

WHITE PAPER

The Next Era of Fund Distribution: Interoperability, Digital Registers and Tokenized Infrastructure



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1. Executive summary

Tokenization will not disrupt funds because it creates digital fund units. It will disrupt funds because it changes where control sits in the value chain.

As investor records, distribution access, execution logic, and settlement data become digitally synchronized, value will shift toward the infrastructure players that can connect traditional fund processing with digital registers, tokenized share classes, custody, settlement, and new distribution channels. The industry will not move from traditional fund infrastructure to fully tokenized models in one leap. For years, traditional dealing platforms, digital registers, tokenized share classes, custody structures, and new distribution channels will coexist. The critical capability will therefore be interoperability: the ability to connect today's fund processing backbone with tomorrow's digital distribution and ownership models. This is where market infrastructures such as Clearstream Fund Services can play a critical role: enabling scalable, interoperable, and trusted digital fund operations.

This shift is becoming urgent because three forces are now converging:

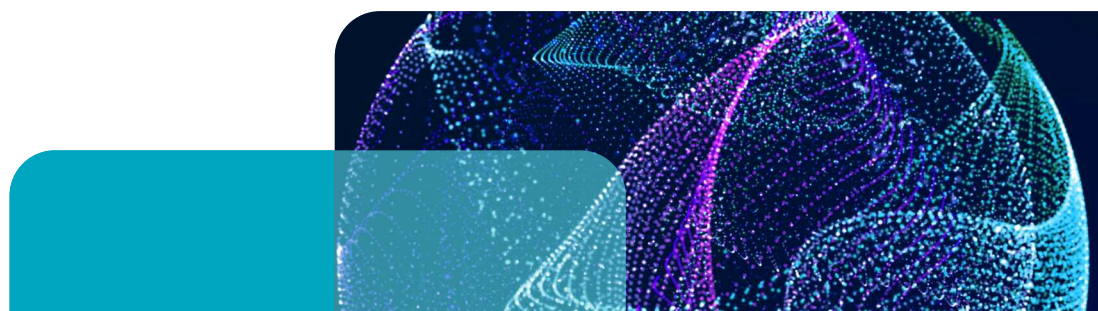
- I. Economics:** Fee pressure and operational complexity are forcing managers to redesign cost structures, not just automate existing workflows.
- II. Distribution:** Investor access is moving beyond traditional banking networks toward platforms, digital ecosystems and direct or semi-direct models.
- III. Infrastructure:** Tokenization is moving from pilots to production-grade, mostly hybrid models that require interoperability between traditional and digital rails.

Together, these forces turn tokenization from a technology topic into a strategic value-chain question.

For fund managers and service providers, the implication is clear: the question is no longer simply whether to tokenize a fund, but where to position themselves in a digitized fund value chain. Five strategic questions should therefore guide the debate:

- 1.** Which parts of the fund value chain are strategic to own, and which can become shared infrastructure?
- 2.** Where do asset managers need investor-level transparency, and where are omnibus models still fit for purpose?
- 3.** Which products are best suited for tokenized distribution first: market money funds (MMFs), ETFs, private markets, or other alternatives?
- 4.** How do we avoid creating new digital silos while solving old operational fragmentation?
- 5.** Who will orchestrate interoperability between traditional dealing, digital registers, custody, settlement, and new distribution channels?

The winners will not be those that simply launch a tokenized share class, but those that can operate across traditional and digital rails with scale, trust, and interoperability.



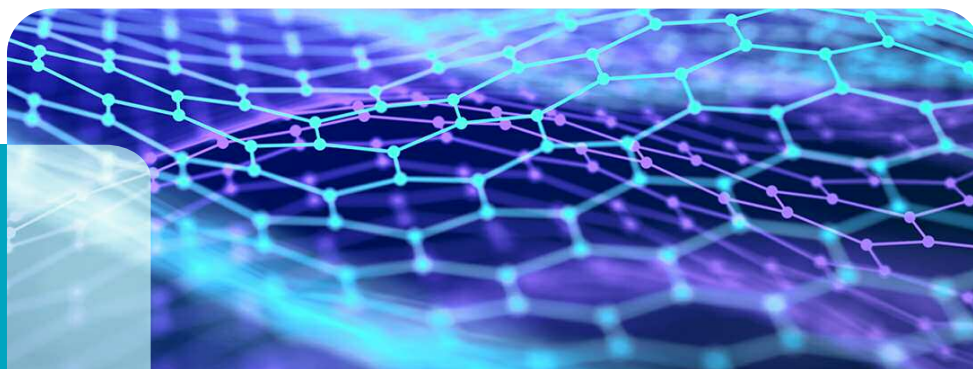
2. Foreword: Why digitalization and tokenization matter

Investment management has entered an era in which competitive advantage is increasingly determined by the quality of digital operations. The industry is shifting away from a human-centric, paper-intensive, and siloed operating model toward an ecosystem where data itself becomes a strategic asset; processes are increasingly automated, and client engagement is continuous rather than episodic. While this transformation has been underway for years, many market players remain far from achieving optimal digital maturity. Digitalization is therefore not only a question of cost efficiency – the ability to scale operations without proportional increases in headcount – also one of speed, transparency, resilience, and product adaptability.

