Fintech Saudi will connect the company with the Ministry of Investment (MISA), which can provide support with setting up an entity in Saudi Arabia. Finally, Fintech Saudi can give the company links to private service providers in the country—such as office space or software businesses—that can help it get up and running quickly.

On its current trajectory, Saudi Arabia looks on course to achieve its goal of 525 fintechs operating by 2030, supported by over SAR 12.2 billion in direct venture capital. An encouraging sign has been the approval of three digital banks—a new generation of financial institutions that offer a range of traditional banking services via smartphones and other online channels. Even in mature markets, these challenger banks can spend years trying to get licenses as the regulatory regimes cannot adapt as fast as innovation moves.

Catalyzing tech clusters requires more than capital and ideas: support in finance, tax, infrastructure, utilities, and more.

As Nezar Alhaidar, CEO of Fintech Saudi, explains: "Solid regulatory frameworks enable and encourage innovation within the sector and ensure that companies can comply with those regulations. This directly impacts the inflow of local

and foreign investment into fintechs, knowing that there is a robust process vetting licensed companies."

However, it is not a given that Saudi Arabia will achieve its target—there is still work to be done. The greatest requirement is digital infrastructure: more fiber-optic cabling, more data centers. The recent announcement that Amazon Web Services (AWS) is investing \$5.3 billion in data centers in Saudi Arabia is a positive development. However, tens of billions more will be needed by 2030 to bring Saudi Arabia's infrastructure in line with other mature tech regions, something the country is looking to achieve through a mix of public and private investment. As with its approach to the fintech sector, a coordinated effort from multiple government bodies, coupled with the swift creation of a conducive regulatory environment, will be crucial for success.

By J.P. MORGAN



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DEEP DIVES INTO A CHANGING WORLD

FEATURES

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THE MVP

The sports world is chasing ever more spectacular live experiences. Are payments emerging as the MVP?

ILLUSTRATION: JVG

TOP-END RACING CARS ARE SOME OF THE MOST ADVANCED MACHINES ON EARTH, COMBINING LIGHTWEIGHT MATERIALS, PRECISION AERODYNAMICS, TURBO-CHARGED PROPULSION AND HUNDREDS OF SENSORS THAT PRODUCE BILLIONS OF REAL-TIME DATA POINTS.

After all, if you want to zip around a racetrack for three hours at speeds in excess of 200 miles per hour, and do so faster than the next racer, you need all the innovation you can get.

With such a focus on new technology, it is perhaps unsurprising that motor racing has also created a cutting-edge fan experience. At a typical Grand Prix, there are giant high definition screens displaying all the action, apps to access live driver data or audio feeds from the cockpits of the cars, as well as a huge array of events, activities, concerts, luxury lounges, and bars that are open across the entire weekend. Fans can buy a walk-about ticket allowing them to stroll through the campus, picking different viewing spots at will. If they're still not satisfied, they can jump in a virtual reality (VR) simulator and experience what a race feels like from the driver's seat.

In many ways, it is more like a festival than simply a race. And the fans are responding. In 2023, total F1 attendances were just under six million for the season, up five percent year-on-year—or around 260,000 per race on average and far more than even the Super Bowl.

Other sports are taking note. Around the world, a new generation of stadiums are being built, and they are centering on the fan experience, offering first-class amenities, retail options and leisure activities, underpinned by frictionless digital platforms. Meanwhile, for those who prefer to watch the action at home, a new era of streaming platforms are bringing unprecedented levels of choice, interactivity and engagement. As the sports world puts fans in the driver's seat, a forward-thinking approach to payments has become a necessary condition for success. We take a closer look under the hood...



LIVE EVENTS GO MAJOR LEAGUE

THE RISE OF CASHLESS STADIUMS

Throughout most of the 20th century, the main design imperative for sports arenas seemed to be to cram as many people into the space as possible. For fans at the biggest events, it could sometimes be as much about endurance as enjoyment. But a new generation of stadiums aims to address this. Spacious seats, unobstructed views, high-quality food, well-designed bars, lightning-fast Wi-Fi. UK soccer club Tottenham Hotspur, which recently opened a new \$1 billion stadium, has a fine dining restaurant and its own microbrewery on site.

So, what's driving this new fan-focused approach? Partly, it is rising expectations. Ticket prices have been increasing faster than inflation for decades, and so supporters are demanding a live experience commensurate with what they're paying; cramped seats and long lines won't cut it anymore.

