Five key trends shaping the future of payments and global money movement

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Executive summary

Global payments are undergoing a structural shift from batch-based processing to always-on, real-time value exchange. Payments are no longer a back-office utility. They are becoming a continuous layer of logic and data that underpins digital commerce, liquidity and trust across the economy. For technology leaders, this shift is collapsing time, margins and tolerance for failure at the same time.

This report examines five forces driving that transition and their strategic implications for banks and payment service providers. This report is not just about trends and disruptive forces that are affecting the industry, it is about the implications of the trends on business and technology, and strategic recommendations for payments leaders.

Real-time payments are becoming the default operating model, not a premium service. As instant rails operate continuously, latency and downtime turn into business risk, forcing changes to core architecture, liquidity management and operating models.

Cross-border payments are being reshaped by ISO 20022 messaging standards harmonisation and the interconnection of domestic real-time systems. Settlement speeds increase, intermediaries are bypassed, and FX and treasury services become more competitive and more automated.

Digital assets are moving into the institutional mainstream. Regulated stablecoins and tokenized deposits introduce programmable, 24/7 settlement, shifting money from a passive store of value to an executable asset while raising new interoperability and governance requirements.

Artificial intelligence is evolving from decision support to autonomous execution with Agentic Commerce. AI agents are managing payment operations internally and initiating transactions externally, shifting differentiation toward execution quality and control.

Fraud prevention and compliance is being forced to operate at machine speed. As real-time payments remove post-transaction recovery windows and AI-enabled scams accelerate, detection must move inline, behavioral and network-based.

Across all trends, digital identity, smart data and open banking emerge as foundational enablers. They determine whether institutions can authenticate users and agents securely, make real-time decisions, and embed payments into external platforms without losing control.

How to read this report

Each trend follows a consistent structure: what's changing, why it matters and what payments leaders must do now. The focus is on implications and action, while detailed tables are provided in the appendix for reference and deeper analysis.

1

Real-time payments as the new normal

The shift from batch processing to real-time payments (RTPs) is no longer an optional service for clients but a fundamental architectural requirement for the entire banking enterprise. Historically, payments were synonymous with delays: settlement windows, cut-off times and overnight reconciliations. By 2026, RTPs will be the default expectation across global markets, with transaction volumes projected to reach $575 billion by 2028. This transformation is propelled by the fact that 99 countries now operate instant payment systems, and the global RTP market value is set to explode from $38.6 billion in 2025 to over $628 billion by 2035. For CIOs, this necessitates a move toward always-on systems where latency is considered as loss of competitive advantage and where failure handling must be automatic and deterministic.

The technical implications for core banking systems are profound. Legacy cores were built for synchronous, sequential and batch processing. Real-time environments, however, demand high-availability, distributed architectures that can manage idempotency — ensuring that a request is processed exactly once regardless of network retries — and scale to process peak traffic bursts. To manage this without a total rip-and-replace of the ledger, successful institutions are introducing real-time transaction layers. These layers sit alongside legacy systems to validate and route instant payments, manage retries and stream events for downstream analytics and fraud detection in real-time. This modular approach allows for incremental evolution while meeting the sub-second latency requirements of modern rails like FedNow and the RTP network.

A critical second-order effect of the real-time shift is the transformation of liquidity management. In a batch world, liquidity was a static calculation performed at the end of the business day. In an instant economy, liquidity is dynamic and fluid. Banks are no longer just processing transactions; they are managing the real-time velocity of capital. This is particularly evident in the enterprise and SME sectors, where high-value payments, once the exclusive domain of wires, are moving to instant rails. BNY Mellon recently executed the largest high-value RTP transaction in US history at $10 million, demonstrating that real-time is now ready for corporate treasury and supplier payments. For the corporate treasurer, real-time rails reduce reliance on credit lines and accelerate working capital cycles, creating a demand for banks to provide 24/7 liquidity forecasting and orchestration.

Consider the example of Citi's launch of PayTo for its institutional clients. This solution enables 19,000 clients to initiate real-time account-to-account (A2A) pull payments for everything from e-commerce to utility bills. By leveraging the technical foundations of real-time rails, Citi reduces card fees and chargeback risks for its merchants while providing customers with a seamless, instant checkout experience.

Similarly, the industry-first partnership between Nium and DBS demonstrates how next-generation real-time rails can be embedded into existing infrastructure via standard SWIFT connectivity, allowing a bank to offer global real-time payouts without a complete system overhaul. These examples highlight that real-time payments are forcing a move away from simple rails toward unified, cloud-native payment platforms that treat every transaction as a data-rich event.

Strategic implications and action plan for payments technology leaders

1 The always-on era

Example: Global ubiquity and 24/7 availability

Order of impact	Description of effect The what	Strategic action The must do
1st	**Infrastructure stress** Core banking and payment gateways must operate 24/7/365 without maintenance windows.	**Modernize the core** Migrate to cloud-native, microservices architectures (active-active) that allow 'hot updates' without outages.
2nd	**Staffing & support shift** Business hours disappear. Client support and fraud ops must scale to 24/7 coverage.	**Deploy AI-Ops** Utilize AI for L1 support and automated system healing to minimize human headcount growth.
3rd	**Expectation reset** Customers expect all banking services (loans, account opening, KYC) to be instant, not just payments.	**End-to-end digitization** Audit the entire product suite to remove manual/batch bottlenecks, not just in payments.

2 High-value enterprise shift

Example: $1M+ transactions and corporate treasury

Order of impact	Description of effect The what	Strategic action The must do
1st	**Liquidity volatility** Large sums leave the bank instantly, creating massive intraday swings in liquidity positions.	**Real-time treasury** Implement real-time liquidity dashboards and secure 24/7 credit lines with central banks/partners.