The pressure to modernize is further intensified by a structural shift in the industry's revenue mix. Passive strategies, ETFs, and low-cost investment vehicles are compressing fees and forcing asset managers to rethink their operating models. At the same time, many firms are expanding into higher-margin private market strategies, which often involve more complex workflows, fragmented processes, and significantly greater data requirements. The result is a structural squeeze: operating complexity is increasing precisely as the economics of the industry become more constrained.

At the same time, digitalization is reshaping the very nature of competitive advantage in asset management. Historically, differentiation was driven primarily by product access, distribution reach, and investment process. While these factors remain critical, the ability to deliver a reliable digital client experience and low-friction servicing is becoming an equally important source of trust, retention, and competitive positioning. As clients and distribution platforms increasingly evaluate managers not only on performance and fees, but also on operational quality, the operating model itself becomes an extension of the brand.

ESMA defines "Tokenization," as a digital representation of financial instruments on a Distributed Ledger Technology (DLT) or the issuance of traditional asset classes in tokenized form to enable those assets to be issued, stored and transferred on DLT, is expected to open opportunities for efficiency improvements in trading and post-trading processes. [6] Tokenization may also extend to the representation of the fund's underlying assets themselves. As this paper will argue, the combination of both dimensions, tokenized fund interests and tokenized underlying assets, carries the greatest disruptive potential.

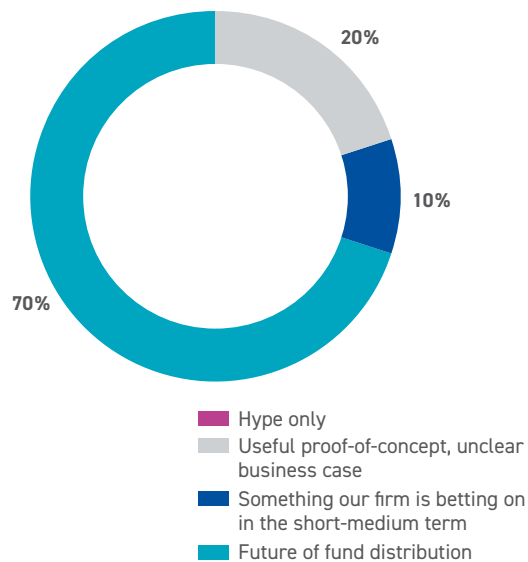


Tokenization is often framed as a product innovation, but it is more accurately understood as an infrastructure choice. The same investment strategy can exist in multiple forms: without tokenization, with tokenization used merely as a transfer mechanism, or with the entire fund lifecycle designed natively around the ledger infrastructure from inception. These architectural choices determine which scalability, automation, and efficiency gains can ultimately be achieved.

Tokenization sits at the intersection of these structural forces. When financial claims are represented on a programmable ledger, ownership, settlement logic, and transactional constraints can be embedded directly into the asset itself and executed closer to the point of transaction. This has the potential to reduce the “operational tax” associated with fragmented record-keeping, duplicated processes, and manual reconciliations. Over time, tokenization may also enable a more composable financial ecosystem, in which assets, cash, and collateral can be combined and reconfigured into investment solutions with less friction than is possible through traditional financial infrastructure.

We conducted a survey to take the market pulse on key tokenization considerations. Responses were gathered from a representative sample of asset managers and fund service providers, providing valuable insights into how industry players perceive and anticipate the transformation of investment management through tokenization.

How do you perceive the rise of tokenized funds (e.g. MMF/ETF on blockchain)?



Source: Deloitte Luxembourg

An overwhelming majority of respondents view tokenization as a genuine game changer for fund distribution. Notably, none dismiss it as mere “hype,” underscoring a strongly bullish market sentiment towards the technology.

3. The cost-efficiency imperative: automation

The strongest near-term driver of digital transformation is economics. Many firms face sustained fee pressure while operating with cost bases built for a different era, including duplicated platforms, manual controls and reliance on third-party service providers integrated through bespoke interfaces. Incremental cost programs rarely move the needle. Structural change is required.

As a result, the industry is beginning to bifurcate. The largest global asset managers, particularly those with more than USD 2 trillion of assets under management (AUM), tend to benefit from materially stronger operating margins. By contrast, many mid-sized managers are caught in a “valley of death,” with average margins hovering around 26% [1]. The core challenge is that operational complexity is scaling faster than revenue, driven by growing fragmentation across products, jurisdictions, distributors channels, and regulatory reporting requirements.