SOURCES: WWW.JPMORGAN.COM/PAYMENTS/INDUSTRY/SOURCES

small space. Research shows that 42 percent of fans are frustrated by long wait lines for concessions in stadiums. After all, a fan doesn't want to spend hundreds of dollars on a ticket only to spend half the game with their back to the action. The Hard Rock Stadium, home of the Miami Dolphins and the Miami Grand Prix, first went cashless in 2020. As their Chief Commercial Officer, Ged Tarpey, explains: "The beauty of going cashless is speeding things up. We want as short wait times as possible for checkout, whether you are at the retail store or looking at food and beverage options." Tap-to-pay solutions are far quicker than cash transactions, as there is no need for a retail assistant to count the money, ring up the cash register or provide change.

A LONG-STANDING ISSUE

Such is the need for speed that some sports organizations are looking to go beyond tap-to-pay and are exploring emerging, even more frictionless forms of payments.

This includes biometric transactions. Biometric transactions involve using unique physical characteristics to authenticate someone's identity. In 2023, J.P. Morgan piloted the use of biometric payments at the Miami Grand Prix, a first for the sport. After enrolling in the program via a one-time mobile registration, fans were able to pay for merchandise in a retail store with a swipe of their palm or a facial scan, no card required. On average, authentication and payment was processed in less than a second. In 2024, this was expanded with biometrics integrated across all merchandise stores at the venue, with terminals at every checkout lane.

According to Niall McClean, Finance Director for the Irish Football Association, "There is growing demand for faster and more convenient payment methods. As fans become more accustomed to using biometric payments, it is very likely this solution will become more common

Many new stadiums are turning "cashless" into a selling point.

in stadiums." Of course getting people to sign up can be a challenge, as biometric transactions are still relatively new, and people can be nervous about having physical identifiers stored

by a third party. But this presents an opportunity for established financial institutions, as they have a reputation for security and privacy that can reassure customers.

There is also competitive pressure. But it's not rival teams that sports organizations are worried about—it's enticing fans away from their sofas and 60-inch TVs, or convincing them to spend on a game ticket rather than the myriad of other leisure options they could choose from. In the US, attendance for the major sports has been plateauing for years, leading to ever more investment in building or renovating stadiums.

The other big queue-killing idea edging into the spotlight is grab-and-go technology. This uses radio frequency identification (RFID) scanners and computer vision to identify when an item is picked up off a shelf by a customer and taken out of the store. Each customer has an online account linked to a bank card, and when they leave, the items are automatically charged to them.

In this new environment, payments are emerging as a key consideration. Many new stadiums are turning "cashless" into a key selling point: phasing out physical money in favor of contactless cards and mobile payments. On the one hand, this makes good business sense. Fans appear to spend on average 25 percent more at stadiums when they don't have to use cash. Multiply that by 70,000, and the numbers quickly stack up. Cashless payments can also help to prevent some instances of theft and fraud as fans and vendors do not have to carry money, which can get lost or stolen.

But going cashless is also—crucially—about improving the experience. Long lines are a perennial problem for live events due to the sheer volumes of people in such a

the Hard Rock Stadium has been testing this approach at some concessions. "At halftime there is such a rush that it might take somebody ten or more minutes to check out," says Tarpey. "People want to get back to their seat for the start of the second half. We see that when people are using checkout-free options that those transactions are happening in less than a minute at those locations."

Since August 2022, the number of checkout-free stores increased from 44 to 180 across US stadiums. Whereas this technology has run into some problems in grocery stores, it seems well suited for arenas, because the retail locations are small, with far fewer items. It is much easier

for the technology to keep track of 20 SKUs than it is the 30,000-50,000 you would see in a typical supermarket.

One obstacle is that checkout-free options are not suited to selling alcohol. Conventionally, staff members have to manually check IDs when offering alcoholic drinks. However, integrating biometrics with checkout-less technology could be a winning play, as it would enable the vendor to confirm the customer's age. After the restrooms, the lines at bars are often the longest in the stadium. Leading vendor Zippin has now created a system whereby customers are verified via facial recognition when they enter, an idea tested with the Denver Broncos in 2023. A similar approach is also being used for vending machines (see *box-out*).

ENTERTAINMENT DISTRICTS

Another major trend among sports organizations is offering a campus of events and activities to entice fans to come earlier and stay later. They even want to attract those who don't have game-day tickets but want to enjoy the atmosphere and amenities. SoFi Stadium, home of the NFL's Los Angeles Rams and Los Angeles Chargers, has a "shared reality" facility outside the stadium, provided by technology company COSM. This lets fans watch the NFL games from earlier in the day, or other sports altogether, on giant curved 8k screens. It also offers films, documentaries, and immersive art shows.

Making payments as frictionless and invisible as possible could help to elevate the experience further in these entertainment districts. Rather than frictionless payment options being limited to specific amenities, imagine a stadium offering a single biometric or grab-and-go payment account for the whole campus. People could move between the different offerings, transacting simply and easily wherever they are. Omnichannel options could also be integrated, allowing fans to purchase merchandise or food and drink, say, through their smartphone, before picking it up in-store at a convenient time.