Order of impact	Description of effect The what	Strategic action The must do
2nd	**Fraud vector expansion** The irrevocability of instant large payments makes them a prime target for authorized push payment (APP) fraud.	**Deploy AI-Ops** Implement 'confirmation of payee' (CoP) and AI-driven behavioral biometrics for transaction scoring.
3rd	**Just-in-time finance** Corporates move to JIT liquidity, borrowing precisely for the hour they need it rather than holding monthly credit lines.	**Revenue erosion** Traditional 'float' income and monthly credit line fees evaporate.

3 The multi-rail mandate

Example: FedNow + RTP + ACH redundancy

Order of impact	Description of effect The what	Strategic action The must do
1st	**Integration complexity** Banks must maintain connections to multiple networks (FedNow, TCH RTP, ACH, Wires) simultaneously.	**Payment hub consolidation** Implement a centralized payment hub that abstracts the rails behind a single internal API.
2nd	**Smart routing arbitrage** The need to dynamically choose the cheapest/fastest rail for every single transaction.	**Intelligent orchestration** Build/buy a least-cost routing (LCR) engine that selects the rail based on amount, urgency and cost.
3rd	**Commoditization of rails** As routing becomes automated, the underlying rail becomes invisible. Value moves to the software layer.	**Value-added services** Shift focus to selling data insights, reconciliation tools, and ERP integrations (ISO 20022 rich data).

2

The accelerated transformation of cross-border payments

Cross-border money movement has historically been the most friction-prone segment of the payments industry, hampered by fragmented systems and inconsistent data standards. However, the industry is currently in the final stages of a 32-month coexistence period that culminated in the mandatory adoption of the ISO 20022 messaging standard in November 2025. This is not merely a technical upgrade of message formats; it is a global data modernization effort. ISO 20022 provides a structured, data-rich common language that replaces the limited, unstructured fields of the legacy MT standard. With approximately 74% of cross-border traffic on the SWIFT network already utilizing ISO 20022, the shift is creating a foundation for total end-to-end automation in international trade.

G20 roadmap is to bring cross-border transactions closer to the experience of domestic payments by making them faster, cheaper, more transparent and more inclusive.

The roadmap focuses on several key priorities: accelerating settlement speeds through real-time infrastructure, improving transparency of fees and FX, strengthening end-to-end traceability of payments, harmonising regulatory and compliance frameworks, and enabling interoperability between payment systems.

Industry initiatives are increasingly aligned with these goals. For example, the rollout of the SWIFT Retail Cross-Border Payments Framework is designed to support remittances and retail payment flows by providing greater cost transparency, principal protection and end-to-end tracking across payment corridors. This helps ensure consumers and small businesses have greater certainty on cost and delivery while strengthening trust in international payments.

Infrastructure innovation is accelerating through the interconnection of domestic fast-payment systems. Project Nexus, led by the Bank for International Settlements (BIS), is set to go live in late 2026, connecting the rails of India, Malaysia, the Philippines, Singapore, and Thailand through a single access framework. Simultaneously, wholesale settlement is being redefined by Project Agorá, which utilizes a unified ledger to merge tokenized deposits with wholesale central bank money for “atomic settlement”—the simultaneous, instant approval of payments across jurisdictions.

Together, these developments are moving the global ecosystem toward a future where cross-border payments are instant, transparent and customer-centric, supporting more efficient global commerce and financial connectivity.

This evolution is met by an equally accelerated regulatory agenda. In June 2025, the Financial Action Task Force (FATF) introduced new standards requiring enhanced payment transparency for cross-border transactions above USD/EUR 1,000, with implementation mandated by 2030 to combat the rapidly growing threat of financial fraud.

For CIOs, the strategic value of ISO 20022 lies in its ability to facilitate straight-through processing (STP). By including structured address data, purpose codes and detailed ultimate-debtor/creditor information, banks can significantly reduce the need for manual intervention. This richer data set allows for automated sanctions screening, more accurate fraud detection and seamless reconciliation for corporate clients who need to match payments to individual invoices. The transition is moving toward an enhanced data state by 2026, which will involve the retirement of unstructured postal addresses in favor of fully structured formats. Banks that fail to move beyond simple translation layers — which often truncate rich data to fit legacy back-office systems — will find themselves at a competitive disadvantage, as they will be unable to offer the high-value data services that modern enterprises now demand.

Interoperability between domestic real-time rails is the second technological pillar of the cross-border revolution. Initiatives like Project Nexus are transforming isolated domestic silos into a multilateral network, connecting the instant payment systems of India, Malaysia, the Philippines, Singapore and Thailand. This allows for instant A2A and QR-code-based payments across major trade corridors, essentially creating a super-rail for international money movement. At the institutional level, JP Morgan's Wire365 represents a shift toward 24/7 USD settlement, allowing businesses to settle transactions globally at any time, which is a critical step in a world that no longer stops on weekends or bank holidays.

A concrete example of strategic payments modernization is Citi's decision to insource its payments core. By replacing legacy vendor products with a self-built, microservices-based platform, Citi has achieved a 99% straight-through processing rate and a 40% reduction in service inquiries. This internal architectural overhaul allows the bank to fully harness the structured data of ISO 20022 across its 90-market footprint, enabling real-time cross-border liquidity and data flows that off-the-shelf products could not support. Another example is Axis Bank, which became the first Indian institution to offer 24/7 USD clearing using JP Morgan's blockchain-based platform. This enables programmable payments and multi-bank cash concentration for commercial clients, effectively merging the speed of digital asset rails with the compliance and data richness of the modern ISO 20022 ecosystem.