3.1 Where the cost sits

The operational cost base of an asset manager is typically distributed across a wide range of functions, including data management, client reporting, onboarding, trade processing, reconciliations, fund accounting, transfer agency, regulatory reporting, and oversight functions. Each of these functions combines varying proportions of personnel expenses, technology infrastructure costs, and third-party service provider fees.

The challenge is that complexity compounds across the value chain. A break in onboarding data can lead to trade settlement exceptions, which may then create

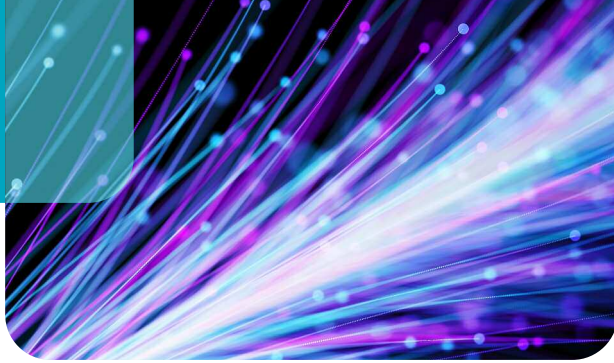
register discrepancies and delayed reporting. Consequently, operational costs are often driven less by transaction volumes than by the frequency of exceptions the effort required to resolve them.

3.2 What automation changes

Automation delivers durable value when process simplification is combined with standardization and integrated controls. Digitizing paper-based processes alone is not enough: firms must reduce operational variation and design exception handling that is both efficient and auditable. When these conditions are met, automation can reduce error rates and free up capacity for higher value-added activities.

Industry estimates suggest that a mid-sized asset manager with approximately USD 500 billion in AUM could capture efficiencies equivalent to 25% to 40% of its total cost base through AI-enabled transformation, provided workflows are fundamentally redesigned and governance models adapted accordingly. [2] In practice, the greatest gains often come from end-to-end process redesign rather than isolated point solutions, as this eliminates unnecessary handoffs and duplicate controls.

A common pitfall is the prolonged use of dual-run operating models. Many transformation programs introduce new digital workflows while maintaining legacy processes in parallel for extended periods, temporarily increasing cost and delaying benefits realization. A more effective approach is to design transformation programs with decommissioning in mind from the outset, including clear retirement criteria once control outcomes and service levels have been validated.



3.3 DLT as an enabler for automation

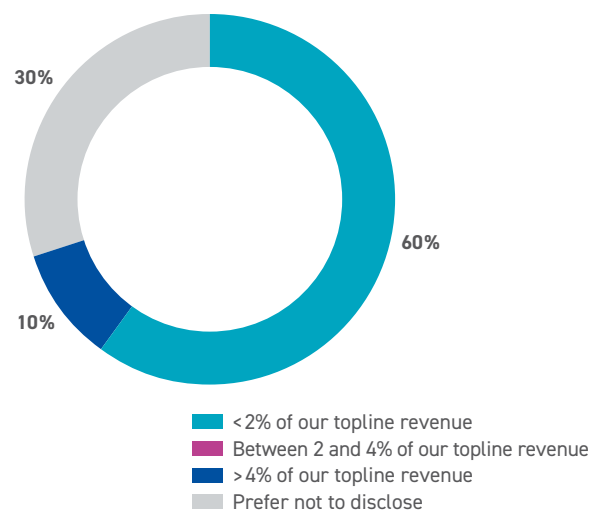
DLT does not automatically eliminate operational complexity, but it can serve as a powerful catalyst for process simplification and automation. Traditional thinking often assumes that firms must first standardize and automate their operations before adopting DLT. In practice, some organizations are using DLT transformation initiatives to bypass intermediate steps and redesign workflows directly around shared digital infrastructures.

By embedding business logic into shared ledgers and smart contracts, DLT can help enforce data consistency, reduce manual intervention, and streamline processes that would otherwise require incremental automation efforts. That said, the value created by such transformations still depends on an organization's ability to rethink and simplify its underlying workflows.

Whether automation precedes DLT adoption or is achieved through it, the critical success factor remains the same: aligning data, processes, and control mechanisms so that multiple participants can operate on a consistent and trusted set of records.

It is noteworthy that most players are not yet investing in the technology with conviction. Indeed, 60% of respondents allocate less than 2% of their topline revenue to tokenization initiatives, while only 10% invest more than 4%. Strikingly, no respondents opted for the middle ground between 2% and 4%. It remains to be seen whether this relatively modest level of investment will be sufficient to enable implementation at scale.

What budget are you allocating to tokenization initiatives?



Source: Deloitte Luxembourg

Key takeaway

Automation and DLT are not separate transformation paths but increasingly overlapping levers to reduce operational complexity and cost.

What this means in practice

Sustainable cost reduction will depend on end-to-end operating model redesign rather than incremental process improvements.