Xavier Asensi, President of Business Operations at Major League Soccer (MLS) club Inter Miami CF, explains the vision: "What we want is that you can move around the place without going through any hassle. It's a matter of being flawless in terms of experience."

TREND SPOTTING: NEXT-GEN VENDING

The days of smoothing out a crumpled note and hoping the vending machine accepts it are long-gone. As well as offering convenient digital payments, the latest models serve a wide array of goods, including snacks and food, as well as non-alcoholic and alcoholic drinks. When age verification is needed, the machine asks buyers to scan an ID and then uses biometric facial recognition technology to ensure the photo on the ID matches the purchaser. Already popular in Asia, next-gen vending machines could prove a compelling addition to the stadium concession mix. One challenge, however, is that in the US there are additional requirements around serving alcoholic drinks to intoxicated people, which is harder to manage with automated systems.



BANDWIDTH BOTTLENECKS

Whatever solutions are adopted, whether it's mobile wallets, biometrics, or checkout-free technology, a basic challenge is that they all require reliable, high-speed Wi-Fi. Point-of-sale terminals, biometric scanners and autonomous stores all need to be able to connect to the internet, as do the tens of thousands of people paying with their devices. Wireless data consumption by fans is also exploding, adding additional pressure to infrastructure. Attendees want to be able to take and upload videos of the action, or listen to live commentary as they watch the game.

This can present a challenge. Having so many people using the internet in such a small area can strain bandwidth. And while 5G technology can provide high-speed internet, and support up to a million devices per square km, public 5G networks are not available everywhere, and private 5G networks are typically expensive to build and operate. The emerging solution? Wi-Fi 6, which can offer up to four times more bandwidth.

The ultimate goal is to bring the same level of seamless connectivity that consumers experience in their everyday lives to the sports stadium. It is a blending of the physical and digital experiences, an approach that is also being increasingly used by sports broadcasters.

SOURCES: WWW.JPMORGAN.COM/PAYMENTS/INDUSTRY/SOURCES

GOING GLOBAL

Sports broadcasting in major markets has traditionally been dominated by cable or satellite TV options. In return for expensive monthly subscriptions, or standalone payments for some of the biggest events, fans got to watch their favorite sports. Commonly, these packages were ring-fenced geographically. In the US, for example, the sports packages are mainly regional, with fans having to pay extra to see teams from different parts of the country.

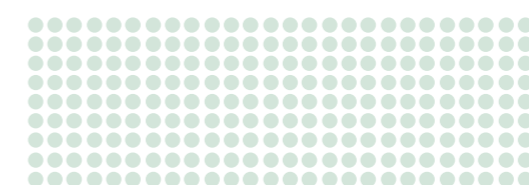
One result is that many sports have remained defined by a particular geography. Around 98 percent of the NFL's media rights income is from the US. An overseas fan would have to hope one of their domestic TV channels had acquired rights to certain games. But when Amazon Prime bought a package of NFL games for streaming, these boundaries were erased. Thursday Night Football is now available to its 200 million global subscribers. The huge potential for global reach was one of the reasons that MLS in the US signed a ten-year, \$2.5 billion agreement with Apple, making the league available in around 50 percent of the world's countries.

A blending of the physical and digital experiences is an approach being increasingly used by sports broadcasters.

But taking a global approach can also create payment challenges. Niche sports that typically do not get as much national TV coverage are also using streaming as a way to build their audience. The World Surf League, for example, has its own

platform and draws millions of views. However, one of the challenges for direct-to-consumer streaming models is enabling the fans to pay, wherever they are. Different countries have different payment methods, all of which have to be supported. Some of these methods will not be well-suited for subscription models, which traditionally have always been built around debit or credit cards. One solution is that instead of building out the infrastructure for each country, streamers can opt for orchestration platforms that integrate hundreds of local payments options. The most advanced services also aggregate all the payments data streams from the different markets, giving real-time reporting and analysis.

Another challenge is that all streamers, regardless of size, must be able to handle sudden surges in volume. On-demand models can result in thousands or even millions of fans buying a game-pass at the last minute, causing significant strain on the system. Each user has to be verified, and then their transaction must be processed. Even the biggest ecommerce operations have been known to have outages during promotions or sales events, when spikes in demand are way above forecasts, which breaches capacity. One strategy that streamers can use is to try and stagger purchase times. They can offer exclusive online content, such as player interviews or locker room access, to draw in viewers ahead of the start time and cut system load.