Strategic implications and action plan for payments technology leaders

1 Interlinked super-rails

Example: Project Nexus, ASEAN QR, bilateral links

Order of impact	Description of effect The what	Strategic action The must do
1st	**Interlinking of domestics rails** Domestic RTP systems talk directly to each other (eg UPI to PayNow). The traditional chain of correspondent banks is cut out for low-value transfers.	**Join the consortiums** Don't fight the rails; join them. Secure direct or indirect access to regional hubs (like Nexus or IXB) to ensure reachability.
2nd	**Hyper-competitive FX** With instant settlement comes instant price comparison. Customers will see the FX rate in real-time before swiping.	**Automated FX streaming** Implement an API-driven FX engine that streams executable rates in milliseconds to compete with fintechs (like Wise/Revolut).

2 Digital currencies and 24/7 liquidity

Example: J.P. Morgan/Axis Bank model

Order of impact	Description of effect The what	Strategic action The must do
1st	**Atomic settlement** Payments and FX settle simultaneously (PvP) on shared ledgers, eliminating settlement risk.	**Tokenized deposits** Pilot deposit token capabilities to enable 24/7 movement of liability without moving actual fiat reserves across borders constantly.
2nd	**De-trapping liquidity** Pre-funded Nostro accounts (dormant cash sitting in foreign banks) become obsolete. Liquidity can be moved instantly just-in-time.	**Dynamic nostro management** Deploy AI tools to predict exact liquidity needs per corridor and fund accounts minutes before needed.
3rd	**The global treasury service** Corporates move to JIT liquidity, borrowing precisely for the hour they need it rather than holding monthly credit lines.	**Treasury-as-a-service (TaaS)** Build dashboarding that allows CFOs to sweep cash from London to Tokyo instantly at 2:00 am.

3 Infrastructure in-sourcing

Example: Citi's microservices shift

Order of impact	Description of effect The what	Strategic action The must do
1st	**Vendor decoupling** Moving from monolithic "Black Box" vendor software to internal modular microservices.	**Build engineering hubs** Shift HR strategy to hire product owners and full-stack devs. Adopt "inner source" coding culture.
2nd	**Agility and customization** Ability to deploy a new feature (e.g., a specific reconciliation report for a client) in weeks, not years.	**API-first product design** Ensure every internal service (compliance, FX, ledger) is an API that can be reassembled for client needs.
3rd	**The bank as a software firm** Once the stack is robust, it can be white-labeled and sold to smaller banks who cannot afford to build it.	**Platform strategy** Evaluate if your new stack is an internal utility or a sellable asset (Payments-as-a-service).

3

Digital assets, tokenisation and programmable payments

The integration of digital assets and programmable payments into the mainstream financial ecosystem is one of the most significant shifts in the history of money movement. Stablecoins and tokenized deposits are no longer viewed as crypto-experiments but as regulated financial instruments capable of handling institutional-grade settlement. By late 2025, total stablecoin circulation on public blockchains exceeded $306 billion, a 50% increase year-on-year, with projections suggesting they could handle transaction volumes of up to $200 trillion by 2030. The driver of this adoption is the emergence of clear regulatory frameworks, such as the Markets in Crypto-Assets (MiCA) regulation in the EU and the GENIUS Act in the US, which have provided the legal certainty necessary for banks to integrate these assets into their treasury and settlement operations.

For wholesale finance, tokenized bank deposits are rapidly overtaking stablecoins as the preferred 'on-chain dollar'. These tokens represent a bank-issued liability on a distributed ledger, allowing for instant settlement and programmability while staying within the bank's existing regulatory and capital frameworks. JP Morgan's JPM Coin (JPMD) is the prime example of this, allowing institutional clients to settle cross-border payments 24/7 on public rails with the speed of crypto and the legal certainty of a traditional bank deposit. Similarly, BNY Mellon is piloting tokenized deposits to enable real-time cross-border settlement across its global network, overcoming the limitations of legacy correspondent banking systems to manage its $2.5 trillion in daily payment flows.

In a significant strategic shift, a consortium of 10 major European banks including BNP Paribas, ING and UniCredit has formed a joint venture called Qivalis to launch a regulated, MiCAR-compliant euro stablecoin by late 2026. This move signals a pivot away from individual, fragmented tokenized deposit experiments toward resource-pooled, common market standards intended to establish European strategic autonomy in the digital asset landscape.

Programmability is the feature that transforms digital assets from passive value stores into active, intelligent money. By utilizing smart contracts or conditional logic, payments can be programmed to execute only when specific conditions are met — such as the delivery of goods verified by an IoT sensor or the completion of a legal document. This removes the need for manual escrows and reduces the reconciliation burden for corporate treasuries. In 2026, we expect at least one Fortune 100 company to announce the full integration of regulated stablecoins into its global treasury operations, primarily for liquidity management in long-tail currency corridors where traditional rails are prohibitively expensive and slow.

Real-world evidence of this trend is seen in Visa's strategic pivot to support USDC settlement on the Solana blockchain. With an annualized settlement volume run rate of $3.5 billion, Visa is no longer treating digital assets as a sandbox experiment but as a core value-added service for its issuers and acquirers. Additionally, the launch of MONY — JP Morgan's tokenized money-market fund on Ethereum — allows investors to subscribe and redeem shares using stablecoins, effectively bridging the gap between traditional investment vehicles and decentralized liquidity pools. For CIOs, the mandate is clear: build the connectivity between traditional ISO 20022 message flows and the emerging world of tokenized settlement, ensuring that the bank can orchestrate value across both legacy and blockchain-based rails seamlessly.