4. Digital register/transfer agency and the investment management value chain

The transfer agent (TA) register is one of the most important, yet least visible, components of the fund value chain. At its core, it answers a deceptively simple question: who owns what, and under which conditions? The register sits at the intersection of identity, eligibility, and ownership. It determines whether an investor can be onboarded, whether a transfer is permitted, and which reporting and withholding rules apply. Because these requirements vary across client types and jurisdictions, the register has become a major source of operational complexity.

This complexity is particularly visible in distribution models that rely on nominee or omnibus accounts. While these structures simplify distribution for platforms and intermediaries, they often reduce transparency over beneficial ownership, depend on periodic position files, and introduce additional reconciliation points. A modernized register, combined with a stronger digital identity layer, can help reduce these frictions while still preserving existing distributor operating models where necessary.

In addition, the source of value-chain control is shifting. In a more digital and platform-based environment, the register does not operate in isolation. It must interact with distribution platforms, order-routing infrastructure, cash and settlement rails, custody arrangements, compliance workflows, and investor-servicing interfaces. The register will transform into a distributed digital version as distribution, execution and record-keeping become more connected in a new three-layer model.

Key takeaway

The investor register is becoming a strategic control point within a more digital and platform-driven fund ecosystem.

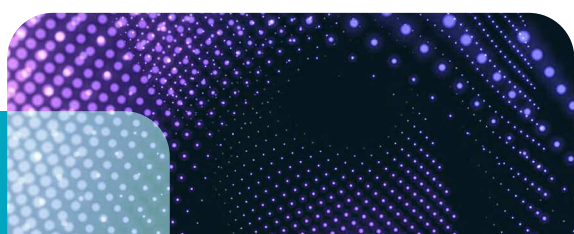
What this means in practice

Control over investor access and fund distribution may increasingly depend on integration with shared infrastructure rather than standalone systems.

4.1 From fragmented records to a digital register

A digital register architecture seeks to reduce fragmentation by making investor records more standardized, synchronized, and accessible across market participants. In particular, decentralized, or shared-register models can reduce the need for multiple institutions to maintain and continuously reconcile parallel ownership records across transfer agent, distribution platforms, order routing, fund administration, and depositary oversight functions. By relying on a more consistent source of ownership and transaction data, these models can reduce operational breaks and improve the timeliness of position visibility across the value chain.

Digital registers can also enhance onboarding processes by enabling more structured and reusable investor data. In traditional distribution chains, onboarding information is often collected separately by multiple





intermediaries, creating duplication, delays, and inconsistencies across KYC and AML processes. In a digital register environment, verified investor data and eligibility checks can be more easily shared, updated, and reused among authorized participants, reducing repetitive onboarding steps while improving consistency and traceability.

4.2 DLT as a “shared register”

Tokenization pushes the register concept further. In a DLT-based model, a shared ledger can become the record of transfers, potentially replacing parts of the traditional register maintenance function and reducing reconciliation requirements. By replacing fragmented data flows with a shared and immutable ledger, such models may eliminate certain reconciliation processes altogether. [7]

One practical consequence is the shift toward near-instantaneous position updates for investors. In today's environment, subscriptions and redemptions typically involve multi steps processes, including order routing, validation, NAV calculation, and post-trade reconciliation, with final position updates occurring only after a delay. In a shared or synchronized register environment, these processes can be significantly compressed. Once a transaction is validated and executed, the investor's position can be updated almost immediately, with units effectively appearing or disappearing from the account in real time or near real time.

Beyond enhancing the client experience, this also has important operational implications. It reduces timing gaps between transaction execution and record-keeping, limits exposure to reconciliation breaks, and enables a more continuous view of ownership across the value chain. Certain constraints remain, particularly in traditional fund structures that rely on NAV-based pricing cycles, but the direction of travel is clear: tokenized infrastructure can progressively align transaction finality with ownership record updates.

An additional implication of a shared register is the potential for greater transparency over ultimate beneficial ownership (UBO). In the traditional model, the widespread use of nominee and omnibus accounts means that the transfer agent or issuer often has visibility only over the intermediary, while information on underlying investors is maintained off ledger by distributors. In a DLT-based environment, ownership can instead be recorded at wallet level and linked to verified digital identities, enabling a more granular and up-to-date view of investor holdings. Subject to data protection and regulatory constraints, this could improve AML/KYC processes, facilitate shareholder communication, and reduce reliance on layered disclosure mechanisms across intermediaries.

In practice, however, most models remain hybrid. IOSCO notes that, in certain tokenized fund structures, on-chain transfer records are mirrored into an off-DLT system operated by the fund's transfer agent, with the off-chain register remaining the legally recognized record of ownership [4]. These hybrid models reflect a practical trade-off: they preserve established legal frameworks and operational safeguards while still delivering improvements in data synchronization and transaction efficiency.

