BNY

MODERNIZING THE PAYMENTS OPERATING MODEL

From fragmented processes to a seamless 24/7 payments system

EXECUTIVE SUMMARY

Payments modernization today goes beyond upgrading rails: it's about redesigning the operating model for a continuous, data-rich–and increasingly intelligent–rail-agnostic payments environment. BNY's Unified Payments Platform reflects that shift, with a unified architecture built to simplify cross-rail complexity, strengthen resilience and support operational scale.

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INTRODUCTION

Payments modernization is shifting from rail upgrades to operating model redesign

Payments are entering a new operating environment defined by 24/7/365 availability, real-time execution and rising expectations for transparency, resilience and automation. Modernization is no longer a narrow technology initiative—it's an enterprise-wide redesign of infrastructure, workflows and the operating model required to support them.

Agility is a critical part of this change because payments modernization is not unfolding as a single, orderly wave. It is arriving in multiple waves simultaneously—real-time payments, APIs, tokenization, artificial intelligence (AI), richer data, regulatory change and the coming of digital finance as we explored in the Payments Without Pause e-book earlier this year. Each of these waves is advancing at a different pace and in a different direction across markets, infrastructures and institutions. This is fundamentally reshaping the payments ecosystem in ways that create both possibilities and complexity. Many banks are finding that their legacy architectures, fragmented liquidity models, siloed controls and non-continuous operating environments were not designed for this emerging world.

The financial-services industry is in the middle of a profound period of change across the payments ecosystem. Participants in this transformation are moving at very different speeds. That makes it important to meet clients where they are in their journey and have a comprehensive modernization strategy to make the process safe, resilient and sustainable.

The challenge for financial institutions is not simply to adopt new technologies today, but to also be prepared to adapt quickly to novel technologies in the future. Modernization is about creating an operating model that can absorb change, reduce friction and help firms serve their clients with greater speed, transparency and confidence. Payments modernization should be approached not as a rail-by-rail upgrade program, but as an enterprise-wide effort to build a more agile, resilient and scalable operating model that is rail-agnostic. It needs to be able to operate effectively and efficiently in a rapidly changing and highly unpredictable financial ecosystem while providing the levels of resiliency and performance expected from a foundational economic service.

BNY's own journey reflects that shift. We have approached modernization not as a series of isolated upgrades, but as a deliberate move toward a more unified, capability-based payments platform designed for a 24/7/365, multi-rail world that will continue to evolve. This paper explores that journey and the development of a new payments platform designed to support clients as they advance their own modernization priorities.

PAYMENT COMPLEXITY IS NO LONGER A BY-PRODUCT—IT'S A STRATEGIC CONSTRAINT

The payment rail landscape is growing more complex. Today there are nearly 100 real-time payment rails around the globe, leading to multiple formats, standards, and country-specific requirements. Tokenized payments are growing, and simultaneously traditional payments infrastructures are upgrading their own rails via the ISO 20022 standard and increasingly for 24/7/365, near-real-time performance.

At the same time, treasury teams need payment data integrated directly into enterprise resource planning (ERP) software and treasury management systems (TMS) to enable automation. Non-payment specialists need to be able to make payments by outcome goals–lowest fees, fastest rail, best FX rate. Transactions need to be trackable and explainable. Sanctions compliance is growing more complex, while financial crimes are becoming more sophisticated. In addition, both banks and corporates are anticipating the operational complexity that the 24/7/365 financial world on blockchain will create.

However, traditional rail architectures were created when there were far fewer payment options, manual processes dominated, compliance rulebooks were slimmer, and there was significantly less need for speed. Each rail has its own infrastructure, so that workflows, controls, data and investigations are usually distributed across multiple silos.

Over time, this layered complexity has become a structural constraint. It limits scalability, weakens resilience, increases operational friction and makes it harder to support continuous processing or adopt new capabilities efficiently. In addition, consumers and businesses no longer accept the inconsistent client experience across rails that silos create. To improve the client experience, many organizations have added integration layers to mask internal complexity. But this only creates another layer of complexity and fragility. It's not a strategic fix–just a temporary bandage.