Strategic implications and action plan for payments technology leaders

1 Tokenized deposits over stablecoins

Example: Wholesale preference and regulatory clarity

Order of impact	Description of effect The what	Strategic action The must do
1st	**Liability shift** Tokenized deposits (like JPM Coin) remain a liability of the bank and can legally pay interest. Stablecoins (under GENIUS Act) are essentially digital cash and often cannot pay interest to holders.	**Launch yield-bearing tokens** Develop a tokenized deposit proposition that mirrors your treasury/ MMF yields. Don't force clients to choose between fast (crypto) and profitable (deposits).
2nd	**Collateral mobility** A tokenized deposit can be moved instantly to a clearinghouse or exchange (like the JPM/Base example) to serve as collateral at 2:00 am.	**Collateral management integration** Build APIs that allow your tokenized deposits to be posted as margin on major exchanges (CME, ICE, crypto exchanges) instantly.
3rd	**The walled garden problem** Bank A's token doesn't naturally talk to Bank B's token. This fragments liquidity compared to a universal stablecoin like USDC.	**Join interoperability protocols** Commit to standards like the Regulated Liability Network (RLN) or Unified Ledger concepts to ensure your token can settle against other banks' tokens.

2 Regulatory catalysts

Example: GENIUS Act and MiCA frameworks

Order of impact	Description of effect The what	Strategic action The must do
1st	**Legitimacy of rails** The Wild West era is over. Regulated institutions are now explicitly permitted (and expected) to handle stablecoins/tokens.	**Custody infrastructure** Build or partner for qualified custody of digital assets. You cannot service these clients if you cannot safely hold the private keys.
2nd	**Non-bank competition** The GENIUS Act allows non-banks to issue payment stablecoins. Fintechs and tech giants will issue their own 'dollars'.	**Wallet-as-a-service (WaaS)** If you can't beat them, service them. Offer the shadow ledgering and reserve custody services to these non-bank issuers.
3rd	**Programmable compliance** Regulation itself becomes code. Compliance rules (KYC/AML) travel with the token via smart contracts.	**Smart contract governance** Hire solidity auditors and implement a framework for managing the code that controls your money.

3 Institutional and public chain fusion

Example: JPM on Base, BNY on cross-border

Order of impact	Description of effect The what	Strategic action The must do
1st	**Public chain acceptance** Banks are moving from private permissioned blockchains (like R3 Corda) to public chains (Ethereum L2s like Base) to access liquidity.	**L2 strategy** Determine which public Layer 2 (Base, Optimism, Polygon) your institutional clients are using and deploy your deposit token there. Don't build a ghost town on a private chain.
2nd	**Programmable treasury** CFOs can write 'if/then' logic for money. (eg If exchange rate hits X, pay Supplier Y immediately).	**Developer portal** Launch a smart contract library for treasurers — pre-approved code snippets for sweeping, pooling and conditional payments.
3rd	**Atomic settlement** Delivery-vs-payment (DvP) becomes atomic. The asset and the money swap in the same block.	**Asset tokenization** You must offer the asset side too. If you offer the money (tokenized deposit) but not the asset (tokenized bond), the client will go to the bank that offers both for atomic swapping.

4

The increasing role of AI in payments, intelligent payments operations and agentic commerce

Artificial Intelligence is moving beyond assistance to autonomous transactions within the payments value chain. This shift is split into two critical domains: the modernization of internal payment operations and the rise of autonomous, agentic commerce. Within bank operations, AI is transitioning from simple rule-based systems to learning agents capable of managing complex, end-to-end tasks like KYC handling, FX hedging and exception resolution. Banks that have moved beyond pilots are seeing substantial ROI. For instance, Deutsche Bank has reduced KYC manual handling time by 30% through an AI-led redesign of its operating model.

Agentic commerce, on the other hand, represents a clean break from traditional e-commerce. In this model, AI agents — powered by protocols such as Google's Agent Payments Protocol (AP2) or Stripe's Agentic Commerce Suite — autonomously discover products, compare prices and execute purchases on behalf of users based on pre-defined mandates. These agents are not merely chatbots; they are authenticated software entities that can hold payment credentials and transact within set guardrails. McKinsey projects that agentic commerce could generate $1 trillion in US retail revenue by the end of the decade, representing nearly a third of all online sales.

The shift toward agentic systems introduces new challenges for governance and accountability. Determining who is responsible for an incorrect purchase made by an autonomous agent — the user, the agent developer or the merchant — remains a critical regulatory gap. To mitigate this, the industry is building 'trust as a metric'. Frameworks like AP2 use mandates — tamper-proof, cryptographically signed digital contracts — to ensure that every action an agent takes is authorized and auditable. Furthermore, Mastercard's agentic tokens ensure that while an agent can negotiate and pay, the customer's actual card details remain hidden from the merchant, maintaining the highest levels of security in an autonomous environment.

Elsewhere, JP Morgan's multi-agent task automation for corporate clients, uses bots to autonomously manage FX hedging and payment optimization. In the consumer space, the partnership between Stripe and OpenAI has introduced Instant Checkout in ChatGPT, allowing the AI to act as a personal shopper that completes purchases within the chat interface. For SMEs, AI agents are being deployed to optimize cash management, automatically flagging high-risk transactions and recommending re-tries or refunds before a dispute even arises — a process known as proactive dispute prevention. CIOs must prepare for this machine-to-machine economy by building API-first architectures that can consume these mandates and tokens while ensuring rigorous human-in-the-loop oversight for high-value or high-risk decisions.