4.3 The evolution of transfer agency in a distributed ledger environment

In Luxembourg, the progressive digitization of the shareholder register is already reshaping the role of transfer agents, particularly in light of the country’s evolving blockchain legal framework. The introduction of distributed ledger technologies and Luxembourg’s successive blockchain laws (2019, 2021, and 2023) have gradually expanded the legal recognition of securities and ownership records maintained through distributed infrastructures. In this context, the concept of a “digital transfer agent” is evolving toward a broader role that combines elements of a central account keeper and a control agent within a tokenized market infrastructure. In particular, “Blockchain Law IV” introduced a legal framework governing the issuance and circulation dematerialized securities including funds shares through DLTs, while also clarifying the roles of controls agents and account keepers within DLT-based securities infrastructures.

This evolution should not be read as a replacement of traditional transfer agency by technology. Rather, it points to a re-scoping of the transfer agent’s role within a broader ecosystem. In a three-layer model (register, distribution, and execution), the transfer agent

or registrar remains critical to trusted record-keeping, but it must interact more dynamically with distribution platforms and execution/dealing infrastructure.

As a result, the role of the transfer agent is shifting from maintaining a standalone system of record toward overseeing the integrity of investor records across a distributed infrastructure. In practice, this may involve operating nodes within permissioned networks, validating investor eligibility and compliance rules embedded in smart contracts, and ensuring that tokenized transfers accurately reflect the legal ownership of fund units. Within Luxembourg’s regulatory framework established under Blockchain Law IV, this evolution supports the legal recognition of securities accounts and issuance mechanisms recorded on distributed ledgers, allowing market participants to rely on blockchain infrastructures while preserving legal certainty around ownership records.

4.4 A simple before-and-after view

Table one provides a simplified comparison, noting that real world implementations may combine elements of multiple models.

Table 1: Transfer agency value chain

Traditional model (simplified)	Tokenized/shared-ledger model (simplified)
Multiple ledgers and message-based handoffs, with reconciliations and cut-offs processes used to manage discrepancies.	Shared ledger records transfers, allowing participants to access synchronized data and reducing reconciliation breaks.
Settlement and cash legs operate on separate infrastructure layers, with controls often dependent on manual intervention and exception management.	Potential for near-instant settlement and more automated transaction processing.
TA register maintained in proprietary systems, with reporting occurring periodically.	Register becomes digital-first. Hybrid models may still retain the TA register as legal record while mirroring transfers on chain. [4]

4.5 Digital transfer agency and the evolution of the investor register

An illustration of this shift is the Digital Transfer Agency (Digital TA) solution offered by Clearstream Fund Services and built on its FundsDLT platform. Digital TA is a blockchain-enabled transfer agency SaaS platform that helps asset managers and asset servicers operate real-time investor registers, automate core fund transaction workflows, and connect more efficiently with existing and emerging distribution channels.

The value proposition is broader than operational efficiency. For asset servicers and transfer agents, it enables scalable register operations across multiple asset classes, fund domiciles, and distribution networks, while preserving the controls required in regulated fund environments. For asset managers, Digital TA can support faster access to investors, better visibility of fund flows, more automated investor communications, and a stronger digital servicing experience. Importantly, its blockchain-based architecture also provides a foundation for tokenized fund distribution models, where fund units can be represented, transferred and serviced through digital wallets and connected to new types of distribution channels, including digital banks, neo-brokers, crypto exchanges and other digital asset platforms, subject to applicable regulatory and eligibility requirements.

The platform is designed to operate in a hybrid market reality providing full interoperability. It can connect with existing fund accounting, custody, portfolio management and compliance systems through APIs, SWIFT, FIX, and blockchain-based connectivity,

while also supporting wallet-based ownership and tokenized fund servicing on public or permissioned blockchain networks. This allows market participants to modernize progressively, rather than replacing established infrastructure overnight.

Digital TA illustrates how regulated market infrastructure can evolve into an orchestration layer for the next generation of fund distribution. It positions Clearstream as an infrastructure orchestrator for the next generation of fund distribution at scale. As value increasingly concentrates around access to investors, flow aggregation, execution and trusted records, Digital TA provides a bridge between today's fund value chain and tomorrow's tokenized fund ecosystem. It enables the industry to move from sequential, reconciliation-heavy processing toward a more connected model in which data, transactions and ownership records can be synchronized across participants in near real time.

Key takeaway

Digital TA illustrates how the investor register can evolve from a back-office record into a blockchain-enabled control layer for tokenized fund distribution.

What this means in practice

Competitive advantage will increasingly depend on the ability to orchestrate register, distribution, execution, and wallet-based ownership across both traditional and digital rails.