TRANSFORMING THE AT-HOME EXPERIENCE

As well as being an important component of live sports, ultra-fast internet is transforming the at-home experience. This is because it is enabling live streaming: watching online from the device of your choice. Live sports have traditionally been a challenge for streamers, as they are fast-moving and require ultra-low latency. Even a pause of a few seconds can ruin the viewing experience. But as home and cellular internet speeds increase, live streaming has exploded. Indeed, out of a total TV audience of three billion at the 2024 Paris Olympics, more than a third was attributed to streaming, breaking all records.

PERSONALIZATION POTENTIAL

Frank Nakano, Managing Director, Sports and Entertainment at J.P. Morgan, believes that as well as reducing friction, payments can be used to create more tailored experiences for fans. “The offer should be seamless, with as many interactions as possible. This will also allow more accumulation of data. What is the fan into? What types of events are they looking at?” he says. “Payments providers can then improve personalization and enable more targeted offers.”

Payments data can offer a wealth of insights, including what fans are typically buying, when they are buying it, and what related products they also purchase. Transactional data can then be used alongside indicators like demographic segmentation, buyer personas, and user information to craft tailored offerings. A digital broadcaster could offer a fan additional sports in their subscription package, or discounts on game passes, based on predictions of their preferences.

ESPN is one channel exploring the possibilities. “We

are discussing how we can work with different payment companies to triangulate the payments data with our user data to better understand the consumer,” says Malet. After evaluating some of its data, ESPN is experimenting with ESPN Experiences, where fans get VIP trips to multiple different sports stadiums, including behind-the-scenes access to ESPN talent and presenters. At the same time, stadiums are also offering digital subscriptions as add-ons to match-day tickets.

It highlights how boundaries are disappearing between the physical and digital realms. In the future, the live and at-home experience will be increasingly connected, powered by data and enabled by payments. It will be a new way of viewing and engaging sports, with fans increasingly in control. However, as Asensi points out, despite the shifts ahead, one thing will always remain true. “Do not forget,” he says, “what really matters most to the fan is the scoreboard at the end of the game.”

By J.P. MORGAN

TREND SPOTTING: THE NEW AGE OF ENDORSEMENTS

College athletes in the US can now make money from their name, image and likeness for the first time. It follows an explosion of endorsement deals and licensed merchandise for the leading players. The trend could not have come at a better time for athletes, as there are more opportunities and channels than ever to monetize their intellectual property (IP) including social media and influencer platforms, sports-based marketplaces, and even digital platforms for non-fungible tokens (NFTs)—exclusive digital goods that are authenticated and stored on blockchain networks.

This is raising interesting questions about how

much control over their IP athletes will be given, especially as younger generations of fans gravitate more to star players than teams. It can be common for players to take equity stakes in brands in exchange for their endorsement, but in the future will they start to demand a cut of TV or streaming money too? And what about ticket sales at the stadium? If so, how would royalties be split between the multiple different stakeholders in the ecosystem? Whatever the answers, sports organizations will need innovation to facilitate the multitude of new payment flows they may find on their hands.



NEW WAYS OF VIEWING

Offering digital add-ons plays into one of the strengths of streaming platforms, which is the ability to provide interactive features that conventional television can't match. This could include options for multiple screens, customized content, additional stats or control over camera angles, giving fans much more choice over how they view games.

“At ESPN, for some college football games we use a sky cam, which follows behind every college football play, so you get to see the quarterback's view,” says Zachary Malet, Senior Director, ESPN Business Development & Innovation. “On a Saturday night, I'll have the regular game, and I'll have it side by side on the screen with the actual sky cam, and be able to look at alternative angles, and really get a rich fan experience.”

Virtual reality (VR) could take this even further, allowing fans to immerse themselves in the action by donning a headset. Apple is making the MLS available on its Vision Pro headset. Technologist Matthew Ball—author of *The Metaverse*—recently predicted that in a few years you will be able to use virtual reality to watch a star player

take a free kick while “standing” right behind him. Other potential enhancements include the ability to buy sports-related merchandise through the streamer's

Fans don't want to be stuck creating an account while a game is underway.

app. By hosting merch from different providers, as well as the players themselves, streamers could create their own marketplaces. This will require embedded banking services, such as streamlined onboarding for sellers on the marketplace, as well as a wider range of payment options, plus the infrastructure to hold cash on behalf of third-party companies. But the opportunity is sizeable, especially as star players increasingly look to monetize their image rights (*see box-out*). The global sports merchandise market is set to reach \$58 billion by 2032.