The industry's complexity is not only technical. It's economic and operational. Every additional rail, market requirement, control layer or bespoke client workflow creates another marginal burden on architecture, operations and change delivery. Over time that burden becomes a hidden tax on innovation, resilience and client experience. What looks manageable in isolation becomes unsustainable in aggregate. That is why simplification matters: not as an aesthetic preference, but as a prerequisite for adaptability, safety and speed.

BNY's payments modernization program is rooted in a clear vision, which is to simplify the underlying architecture to create an infrastructure that can overcome traditional boundaries between payment rails and provide an open network environment which can plug into anything new that the industry can come up with–that is what creates "optionality" for clients for the future and reduces long-term strategic risk. This approach also delivers true integration–reducing complexity while increasing resilience–leading to a genuinely unified client experience. The result is a complete re-imagining of what a payments platform can be.

ORCHESTRATION IS BECOMING THE DEFINING LAYER IN MODERN PAYMENTS

BNY has moved from application-based infrastructure to a Unified Payments Platform (UPP), a core payment orchestration engine. Orchestration is what allows the model to absorb external fragmentation without reproducing that fragmentation internally. It creates the flexibility to add new networks, support new client operating models and connect to emerging value ecosystems–without repeatedly rebuilding and adjusting the core. Key principles of BNY's platform include:

- **Interoperability:** Connects to multiple payment rails and emerging digital cash ecosystems
- **24/7/365 processing and last-mile reach:** Supports continuous processing and effective endpoint integration
- **Automation:** Streamlines workflows across the payment value chain, using design-led and AI-enabled tools
- **Modern architecture:** Uses a cloud-ready, API-based architecture, supported by a robust data ecosystem
- **Security, resilience and compliance:** Builds in cybersecurity, sanctions screening, verification and operational resilience

Instead of treating each payment rail as a separate system, the platform uses a unified orchestration layer with a consistent control framework, standardized data handling and a more coherent user experience across payment types (Figure 1). This orchestration layer supports:

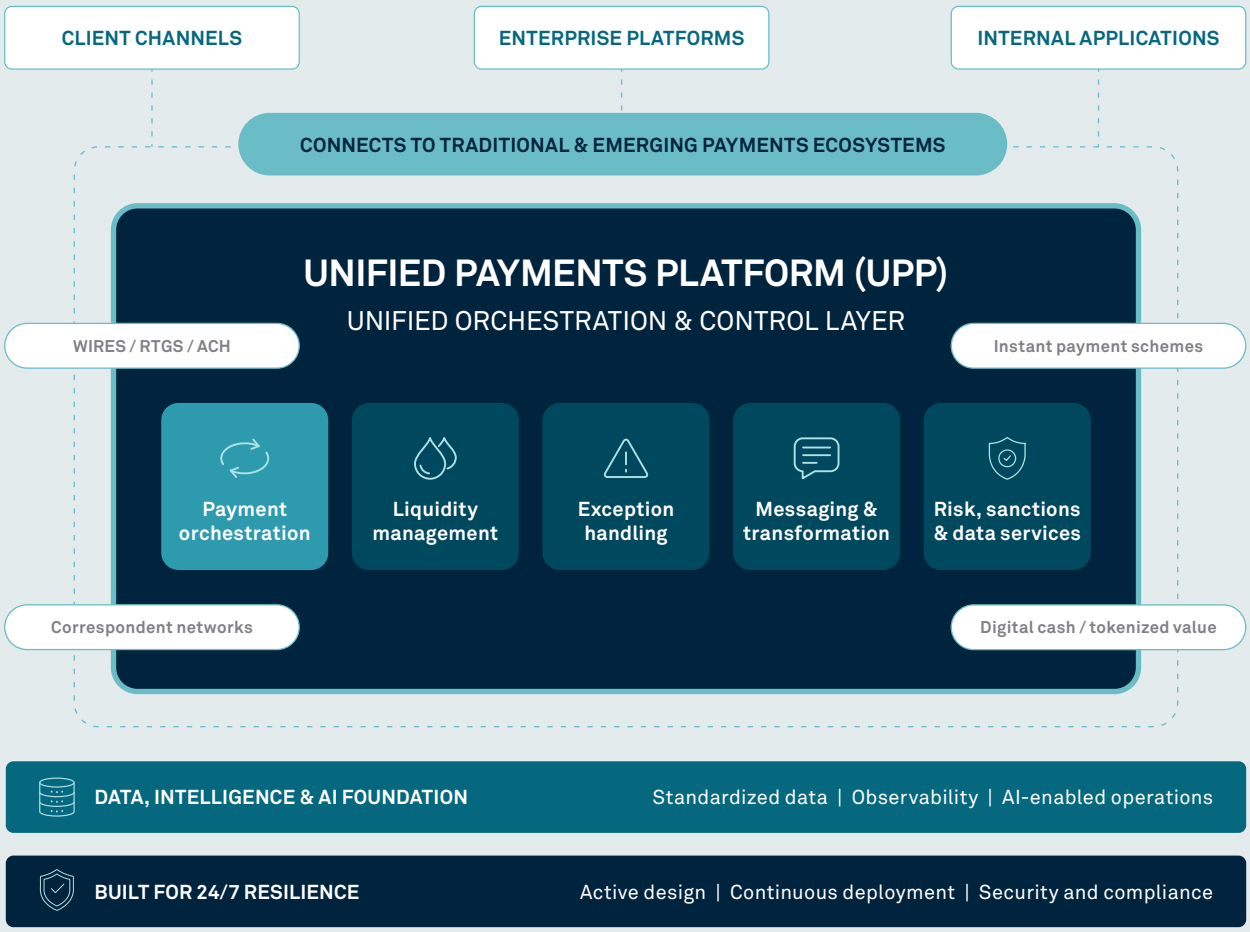
- **Payment processing:** Sends and receives money across multiple channels through a unified infrastructure that simplifies access
- **Liquidity management:** Centrally manages funding and liquidity positioning across highly distributed market infrastructures, aligned to client flows and bank treasury needs
- **Exception handling:** Improves visibility into payment status, alerts, inquiries and investigations to resolve issues faster
- **Financial messaging and transformation:** A single integration layer for messaging and transformation across market infrastructures, simplifying change and connectivity
- **Sanctions screening:** Performs this compliance process centrally for all payments, with robust monitoring, data standards and controls
- **Risk and data services:** Validates counterparties and payment instructions before execution and powers AI-assisted anomaly and fraud detection

The UPP reduces strategic risk for our clients because it is an infrastructure that totally simplifies the core. Because the only complexity is the integration layer, BNY can move as quickly as the world moves. It can connect the digital and the fiat worlds. It enables us to work with clients wherever they think they need to be.

Figure 1:

UNIFIED PAYMENTS PLATFORM

From a siloed set of applications to a capability-based, open architecture that is rail-agnostic, BNY's payments platform simplifies the core of payments processing while connecting to a fragmented and fast-changing ecosystem.



WHY ALWAYS-ON PAYMENTS DEMAND A NEW OPERATING MODEL

The shift to always-on payments is more than a technology upgrade; it is a broader redesign of how payments are delivered, managed and scaled. For clients, this means always-on capabilities supported by controls, resilience, and simplification at scale. Centralized, standardized data improves transparency and helps organizations manage exceptions and operational risk in real time, while AI supports the scalability and responsiveness needed for a seamless around-the-clock client experience. These three crucial aspects of the new operating model will be looked at in the following sections.

A 24/7/365 operating model also requires BNY to think about traditional operations roles differently. Human roles were previously narrow and specific to the processing requirements of a payment system, rail or situation. The evolution of the payments ecosystem—including automation through AI-enabled digital employees—now requires a human workforce with skills that are broader and deeper. This shift allows human teams to focus on higher-value activities, including client collaboration, exception oversight, process improvement and market coordination. Empowered by the UPP, BNY teams can deliver more informed support, faster issue resolution and stronger collaboration with clients and market participants.

This means that human teams must meld together the uniquely human capabilities of integrity, empathy, and self-awareness, with deep AI and digital capabilities. For example, to help enrich our human employees, BNY has implemented a world-class learning journey that covers a range of topics designed to equip them for new challenges, including digital literacy and process re-engineering. With the deployment of AI agents, human employees can grow beyond repetitive tasks into new roles that support clients and enable innovation at speed.