4.6 Implications across the value chain

A shift toward a digital or DLT-based register has implications across the broader fund value chain:

- **Distribution:** Omnibus accounts and platform-based models may gradually evolve toward wallet-based (i.e., model where investors hold and manage tokenized fund units through digital wallets linked to verified identities, enabling ownership records and transfers to be recorded directly on DLT) or more direct-to-fund structures, allowing clearer ownership attribution and reducing reconciliation breaks. Funds may gain greater visibility over end investors, resulting in cleaner records and fewer operational errors. Distribution platforms therefore become more than channels: they become control points for investor access, onboarding, suitability, data capture, and client experience.
- **Order routing:** Subscription and redemption instructions could evolve into contract-driven events that automatically trigger both cash and token movements, reducing the need for manual confirmations and operational intervention.
- **Fund administration:** NAV calculation processes would remain essential, but cleaner and more synchronized data flows could reduce exceptions, reconciliation issues, and late operational breaks.
- **Depository and custody:** Oversight functions would continue to play a central role, but information flows could become more continuous, supported by improved audit trails and enhanced position visibility.

Depository and custody functions may also evolve beyond enhanced transparency toward a more structural transformation often referred to as "open custody." In a tokenized environment, ownership of fund units or securities can be represented directly within a digital wallet, effectively creating portable securities accounts that are no longer tied to a single intermediary or platform. This differs from the traditional model, where assets are held within fragmented custody chains and institution-specific account structures.

Open custody introduces the possibility, subject to regulatory safeguards, for investors to move holdings more seamlessly across platforms, service providers, or jurisdictions without requiring full re-registration or complex transfer processes. For custodians and depositories, this does not eliminate their role, but rather shifts it toward safeguarding cryptographic keys, validating ownership, ensuring regulatory compliance, and overseeing asset segregation within a more fluid infrastructure model.

The extent to which this model develops will depend on regulatory acceptance, particularly regarding investor protection and liability frameworks. Nevertheless, it illustrates how tokenization could progressively decouple asset ownership from traditional account structures.

The emergence of new distribution and market-access players, including neo-brokers and digital-native platforms, introduces an additional layer of disruption to the traditional value chain. These players are increasingly positioning themselves not only as front-end distribution interfaces, but as integrated platforms capable of combining distribution, custody, execution, and in some cases elements of record-keeping within a single digital environment. As their capabilities expand, the traditional roles of clearing platforms and transfer agents may become partially reconfigured. In particular, if neo-brokers are able to integrate functionalities such as real-time position tracking, on-chain settlement, and investor-level record management, parts of the reconciliation, clearing, and register maintenance functions could shift closer to the point of distribution.

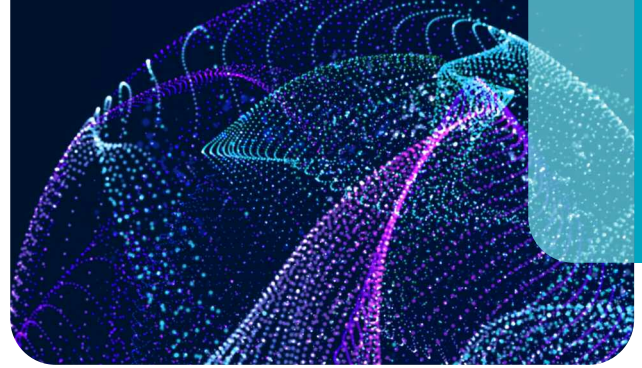
The extent of this transformation, however, will depend on two critical factors: the depth of functionality these new entrants are able to develop, and the level of trust they can establish with institutional participants and regulators. Clearing infrastructures and transfer agents currently provide legal certainty, operational resilience, and regulatory oversight that remain deeply embedded in market practice. Their role therefore is unlikely to disappear, but it may evolve through integration with these emerging platforms or through repositioning as trusted control points within increasingly digital and potentially decentralized ecosystems.

4.7 New distribution channels: beyond traditional banking networks

■ **Fund tokenization is emerging as a new distribution channel — not replacing existing rails overnight, but reshaping how investors may access, transfer and hold fund exposure.”**

As discussed above, one of the most immediate and tangible impacts of tokenization is the expansion of fund distribution beyond traditional banking and wealth management channels. Historically, investment funds have relied heavily on banks and financial intermediaries to access end investors. These institutions have played a central role in client acquisition, suitability assessment, and order routing, effectively acting as gatekeepers to fund distribution.

Tokenization introduces the possibility of direct or semi-direct distribution models, in which investors can access fund units through digital platforms without relying entirely on traditional banking infrastructure. This shift is enabled by the combination of digital identity, wallet-based ownership, and programmable compliance, which together allow fund units to be distributed through neo-brokers and digital asset platforms.