Some platforms may allow access to games covered by other providers, becoming one-stop-shops for sports coverage. For example, a particular streamer may not have access rights to a major sport, but will offer a link to another company's streaming platform and vice versa, with a revenue sharing model set out between them. Making sure that there is a smooth payment process when accessing a game hosted by another broadcaster will be essential. Just as a fan does not want to be stuck in line in a stadium, they don't want to be stuck creating an account or inputting card details while

the game is underway. Eliminating these kinds of “digital queues” will be crucial for sports platforms to give fans the type of flexible, interactive experiences they demand.

SOURCES: WWW.JPMORGAN.COM/PAYMENTS/INDUSTRY/SOURCES



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PAYING IT FORWARD

As net zero becomes ever more important for businesses, the payments industry is examining how it can turn a challenge into an opportunity.

ILLUSTRATION: TOM PEAKE

Attitudes towards environmental sustainability across the economy have shifted dramatically in recent years. Consumers are demanding sustainable products and services—even if that comes at a premium—and are willing to vote with their feet when businesses fail to deliver.

Governments all over the world are not only incentivizing sustainable corporate practices, but introducing regulations that mandate it. Investors, too, are increasingly reviewing their positions in light of sustainability commitments. As the world strives for net zero—where greenhouse gases removed from the atmosphere are equal to the amount emitted—corporations not only face an ethical obligation, but a business imperative. Organizations that want to attract top talent, compete at full tilt, or shore up its customer base can view net zero as an opportunity.

Payments businesses are no exception. Expected to realize \$3 trillion in revenues by 2027, the payments sector operates at vast scale. When it comes to reducing and managing the carbon costs of its operations, it is subject to the same expectations as any other major industry. But it is also in the unusual position of being part of all other industries, too. Payments companies can help those other sectors realize their own ambitious environmental, social, and governance (ESG) goals, in turn growing payments revenues through sustainability-focused products and services.

The question is: What precisely are the sustainability opportunities for payments companies? Here, we examine three key areas where environmentally focused innovation is taking place, and consider what lies ahead.

PUTTING DATA ON A DIET

Cash is now used in fewer than one in five purchases, and electronic payments are surging. Digital wallets are expected to account for 46 percent of point-of-sale spending by 2027, up from 30 percent in 2023. As the digital payments ecosystem grows, so does the sheer volume of computation required to power all of the transactions. In 2023, 724 billion electronic transactions were processed via credit cards.

Data centers play a critical role in the associated processing, storage, and analytics—and they can have a significant carbon footprint. It's not only powering the machines that is energy-intensive, but also the need to keep them cool—running a data center at hot temperatures can imperil the equipment.

An individual payment is estimated to represent 3.78 grams of CO₂, which can collectively amount to a million tons of CO₂ per year emitted in the United Kingdom alone. Payments companies are also exploring how generative AI can augment their own processes, operations and services—but the models on which generative AI depends consume massive amounts of energy, 33 times more than task-specific software. “The world, in general, has a growing demand for energy,” explains Tristan Attenborough, Global Head of Energy, Power, Renewables, Metals and Mining at J.P. Morgan Payments.

“The data center impacts of AI are going to vastly increase that demand.”

So, how can the payments sector reduce its energy burden? One strategy is simply to opt where possible for more energy-efficient hardware. Data centers can run off renewable sources of energy; one geothermal power project in the US state of

Data centers play a critical role in processing, storage, and analytics—and they can have a significant carbon footprint.

Nevada, provides 3.5 megawatts of energy to a major tech company's facility. In Sweden, a data center operator is investigating building a small nuclear reactor to power one of its facilities. If a payments company is building a private data center, or partnering with a technology company for cloud or AI services, it can seek out these kinds of innovations.

A more subtle strategy, however, is to reinvent payment processes themselves. Each card transaction involves a number of intermediaries, from the card issuer through to the merchant's bank. “Moving data from one step to another in this complex back-end process generates carbon emissions,” explains Lena Tailor, VP of Partnering, Talent and Inclusion at GoCardless, a payment provider specializing in

direct bank payments.

It's one reason why interest in account-to-account (A2A) payments is growing. “A2A payments are much less carbon intensive because there are fewer intermediaries,” says Tailor, who states that an A2A payment generates roughly four times fewer emissions than a card payment.

Paying for something with a bank transfer is nothing new, but developments in open banking are driving the expansion of A2A payments into everyday consumer purchasing. Open banking has been steadily developing in the United Kingdom and continental Europe since legislation supporting it came into force in 2018. Broadly speaking, open banking entails using application programming interfaces (APIs) to connect accounts to

third-party financial services. This can make it possible for alternative forms of payment, such as A2A, to become part of everyday transactions. Open-banking-enabled A2A payments volumes are expected to exceed \$330 billion by 2027, compared to \$57 billion in 2023.