Strategic implications and action plan for payments technology leaders

1 Autonomous workflows

Example: PM multi-agent FX and cash flow

Order of impact	Description of effect The what	Strategic action The must do
1st	**The 24/7 CFO** AI agents don't sleep. They monitor FX rates and cash positions every millisecond and execute hedges or sweeps instantly without human approval.	**Implement guardrail governance** Replace manual approvals with pre-coded policy-as-code guardrails (eg agent can trade up to $5M if volatility is <10%).
2nd	**Hyper-efficiency and margin crush** If every corporate treasurer uses an AI agent to hunt for the best FX rate, spreads will collapse.	**Pivot to execution quality** Stop competing on price (which is racing to zero) and compete on fill rate and liquidity depth.
3rd	**The M2M economy** Machines paying machines. A drone pays a charging station; a fridge pays a grocery depot. No human is involved in the loop.	**Build wallet-of-things Infrastructure** Develop fractional payment capabilities and device identity protocols to serve non-human clients.

2 Infrastructure and standards

Example: Google AP2 and Mastercard Agent Pay

Order of impact	Description of effect The what	Strategic action The must do
1st	**The intent mandate** Protocols like AP2 require a cryptographically signed mandate (proof of intent) before a payment is triggered, to prevent AI hallucinations from emptying accounts.	**Upgrade to agent-native gateways** Adopt standards (like AP2 or EMV 3DS for agents) that can parse and validate these new cryptographic intent tokens.

Order of impact	Description of effect The what	Strategic action The must do
2nd	**Know your agent** You must distinguish between a verified personal shopper agent and a malicious script-kiddie bot.	**Deploy agent registries** Implement whitelisting infrastructure that only allows agents with valid digital certificates (eg from Mastercard) to transact.
3rd	**Liability shifts** If an AI agent buys the wrong flight, who pays? The user, the LLM provider (OpenAI) or the Bank?	**Revise terms of service** Explicitly define liability limits for agent-initiated transactions in your corporate banking contracts.

3 Real-world adoption

Example: Stripe + OpenAI

Order of impact	Description of effect The what	Strategic action The must do
1st	**The death of the checkout page** Transactions happen inside the chat interface (ChatGPT/Claude), not on your website.	**Headless commerce** Decouple your payment engine from your frontend. Ensure your payment APIs are robust enough to be embedded anywhere (eg: inside a chatbot).
2nd	**SEO for agents** Agents don't read billboards. They read structured data. If your product/ payment terms aren't machine-readable, you are invisible.	**Structure your data** Publish agent-ready catalogs with clear, API-accessible pricing and real-time inventory status.
3rd	**Brand disintermediation** Consumers trust the agent to pick the best product. "Hey Siri, buy me the best toothpaste."	**Partnership strategy** You must partner with the agent platforms (Google/OpenAI/Apple) to ensure your bank/payment method is the default wallet in their ecosystemOS.

5

Financial crime and fraud prevention in the world of instant payments

The adoption of real-time payments has fundamentally collapsed the window for fraud detection. In an instant world, money moves at machine speed, leaving no room for the manual review cycles that once protected legacy systems. As a result, fraud is moving beyond the bank's traditional perimeter, with authorized push payment (APP) fraud — where consumers are socially engineered into authorizing a transaction, becoming the defining threat of 2026. Losses from APP fraud are projected to reach $5.25 billion by 2026, driven by the increasing sophistication of AI-powered scams and deepfake impersonations.

To counter these threats, banks must shift from reactive, rule-based detection to proactive, AI-driven behavioral analytics. Modern fraud platforms now rely on passive continuous authentication, analyzing over 3,000 anonymized data points — such as typing cadence, mouse movements and navigation patterns — to distinguish between a legitimate user and a fraudster or a remote-access tool. Furthermore, the move toward unified fraud plus AML (FRAML) platforms provides banks with cross-channel visibility, allowing them to detect 'mule account' activity and coordinated fraud rings that exploit the speed of real-time rails to move funds across multiple institutions in minutes.

Network-level collaboration is no longer a luxury but a requirement for operational resilience. ACI's network intelligence technology allows banks to securely share and consume fraud signals from across the industry, feeding machine learning models with macro-level insights that no single institution could capture alone. This collaborative approach is particularly effective for real-time mule account detection. For instance, the NPCI in India is piloting federated AI models that allow multiple banks to identify and block suspicious fund movements across the UPI network without sharing sensitive customer data.

A concrete example of this is the Clari5 Cybercrime Complaints Processing Platform, which has helped large retail banks reduce their fraud resolution time from days to within the 'golden hour — the critical first 60 minutes after a fraudulent transaction occurs. By unifying real-time monitoring across accounts, cards, and digital wallets, Clari5 allows banks to detect anomalies and stop fraud before funds exit the ecosystem. Another example is the use of graph neural networks (GNNs) by leading banks to map fund flows and identify centrality in fraud rings, allowing investigators to dismantle organized criminal networks rather than just stopping individual transactions. For CIOs, the challenge is building the data infrastructure that supports these millisecond-level decisions while maintaining the explainability and transparency required by regulators.

Strategic implications and action plan for payments technology leaders

1 The collapse of time

Example: RTP and the golden hour reduction

Order of impact	Description of effect The what	Strategic action The must do
1st	**Disappearance of review windows** The 'pending' status is gone. Money leaves the bank in milliseconds. Post-transaction review is useless for recovery; detection must happen pre-authorization in sub-100ms.	**Deploy real-time interdiction** Move from 'detect and report' to 'detect and block'. Upgrade decision engines to run inline with the payment rail, not asynchronously.
2nd	**The rise of APP fraud** Since technical hacking is hard, criminals hack the human. Users are socially engineered to authorize the payment themselves.	**Introduce positive friction** Implement dynamic friction (eg: a cooling off period or 'are you sure?' prompt) specifically for high-risk transactions to break the spell of the scammer.
3rd	**Deepfake weaponization** AI voice/video clones impersonate CEOs or family members to trigger payments. voice ID systems become vulnerable.	**Verify the counterparty** Implement confirmation of payee (CoP) globally and explore 'reverse auth' (where the bank app validates the caller is actually the bank).