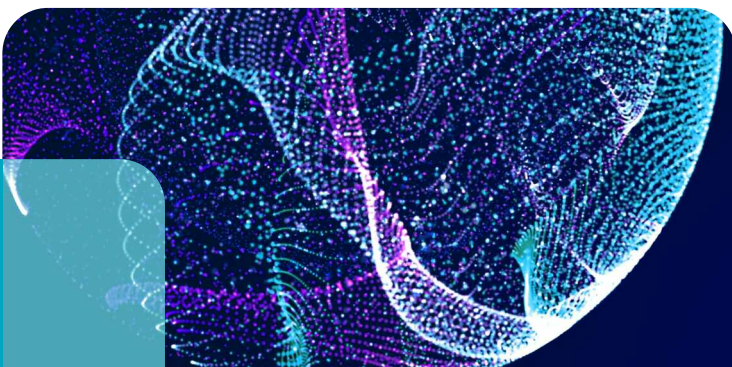
This evolution is also beginning to emerge within regulatory frameworks. In the United Kingdom (UK), the Financial Conduct Authority (FCA) has introduced new rules supporting a Direct-to-Fund (D2F) distribution model, allowing investors to hold units in investment funds directly on the fund register without necessarily relying on traditional intermediary chains or nominee structures. Although still operating within a regulated framework, the D2F model reflects a broader industry trend toward more direct investor ownership, simplified distribution architectures, and greater transparency of investor records.

In this context, distribution becomes increasingly platform-driven rather than institution-driven. New entrants are able to integrate investment products directly into their digital ecosystems, combining execution, portfolio visualization, and client interaction

within a single interface. This reduces the number of intermediaries involved in the distribution chain and can significantly shorten the distance between the asset manager and the end investor.

For asset managers, this creates both opportunities and challenges. On the one hand, access to new digital channels can expand the addressable investor base, particularly among digitally native retail segments and international investors who may not be less accessible through traditional banking networks. Mass-retail models may therefore unlock significant marketing and distribution opportunities beyond conventional channels. On the other hand, this evolution requires asset managers to rethink their distribution strategies, including product design, investor onboarding, and compliance processes, as well as the future dynamics of relationships with existing distributors.

Importantly, this does not imply that traditional banks will disappear from the distribution landscape. They are likely to remain key players, particularly in areas where trust, advisory capabilities, and complex financial planning remain critical. However, their role as the primary or exclusive gateway to fund distribution is likely to diminish as alternative digital channels continue to gain scale, functionality, and credibility.



5. Meeting modern investor demands

Investor expectations have fundamentally evolved. The benchmark experience is no longer defined by quarterly statements and occasional interactions with a relationship manager, but by always-on digital interfaces, fast onboarding processes, and the ability to transact through mobile-first channels. Digital experience is increasingly becoming a core component of client trust and an important factor in institutional due diligence.

This shift in demand is also reshaping the economics of servicing. When onboarding, reporting, and servicing processes rely heavily on manual intervention, the cost of growth increases rapidly. By contrast, when those journeys are automated and integrated, firms can improve service quality while simultaneously reducing unit costs. Client experience and operational efficiency are no longer separate priorities; they have become two dimensions of the same strategic objective.

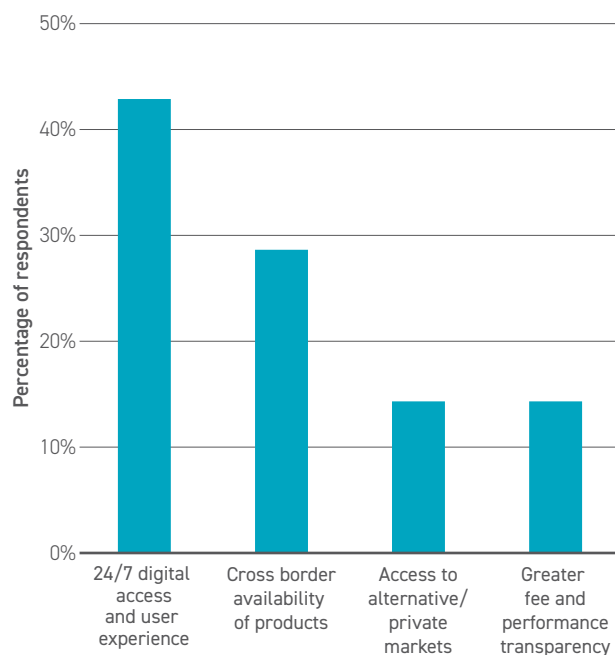
5.1 Digital experience and personalization

Across industries, consumers increasingly expect personalized interactions. Studies show that 71% of consumers expect companies to deliver personalized experiences, while 76% become frustrated when those expectations are not met [8]. In wealth and asset management, personalization increasingly includes tailored reporting, goal-based servicing, and more relevant advice and insights.

Client preferences are also shifting toward digital servicing throughout the entire investment lifecycle. In Luxembourg, 70% of surveyed wealth management clients indicated a preference for account opening through digital platforms or virtual collaboration tools, while 63% favored virtual collaboration models for their investment management activities.

This trend is strongly reflected in our survey results, with participants prioritizing 24/7 digital access and enhanced user experience above all else.

Which investor demand is currently the strongest driver for tokenization?