Another environmental consideration relating to A2A payments is they don't involve physical payment cards. Payment cards are generally made from polyvinyl chloride, a plastic which is durable and flexible, but whose production uses fossil fuels and releases pollutants. Each card uses about five grams of plastic, and Tailor cites research that 20.5 billion cards will be in circulation by 2025, resulting in nearly 350,000 tons of CO₂ being produced. A transaction that doesn't involve a physical card is part of the solution.



UNDERSTANDING THE TRUE COST OF SPENDING

Improvements in hardware and software are one of the most direct ways that payments companies can achieve sustainability goals. But there's a rich vein of opportunity in leveraging their position in the economy to help others make better decisions. An area that has attracted particular attention is providing consumers with information about the environmental impacts of their purchases and helping them either make better choices or mitigate the impact of emissions.

"With open banking you can get 'carbon information' that is linked to the payment being made," says Nick Maynard, VP of Fintech Market Research at Juniper Research, "and then you can give the user more awareness of the implications of what they're doing." Since payments are a common denominator for all economic activity, payment companies are well-placed to offer consumers a holistic picture of their carbon impact.

For example, one climate-focused fintech company offers a plugin that can be embedded into a bank's proprietary smartphone app, or a merchant's online checkout page, to offer customers information about the carbon emissions of what they're purchasing. The customer is then offered a simple option to pay for an offset. Elsewhere, carbon mitigation is being built into the product directly: One French neobank offers a current account which attaches a carbon cost to each purchase and directly makes a donation to a climate-focused conservation project in response.

Naturally, given concerns around greenwashing, best-in-class executions are led by objective research. The Science Based Targets Initiative, for example, provides trusted, informed guidance on approaches to offsetting. There are also payments-specific research projects such as Åland Index, which provides carbon footprint estimations for bank transactions in different categories such as food, fashion or travel. This combines high-level data on emissions with a methodology vetted by a leading professional services company.

When the Swedish impact fintech Doconomy created an API called the Carbon Calculator for Mastercard, it used the Åland Index. The API looks at the four-digit merchant category codes (MCCs) assigned by Mastercard to different merchants depending on what they sell, matches this to the carbon estimates on the Åland Index, then combines this with local adjustment factors to return an estimate for that purchase's carbon emissions and water use. "The greatest challenge we face in regards to the climate crisis became quite obvious 10 to 15 years ago. But there was a lack of climate literacy: What is the climate crisis? How do I measure the climate crisis? How do I measure my contribution to the crisis?" says Mathias Wikström, Founder and CEO of Doconomy. Financial

services, he says, needed to align upon a standardized way of measuring the per-dollar impact of spending on the environment to empower consumers to make the right choices for the planet. If a customer can see the impact of spending \$250 in a fast fashion chain, for example, or of buying tickets for a short-haul flight, it makes it real.

There's a business incentive for financial services to offer this kind of information, Maynard points out: "If you are a bank—and the retail banking market is pretty competitive—if you can show that your solutions can actually enable customers to have a more environmentally friendly approach to their life, that is a differentiator."

Yet Doconomy isn't only focused on the consumer. While Mastercard offers its Carbon Calculator product to its client banks, Wikström suggests that some of these banks might not ever incorporate it into their retail banking products. Rather, he says, the calculator can be used to calculate carbon footprints for ESG reporting using bank transaction data. "You can just use it to calculate the carbon intensity score of your complete consumer credit portfolio. So, you get an average CO₂ emissions impact per euro spent by your retail client." Legislatures around the world are discussing making this reporting mandatory, Wikström notes, pointing to existing laws in California that will require banks to calculate and disclose the carbon emissions tied to their lending. "Over time, I think it's fair to think that the banks will need to report on this out of a consumer perspective, as well."

One limitation of current schemes for assessing carbon footprints via payments is the lack of granularity. "If you're shopping in a supermarket," says Maynard, "then

If a customer can see the impact of buying tickets for a short-haul flight, for example, it makes it real.

how do you provide an accurate carbon assessment? It will vary wildly depending on whether you've bought bananas from the Caribbean or strawberries from Essex—there's an element of uncertainty." The introduction of the new global payments messaging standard ISO 20022 has led some to speculate that a solution may, some day, emerge.

This new standard embellishes payment messages with extra metadata fields with drop-down menus of options. "There's going to be a product description field, a country field—you'll have a much better understanding of the data that's there," says Ciarán Byrne, Head of Global Clearing Product and Transformation at J.P. Morgan Payments. In the future, he posits, it's possible in theory that sustainability-specific data could be added as a field in itself.