HOW RELIABILITY, RESILIENCE, AND SIMPLIFICATION ARE BUILT INTO THE PLATFORM

BNY's UPP was designed to improve transparency, support continuity under changing demand conditions and simplify processing in a continuous, real-time environment. Reliability, resilience and simplification are embedded architectural principles.

For example, a key dimension of reliability is being able to identify abnormal conditions in near real-time through automated monitoring controls and respond in a coordinated way before issues accelerate in gravity. Through the centralized, structured way the UPP manages payment transaction data, and its use of that data in advanced control analytics, it can detect issues quickly and communicate them to operations team members–be they human or digital–for rapid resolution.

Resilience is the extent to which a payments platform can absorb stress without material interruption. The UPP places an emphasis on scalable architecture, greater workload flexibility and higher-availability design, including the use of cloud-based environments that can help accommodate transaction spikes or localized disruption.

Resilience in a 24/7/365 operating model also requires a different approach to software development and change management. Operating 24/7/365 means that the downtime in which BNY used to deploy new software no longer exists–so essentially, we need to rewire a building while there is still electricity flowing through it. We therefore have adopted a range of new practices, including blue-green deployment.

The simplification baked into the UPP is itself a resilience lever. For example, consolidating payment capabilities into a unified orchestration layer reduces application sprawl, removes unnecessary interface hops and limits the number of points at which data must be transformed or repaired. Standardized messaging, centralized data and streamlined workflows also help enhance operational robustness. Taken together, these measures create an operating model designed to make the UPP more transparent, scalable and manageable under both normal and stressed conditions.

HOW PAYMENT DATA BECOMES OPERATIONAL INTELLIGENCE IN A 24/7 ENVIRONMENT

In a modern payments operating model, transaction data isn't a by-product of execution; it's a core operational asset that underpins how banks manage processing, liquidity, controls, exceptions and client servicing. Data enables automation, feeds agentic AI, and supports smart contracts on the blockchain. Today's real-time payment rails were built by fintechs with this understanding about the importance of data, and ISO 20022 reform is largely about providing payment systems with necessary data in a structured form.

The UPP creates a normalized, data-rich view of the full transaction lifecycle across payment rails, channels and processing stages–all in a centralized data mesh that supports today's and tomorrow's use cases. BNY applies three principles to this data:

- **Domain Ownership:** The business must interact with data owned and "guaranteed" by the domain experts
- **Data-as-a-Product:** Data must have a clean interface and clear metadata
- **Governance-by-Design:** The "rules of engagement" must be embedded in the data layer to support all use cases, including AI

By standardizing and enriching data across multiple payment types and messaging formats, the platform creates a consistent view of activity across the full payment lifecycle–simplification at its best.

This improves transparency, interoperability and control, while reducing the operational friction that can arise in fragmented environments where data models vary by scheme or system and sit in silos. It strengthens the foundation for straight-through processing, analytics, AI-driven decisioning and 24/7/365 operational scalability, allowing the bank to manage payments with greater precision, resilience and efficiency. The UPP, using the data mesh approach, transforms payment data from a rail-specific residue by-product into an enterprise data asset.

As a result, this rich data environment delivers other benefits. The data supports benchmarking capabilities, allowing organizations to measure their own operational effectiveness and client service strength. This is where modernization becomes more than infrastructure renewal: the platform creates intelligence as well as throughput.

Performance metrics can measure operations services against contracted service levels, while quantitative key performance indicators (KPIs) and key risk indicators (KRIs) are also captured. Using this data, organizations can work with BNY payments operations experts to make it easier to manage volume, complexity and change.

By adopting the data mesh approach across the payment lifecycle, the UPP delivers stronger operational transparency, faster issue resolution and more consistent service delivery–all of which can scale in a 24/7/365, real-time payments environment.

AI WILL MATTER MOST AS AN OPERATING CAPABILITY, NOT SIMPLY A PRODUCTIVITY LAYER

The payments industry is beginning to recognize that agentic AI is a critical enabler of the 24/7/365 operating model. According to a recent poll of attendees at a BNY webinar, Payments without Pause: The Journey to 24/7/365, 46% of respondents said that AI and automation will have the greatest impact on their treasury operations over the next three years. As payments move toward continuous processing, operations teams need more than automation of isolated tasks–they need intelligent, governed capabilities that can act, decide and coordinate across workflows at scale.