2 From rules to behavioral AI

Example: Passive continuous authentication

Order of impact	Description of effect The what	Strategic action The must do
1st	**Context over content** Rules (eg transaction > $10k) fail. Systems now analyze how the user acts (mouse jitter, typing cadence, hesitation) to detect remote access tools (RATs) or coercion.	**Deploy behavioral biometrics** Integrate SDKs that capture telemetry (gyroscope, touch pressure) to build a user DNA profile that runs continuously, not just at login.

Order of impact	Description of effect The what	Strategic action The must do
2nd	**The black box challenge** AI models (neural networks) block a transaction, but the logic is opaque.	**Invest in explainable AI** Use model interpretability layers (like SHAP values) to give investigators plain-English reasons for AI decisions (eg blocked due to unusual typing speed during beneficiary addition).
3rd	**FRAML convergence** Fraud (external theft) and AML (money laundering) teams merge. The data used to spot a mule account is the same data used to spot the laundering ring.	**Unify the data lake** Build a single data repository for fraud and AML to enable entity resolution — seeing that the fraud victim and mule are interacting.

3 Network intelligence

Example: Federated learning and graph networks

Order of impact	Description of effect The what	Strategic action The must do
1st	**The mule network effect** Fraudsters use mule accounts across different banks to layer funds instantly. A single bank only sees one hop of the chain.	**Join signal sharing consortia** Participate in networks (like ACI Network Intelligence or national schemes) to consume reputation scores for destination accounts before sending money.
2nd	**Privacy-preserving collaboration** Banks must share fraud signals without sharing personally identifiable information.	**Pilot privacy-enhancing tech** Invest in cryptographic technologies that allow blind matching of suspicious accounts against other banks' watchlists.
3rd	**Graph-based investigation** Moving from list-based checks to network-based analysis. Using graph neural networks (GNNs) to visualize relationships between thousands of accounts.	**Implement graph databases** Move complex fraud investigations from SQL tables to graph databases (like Neo4j) to visualize flow of funds in real-time.

Key enablers: Digital identity, smart data and open banking

The success of the aforementioned trends is fundamentally underpinned by two core enablers: robust digital identity and the maturation of open banking. Digital identity is the cornerstone of trust in a real-time, autonomous economy. By 2026, the EU's mandate for digital identity wallets will be in full effect, allowing citizens and businesses to securely authenticate and authorize payments across borders without friction. In Asia, unified ecosystems like India's Aadhaar-linked UPI or Singapore's SingPass are already integrating identity with payment credentials, creating a foundation for seamless, secure onboarding and transaction verification.

Open banking is transitioning from a compliance mandate to a commercial reality. Early assumptions that simply providing data access would create value have given way to a focus on high-impact use cases like SME lending and integrated treasury services. As open banking APIs become more sophisticated, they are enabling embedded finance — the ability for any non-financial platform, from a SaaS accounting tool to an e-commerce marketplace, to offer payment and financing solutions natively. For banks, this shift means their APIs must be robust enough to handle the mandate structures required for agentic commerce, acting as the bridge between the autonomous agents and the underlying financial ledger. Together, digital identity and open banking provide the necessary infrastructure for a secure, data-rich and frictionless payments ecosystem.

Strategic implications and action plan for payments technology leaders

1 Foundation for secure payments

Example: Passkeys and biometrics

Order of impact	Description of effect The what	Strategic action The must do
1st	**The death of passwords and OTPs** FIDO2 standards (passkeys) replace passwords with hardware-based biometrics (FaceID/TouchID) for authentication.	**Implement WebAuthn** Upgrade authentication flows to support FIDO2/WebAuthn immediately. Retire SMS OTP (which is insecure) as the primary 2FA method.
2nd	**Silent authentication** Security moves to the background. Behavioral biometrics (how you type, how you hold the phone) verify users continuously without stopping the flow.	**Deploy behavioral scoring** Integrate risk engines that analyze passive signals (device fingerprinting + behavioral biometrics) to approve 90% of transactions without a challenge.
3rd	**Biometrics as the payment rail** With Naked payments, The user is the card. Pay by smiling at a camera (eg Aadhaar Face Auth, PopID) without a phone or wallet.	**Pilot biometric POS** Start testing 'pay-by-face or 'pay-by-palm in controlled retail environments to prepare for cardless physical commerce.

2 Global regulatory push

Example: EU Identity Wallet / EIDAS 2.0

Order of impact	Description of effect The what	Strategic action The must do
1st	**Mandated acceptance** Regulations like eIDAS 2.0 will mandate that big platforms (and likely banks) must accept government-issued digital wallets for login/KYC.	**Build e-ID consumption APIs** Prepare your stack to ingest verifiable credentials (W3C standard) from government wallets instead of asking users to upload PDF scans.

Order of impact	Description of effect The what	Strategic action The must do
2nd	**Cross-border KYC portability** A citizen can open a bank account in another country instantly using their domestic digital ID. (eg a German opening a French account).	**Harmonize onboarding logic** Redesign onboarding flows to treat a 'foreign' digital ID with the same trust score as a local physical ID, enabling true digital cross-border growth.
3rd	**Data minimization (zero-knowledge proofs)** Wallets allow proving a fact (eg over 18) without sharing the data (date of birth).	**Shift to attribute-based access** Update systems to make decisions based on verified flags (true/false) rather than storing raw PII.