Thomas Verhagen, Senior Associate at the Cambridge Institute for Sustainability Leadership, agrees that there is blue-sky potential. But he makes the caveat even the ISO metadata isn't yet standardized. "ISO doesn't stipulate the exact data that's being used. I can see how the [payments] industry, working with neutral outside parties to align on what needs to be communicated and standardized, can lead to a surge of new services and new value-add features, both on the B2C as well as on the B2B side. But you need to come to some kind of definition of what that commons looks like before you and anybody else can draw on it."

CATALYZING CLEANTECH

The question of how payments can help drive sustainability is often answered by looking inwards to what the industry itself can do. But there is another axis of opportunity: How payments can help other businesses thrive in ways that could dramatically reduce emissions. In fact, says Attenborough, this may be a more fruitful approach than trying to directly lessen the carbon emissions of payment computation. “The central premise that there would be something directly linked to sustainability, from a payments point of view, is not always a helpful or fertile ground to begin with,” he says.

Helping facilitate participation in the circular and sharing economies is one such example. The circular economy is about recycling and reselling, and payments providers can play a number of roles here, whether that’s helping establish trust between buyers and sellers on marketplaces, or enabling seamless, instant pay-outs via novel channels. For example, the Danish city of Aarhus launched a “reverse vending machine” for coffee cups this year; its manufacturer calls it the “world’s first open managed system for reusable takeaway packaging.” When consumers buy a coffee with an eligible cup, they pay five Danish kroner as a deposit. When they return this cup to one of the machines, they tap their credit or debit card to get this deposit back.

The sharing economy—in which individuals reduce their own consumption by using the assets of others—can also benefit from payments innovations. Peer-to-peer payments can make it easier for people to monetize their possessions; Internet of Things payments, in which the machine either requests or executes a payment, can allow objects to autonomously charge for access on a metered, pay-per-use basis.

“Out of everything,” says Verhagen, “I think that the sharing economy and circular economy seem to ‘break parity’: There don’t seem to be many trade-offs that you have to make there, to make quite good savings in terms of the impact on the planet.”

But perhaps the biggest immediate opportunity for payments to catalyze cleantech is in transport.

Mass transit is an area where payments innovation has been shown to have a clear impact on usage. One key recent innovation is the shift from closed- to open-loop ticketing systems. The former is where the transport operator sells tickets or operates a proprietary payment card; the latter is where riders simply tap a credit or debit card to ride. The latter has a range of advantages. It makes the mode of transport easier and faster to use, especially for non-residents or those who may only use it

occasionally. It also allows for interoperability between transport systems, whereas closed-loop ticketing inevitably produces siloes. Evidence shows that the overall consequence is increased ridership.

Although open-loop is becoming increasingly commonplace, it is not yet ubiquitous. But advanced implementations are showing the transformative effect it can have. Consider the Netherlands, which recently became the first country to launch an open-loop, contactless public transport payments system nationwide. That means riders can get anywhere in the country with just a tap of their card on departure and another tap on arrival, with the optimal fare calculated on the back-end. No more need to download countless apps.

In an open-loop system, payments have a further opportunity to help drive sustainability. Transaction data is a useful proxy for understanding how people use mass transit. One Swedish climate tech company processes payments data from client cities’ transit systems and then uses AI to inform them of possible efficiencies that can be found in these systems, helping them to better plan for the transition to net-zero public transport.

The conversation around transport and payments is not only about mass transit. Electric vehicle emissions are between 17 and 30 percent lower than petrol and diesel vehicles, according to a European study. But James Court, CEO of the Electric Vehicle Association (EVA) England, notes that around only two percent of cars on British roads are electric vehicles EVs. In the US, the picture is similar; only 6.8 percent of new vehicle sales are

EVs. Making these vehicles easy to charge—and by extension, making charging easy to pay for—is key to boosting uptake.

The UK has taken measures to do just that. Until recently, an EV driver might have needed “18 to 20” different apps to pay for different charging stations, says Court, but from October 2024, all rapid chargers in the UK have been required by law to accept contactless payments. “A couple of years ago, it was very challenging,” he says. “It was frustrating, especially

SOURCES AS PER WIRED, SEP 2024



if you then run into somewhere where you haven’t got phone signal and you need an app.”

Although it hardly sounds innovative, equipping chargers with the means to quickly accept a range of different payment types requires collaboration between multiple organizations, and is a shift that still needs to happen in many countries. “This is one area where the UK has definitely made some huge improvements, and other countries are seeing what we’ve managed to achieve.”

As EV charging becomes associated with a seamless customer experience, it is giving rise to ecosystems

of businesses that differentiate on convenience of payment. At London’s Gatwick Airport, for instance, one EV company has launched an “electric forecourt”, featuring 30 charge points and an integrated refreshment shop on-site that uses autonomous grab-and-go payments technology. The customer taps a payment card upon entry and then takes what they want from the shelves; cameras in the shop track the customers’ purchases and then charge them retroactively. Proof, if ever, that the future is here, just unevenly distributed.