46% **of respondents said AI and automation will have the biggest impact on treasury operations in the next three years.**

44% **said legacy technology was the biggest barrier to 24/7/365 payments.**

At BNY, an operations digital employee is an agentic AI agent with a persistent identity, the ability to interact with enterprise applications, and access to communication channels such as email and chat. Each is designed with deep domain expertise in a specific area, such as payments or reconciliations, and operates within a governed mesh of agents, either autonomously or with human oversight.

One area where digital employees have contributed a material benefit to payment processing is in the area of sanctions screening. Today, 42% of previous manual touchpoints are handled by AI, with human-in-the-loop oversight. These digital employees apply agentic AI to triage flagged transactions, classify and explain false positives, and capture a clear rationale for each disposition. Nearly 100% of Level One turnaround times are under one hour, compared with 50% in 2025, while compliance accuracy has been maintained. At the technology layer, decision reapplication automatically recognizes recurring, low-risk transactions and reapplies prior clearance decisions, removing a large share of repetitive domestic and recurring payment alerts from the manual queue. Additional technology and operations adjustments, as well as disciplined queue management, have allowed us to scale screening through peak volumes, accelerate straight-through processing, and deliver a faster, lower-friction client experience without compromising sanctions compliance.

There are other benefits to agentic AI, too. These digital employees are freeing up time for human employees to spend working with clients, helping them address process inefficiencies, grow their offerings, and evolve their own payments modernization programs. The data that digital employees create also enables banks to create stronger digital auditability, improve decision explainability, and support greater operational transparency.

Ultimately, agentic AI is not a stand-alone automation layer, but a core enabling capability within the broader transition to a 24/7/365 payments operating model. AI-driven digital employees in payment workflows can translate into faster resolution cycles, improved processing integrity, greater transparency and more reliable service across increasingly complex payment environments. Just as importantly, by absorbing repetitive and rules-intensive tasks, AI allows operations teams to focus more of their time deepening client relationships, addressing more complex issues and working collaboratively to move into the future. In that sense, agentic AI supports not only operational scale and control, but also more informed, proactive and partnership-oriented relationships.

KEY QUESTIONS FOR YOUR PAYMENTS MODERNIZATION

Technology remains a primary challenge for financial institutions in their modernization journey. In the same webinar poll, attendees were asked what they thought the single biggest barrier their organization faced in moving to a 24/7/365 model. Technology infrastructure and legacy systems was the top answer, at 44%. While technology is important, this paper demonstrates how payments modernization is an operating model question–one that touches workflow design, human employee skills, resilience, data, the application of agentic AI, and above all, the acquisition and application of intelligence for innovation. As banks assess how to prepare for a 24/7/365 environment, the following questions can help frame where change may be most needed:

01	Are we modernizing payments as a series of point solutions in silos, or as an enterprise-wide transformation of infrastructure and operating model?
02	Can our current platform connect easily to new payment rails, digital cash models and emerging service ecosystems without significant rework?
03	How resilient is our current operating environment when transaction volumes rise, a payment rail experiences disruption, or an exception occurs outside traditional business hours?
04	Are our software delivery and platform engineering practices mature enough to support continuous change in a 24/7/365 operating environment?
05	Is our payments data structured, standardized and accessible enough to support transparency, analytics, forecasting and better decision-making?
06	Are we capturing the right operational KPIs and KRIs to understand the true client experience? How could measurement of client experience be embedded by design?
07	Where could AI or digital employees most effectively reduce repetitive work in areas such as repair, investigation, validation, screening or reporting?
08	Are we treating AI as an isolated productivity tool, or as a governed operating capability within the broader payments transformation agenda?
09	Do we have a plan or program in place to support our people in adapting to the coming changes in our operating model and the world of 24/7/365 real-time payments?
10	To what extent does structural complexity in our payments environment limit our ability to scale, innovate and respond to market change?