3 Integrated ecosystems

Example: Aadhaar, SingPass, Gov.UK

Order of impact	Description of effect The what	Strategic action The must do
1st	**Reusable KYC** The concept of onboarding becomes obsolete. Users do KYC once (with the gov/telco) and share that token with the bank.	**Partner with trust anchors** Integrate directly with national identity schemes (like DigiLocker in India or SingPass in Singapore) to automate 100% of KYC.
2nd	**Identity recovery is the new battleground** If a user loses their digital ID, who helps them recover it? The state? The telco? Or the bank?	**Become a trusted issuer** Don't just consume IDs; offer to issue derived credentials (eg a high net worth credential) to your client's wallet to maintain relevance.
3rd	**The super app convergence** Identity, payments and document storage merge into one app. The user opens one app to drive, vote and pay.	**Embed banking into wallets** Ensure your payment methods are tokenized and available inside these national/big tech identity wallets.

Strategic implications and how to prepare

The convergence of these technology trends demands a fundamental rethink of the banking technology roadmap. CIOs must move beyond isolated AI pilots and legacy core updates to a cohesive, firm-wide strategy that aligns technology investments with business outcomes. This requires a focus on four critical areas:

Modernizing the core for composable architectures

Legacy payment cores, built for batch processing and synchronous flows, are the primary bottleneck for real-time and AI-driven innovation. CIOs must modernize these systems into composable, AI-ready architectures. This involves transitioning from monoliths to lightweight, microservices-based thin cores that decouple the ledger from the experience and intelligence layers. By utilizing hybrid multi-cloud platforms, banks can achieve the scalability and 24/7/365 availability required by instant payment rails while isolating the legacy core from peak traffic bursts via real-time transaction layers. A 2025 survey by the MACH Alliance (a global authority on composable, open, and MACH architectures) highlights that firms with mature composable architectures are twice as likely to succeed in embedding AI into their systems and delivering tangible customer value compared to those with legacy setups.

Investing in unified data and AI-ready infrastructure

Autonomous agents and real-time fraud detection are only as effective as the data that fuels them. CIOs must address data silos by modernizing their infrastructure with concepts like data mesh and data fabric. The goal is to create a real-time, trusted foundation where data is treated as a product, complete with clear ownership and lineage. Without organized, timely and securely governed data, even the most ambitious AI models will fail to scale or meet the explainability requirements of modern regulators.

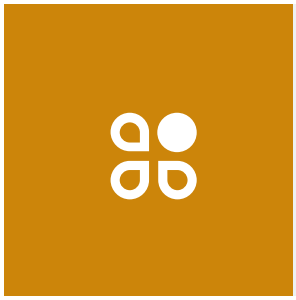
Approaching ecosystem partnerships strategically

The complexity of the 2026 landscape makes it impossible for any single institution to build every component of the payments stack. Banks must adopt an assembly approach, buying foundational model layers and specialized fintech solutions (such as card issuing or cross-border payouts) while building proprietary, bank-specific layers to create competitive differentiation. This requires a mature partnership strategy and the technical capability to facilitate rapid, API-led integrations with wallets, fintechs and global networks.

Operating model and talent implications

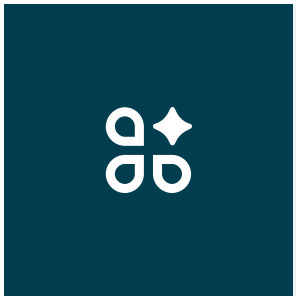
The shift toward an AI-powered bank requires a new operating model that bridges the AI divide. PSPs should move toward a hub-and-spoke model, where a central AI center of excellence (CoE) drives enterprise-wide quality, standards (like MLOps or LLMOps), and governance, while business units manage specific line needs. Furthermore, talent strategy must shift from hiring general AI engineers to specialized roles in MLOps, AI-native software engineering, and responsible AI governance. Creating AI natives within the organization — employees who can design workflows around AI outcomes rather than just features — will be the key to long-term success.

The successful transformation hinges on three core principles:.



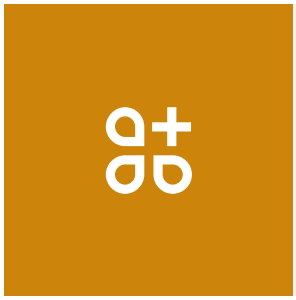
Rebuild the core

Modernize legacy systems into composable, API-first, event-driven, and ISO 20022-ready cores that enable real-time detection and processing, and autonomous transactions.



Rewire for agents

Safely deploy AI agents and automation across payment operations and customer journeys to reduce cost-to-serve and improve decision velocity. Explore Payment Foundation Models to enhance efficiency across operations, from risk and fraud prevention to personalization and retention.



Reimagine value

Create new revenue models and products enabled by real-time rails, cross-border innovation and digital assets, ensuring that the bank remains a strategic partner.

This is not simply another technology cycle. It is a structural shift in how money moves. Financial services organisation's that act now — transforming data foundations, operational processes and governance frameworks — will define the future benchmarks for efficiency, resilience and trust. Those that remain anchored to legacy batch paradigms will find themselves increasingly outpaced as the global payments ecosystem accelerates toward a real-time, intelligent and interconnected future.