THE FUTURE IS GREEN

Payments has always been an industry focused on scale. With billions of transactions taking place each year around the world, even the smallest new efficiencies can have a considerable impact.

Among the experts WIRED spoke to, there was a clear theme that now is the moment for the industry to realize its potential for enacting change. The broad trends were clear: The payments sector has an opportunity to reduce its own emissions, help consumers better understand theirs, and can function as a catalyst for structural shifts in the economy that can aid decarbonization.

There were a range of opinions, however, as to where emphasis should be placed. Verhagen, for

example, wants to see more efforts to measure payments' impact on water security and biodiversity, not just carbon emissions; Attenborough drives home the importance of changing consumer behaviors through payment technology. Others placed importance on open banking, transparency, and better communication between financial institutions.

But all of them recognized the importance of a multi-faceted approach in the drive for net zero. And financial services companies are keen to prove they are winning the race to get there, says Wikström. "From a market driver's perspective, if we can make it profitable to win, then saving the planet will be done in no time—because it's profitable." **By WIRED**



BEYOND THE BALANCE SHEET

Sharyn Tan

HEAD OF PRODUCT CASH & TREASURY M&A, PAYPAL

Over the past two decades, PayPal has revolutionized commerce. It is now one of the most valuable digital payments companies in the world, and has helped transform how consumers and businesses send, receive and manage money. Sharyn Tan was previously a Regional Treasurer covering Benelux and MENA for a bank, and moved to PayPal in 2017.



... and what's the trait that's the least helpful?

Unwillingness to adapt. When faced with change, people, including leaders themselves, do go through a phase of denial and resistance. As a leader, it's about how quickly you can get yourself to embrace change, and to then help others in the organization get there as well.

Who is your industry mentor and what key thing did they teach you?

A former Senior Director at PayPal. He taught me that people skills are just as important as technical skills if you want to inspire change in a large organization. He was never afraid of tackling difficult conversations head-on, but always did it with a little bit of humor and was just able to bring people along with him.

What's the advice you wish you could give a past you as you entered this field?

To have done it quicker, sooner, faster.

What's the cast-iron "work tip" you'd like to share with us?

Always, always maintain your integrity. No matter what, choose to do the right thing.

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In one sentence: what do you do?

I manage a multi-continent treasury team that makes sure we have sufficient cash in the right places and the right currencies to ensure that our business functions.

What are you working on right now?

The team is split between day-to-day operational issues and strategic projects. Currently, we are working on enhancing our banking and technology infrastructure to automate the way that we move money across an extensive network of bank partners.

In-office or WFH?

Both. For us, it's about getting the job done.

How many people do you manage?

I manage around 20 people across the world.

What's the innovation that's most disrupting your world?

The notion of real-time payments (RTP) creates greater expectation for people to have the ability to send and receive cash 24/7 anywhere in the world, and to have access to this cash immediately. But the underlying banking technology and reporting infrastructure hasn't always caught up to match this expectation. It can be a challenge to manage and move liquidity.

What do people get wrong about working in payments?

That money moves as fast and as easily as the customer experience of making a payment. RTP isn't available everywhere, and cross-border payments can be complicated and time-consuming.

What has been your proudest moment in the role so far?

Reflecting on how far the team has come in a relatively short space of time and seeing people on the team starting to emerge as the treasury stars of tomorrow.

What's the biggest question facing payments today?

There's a camp that believes digital assets and blockchain are going to take over. Will blockchain completely disrupt the other payment rails or will they run in parallel?

What's the most important quality a payments leader needs?

I think staying curious. Keeping up to date with what is happening in the industry, being open to change and leading others to adopt change.

What's a secret that only people who do your job know?

That cash management can be extremely manual, and keeping tabs of every movement of money is not easy. Poor visibility into where cash is and working out how much is available, and then getting cash to where it is needed in time, is a more common challenge in treasury than people realize.

How will payments be different in ten years' time?

In ten years, I really do think that fast, digital payments will be the norm and blockchain-based payments will be a big element. So, being able to handle that in the treasury space is a must.

Outside of work, how do you relax?

My main passion is food. Any time I plan a weekend away or holidays, I always choose places where the food is good.

If you weren't working in payments what would you be doing?

I would probably be working with puppies and kittens!

AI. Are you worried?

I'm actually quite excited, and I want to learn how to use it. We're trying to encourage the team to learn about generative AI. I'm envisaging a future where you will be able to prompt the system to generate a forecast, a prediction, or a model, based off vast amounts of both macro- and enterprise-centric data, to manage liquidity. Now that would be super cool.

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