As the 24/7/365, real-time payments ecosystem emerges, banks will have to make decisions about how to best reshape their own operating model for the future. BNY's deep expertise is available to inform and support the choices operations teams have to make as they seek to create the best payments experience for their own clients, now and in the future.

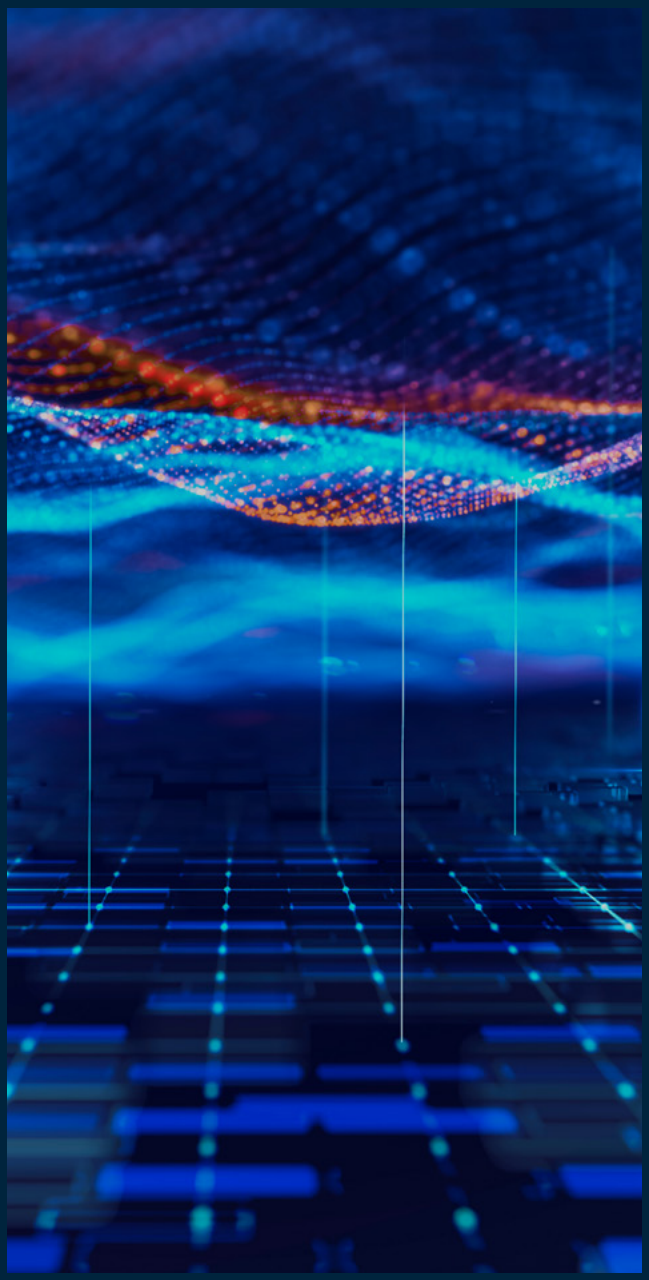
THE ORGANIZATIONS BEST POSITIONED FOR WHAT COMES NEXT WILL BE THOSE THAT SIMPLIFY, ORCHESTRATE AND ADAPT

One of the clearest realities of the next phase of modernization is coexistence. Payments modernization is therefore no longer just a technology upgrade; it is an operating model imperative to successfully compete in a continuous, more complex, data-rich payments environment shaped by higher expectations for transparency, resilience and control.

As payment rails, formats and ecosystems evolve, the organizations best positioned for what comes next will be those that reduce complexity at the core. That means moving beyond fragmented, rail-specific architectures toward platforms that support interoperability, standardized data, consistent controls and scalable exception management across the payment lifecycle.

Modernization is also about more than speed. It is about building the capacity to adapt: to absorb new rails and digital cash models, manage risk in real time, deploy change safely in a 24/7/365 environment and use data and AI more effectively across operations. In that context, resilience, intelligence and simplification are essential design principles.

The strategic question is not whether change is coming, but how to prepare for it in a way that improves both operational performance and client outcomes. Those that modernize with agility, interoperability and control in mind will be better equipped to respond to market changes, support clients and operate with confidence in an always-on payments landscape.



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