Why Thoughtworks

How we helped organizations to future proof their payments business and technology

Architecting the world's largest real-time payment engine

When the National Payments Corporation of India (NPCI) established the ambitious vision of processing one billion transactions daily, they partnered with Thoughtworks to re-architect the Unified Payments Interface (UPI) for unprecedented scale. Moving beyond simple maintenance, Thoughtworks implemented a robust platform approach that decoupled financial from non-financial transactions to ensure reliability and established continuous delivery pipelines for zero-downtime updates. This engineering overhaul allowed the system to scale from 8,000 to over 30,000 transactions per second, successfully handling peak loads while reducing infrastructure costs by 10x.

Today, UPI serves as the global benchmark for real-time payments, processing 131 billion transactions annually worth $2.3 trillion as in 2024. The partnership has since evolved to build the India Distributed Finance Platform (IDFP), a blockchain-based sovereign infrastructure designed to democratize access to asset tokenization and programmable money. This engagement demonstrates Thoughtworks' unique ability to engineer national-grade financial infrastructure that is secure, cost-efficient, and capable of supporting an entire country's digital economy.

Pioneering enterprise agility

Pioneer platform modernization by adopting scalable, modern architectures that enable swift responses to emerging market trends and enhance business agility.

Global financial technology company:
Enhanced agility achieved by replatforming their solution, enabling real-time transactions, reducing staff requirements, accelerating delivery, and supporting rapid business scale-up across payment channels.

Powering payment platforms and ecosystems

Power payment platforms by building scalable and resilient systems that facilitate seamless ecosystem interactions, fostering collaboration and innovation.

US based bank:
Enhanced payment platforms, ecosystems through microservices architecture and scalable cloud technologies enabling 25Mn+ real-time transactions daily while improving customer experiences and efficiency.

Pursuing data-driven growth

Pursue the development of compelling data narratives to unlock new revenue streams. Promote ecosystem participation to drive innovation and growth.

National payments corporation of India:
Collaborated to enhance India's payment ecosystem by building the Genius analytics platform. This platform enabled scalable, reliable ML models and democratized AI innovation, driving data-driven growth.

Personalizing payment experiences

Personalize digital engagement at scale by tailoring payment experiences for end customers. Provide them with insights to make informed financial decisions.

DBS, Singapore:
Partnered with client to re-platform their digital payments ecosystem, enhancing scalability, stability, and customer experience, resulting in 87% growth in new customers.

Protecting digital payments

Protect digital payments by leveraging AI to improve fraud detection and prevention. Proactively minimize revenue loss for merchants, businesses reducing false positives and chargebacks.

A digital wallet start up:
Thoughtworks assisted client by building a flexible real-time fraud detection system leveraging AI, reducing response times, handling 50 million transactions/day without downtime.

Authors

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Alla has more than 25 years of experience in financial services, payments and technology consulting. She began her career at American Express and Mastercard before moving into consulting over a decade ago, where she has worked at the intersection of strategy, regulation, innovation and technology to drive commercial growth and large-scale transformation.

Most recently, Alla led the UK Payments Consulting practice at EY, advising global banks, networks, PSPs, fintechs and infrastructure providers on strategic initiatives including product diversification, value-added services, alternative payment methods and real-time payments modernisation.

She has also helped shape the future of the payments industry, contributing to the UK's Future of Payments Review and the National Payments Vision, with a focus on infrastructure renewal, fraud prevention, digital identity, Open Banking and stablecoins.

Alla is a strong advocate for authentic leadership and diversity in technology, and is actively involved in Women in Payments, Women on Boards and Global Women in AI.

Mark Davies

Senior Vice President and Global Head of BFSI Vertical and Americas Markets, Thoughtworks

Mark Davies is an accomplished leader with over 25 years of industry and technology expertise, specializing in financial services, payments, and managed services. As Head of Financial Services for the Americas and Europe, Mark leverages his extensive Banking and Payments background to drive business growth and deliver exceptional value to clients.

Throughout his career, Mark has held prominent leadership roles, including Chief Revenue Officer (CRO), Chief Marketing Officer (CMO), and Divisional Leader at leading global organizations. He is recognized for his proven track record of building high-performing teams, achieving business objectives, and ensuring outstanding customer delivery and importantly, being a trusted adviser to senior executives in the Industry.

Mark's global perspective is shaped by his experience living and working in diverse markets, including Singapore, Australia, India, London, Latin America, and the United States. His international expertise and strategic vision continue to make a significant impact in the financial services sector.

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Murali comes with extensive experience in managing, implementing, delivering, developing and supporting solutions involving financial products and services to a large number of banking and financial services institutions across the world.

He has a keen interest in neuroscience, business architecture, data and behavioural science alongside a more than a passing interest in the convergence of industries, and the resulting business model evolution in the financial sector.

At Thoughtworks, Murali focuses on transforming financial institutions to technology and data-driven, customer-centric, agile organisation. Besides work, Murali enjoys reading, long distance running and table tennis.

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Omar brings over 18 years of experience in banking and financial technology, working across leadership and technical roles in global banks and financial institutions.

He has in-depth expertise in capital markets technology and composable cloud-native banking systems. He has led large scale legacy modernisation, cloud transformation and mainframe offload programmes in the financial services industry, and has written and spoken extensively on these subjects in industry publications and forums.

Omar leads technology transformation initiatives with a strategic focus on business value, organisational agility and continuous improvement. As a trusted advisor and positive influencer, he has enabled business and technical stakeholders to align their technology initiatives with their strategic business outcomes, and deliver modernisation programmes that successfully achieve those outcomes.

We are a global technology consultancy that delivers extraordinary impact by blending design, engineering and AI expertise.

For over 30 years, our culture of innovation and technological excellence has helped clients strengthen their enterprise systems, scale with agility and create seamless digital experiences.

We're dedicated to solving our clients' most critical challenges, combining AI and human ingenuity to turn their ambitious ideas into reality.

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