Source: Deloitte Luxembourg

5.2 Democratizing access to alternatives

Tokenization can support fractional ownership and smaller investment ticket sizes, enabling new access models for traditionally less liquid assets. The World Economic Forum highlights capabilities such as fractional ownership and real-time settlement as key drivers of greater accessibility, efficiency, and transparency [9]. In practice, democratization can only succeed if investor protections and suitability requirements are effectively embedded into product design and distribution governance.

In private markets, the long-term opportunity is not to create artificial liquidity where it does not, but to improve transparency and portability of ownership. Tokenization can facilitate the transfer of positions within permitted networks, enable the use of positions as collateral, and automate parts of the servicing lifecycle such as distributions and reporting. In doing so, it may reduce some of the operational burdens that currently limit access for retail and semi-professional investors.

far more continuous through real-time order tracking, automated reporting, and faster cash movements. As a result, the operational objective shifts from simply “closing the books” at defined intervals toward maintaining records that are continuously updated and current.

Key takeaway

Investor expectations are shifting toward continuous, digital-first interactions across the entire lifecycle.

What this means in practice

Operational infrastructure must evolve to deliver real-time responsiveness without increasing cost per client.

5.3 What “always-on” means operationally

Always-on client expectations are putting increasing pressure on traditional batch-processing models built around legacy systems and operating frameworks. Even where funds continue to operate on daily pricing cycles, the surrounding client experience can become

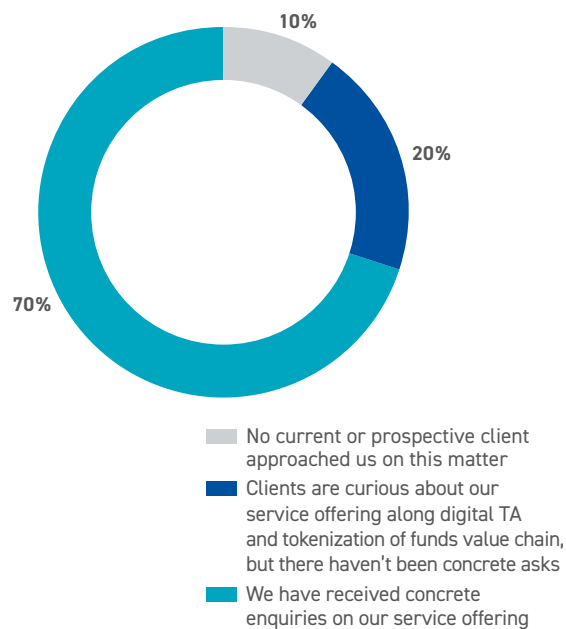
6. The rise of tokenized funds and DLT

The era of tokenized funds effectively began in 2021, when Natixis Asset Management successfully distributed the whole suite of French money market funds through FundsDLT, the Luxembourg-based blockchain-powered fund distribution platform, today fully integrated into Clearstream Fund Services. This marked one of the first live blockchain transactions in the global investment fund industry. It demonstrated how asset managers could access new distribution channels while reducing administrative costs and shortening transaction processing times.

By 2026, tokenization has moved beyond experimentation into early-stage production deployments, particularly in money market funds and short-duration asset classes. These products are especially well suited to tokenization because the underlying assets are relatively standardized, and the benefits of improved transparency, operational efficiency, and potentially 24/7 transferability are easier to demonstrate. It is noted that the early-stage production deployment in these asset classes ranges from live production, pilot, proof-of-concept, tokenized share class, blockchain-integrated recordkeeping, and secondary token exposure.

The survey confirms robust market interest in tokenization, as 70% of respondents report receiving concrete enquiries on their tokenized service offerings. However, a clear preference emerges for in-house development of DLT initiatives over reliance on current or specialized third-party providers.

Has your organization already received client requests for tokenized funds/servicing?



Source: Deloitte Luxembourg

As a result, the market narrative is evolving from "blockchain as innovation" toward "blockchain as infrastructure." The central question is no longer whether tokenization is technically feasible, but rather how it should be implemented: which ledger architecture to use, which identity model to adopt, which cash settlement rails to rely on, and which governance and control frameworks should apply. These design choices will ultimately determine the speed and scale of adoption.



Reality check: four myths about tokenized funds

Myth	Reality check
Tokenization means funds become fully on chain immediately.	Most models are hybrid and will remain so for the foreseeable future, with legal registers, fund accounting and oversight still playing critical roles.
Tokenization removes intermediaries.	It re-scopes intermediary roles rather than eliminating them, shifting value toward orchestration, governance, trusted records, and operational resilience.
The main benefit is lower cost.	Cost reduction matters, but the bigger strategic prize is control over data, investor access, distribution flows, settlement logic, and interoperability.
One blockchain or platform will win.	The industry is likely to operate across multiple ledgers, platforms, and legacy infrastructures, making interoperability a real success factor.

Key takeaway
Tokenization is evolving from a product innovation into a foundational infrastructure layer.

What this means in practice
The strategic question is shifting from “whether to tokenize” to “how to design operating models around tokenized infrastructure.”

6.1 From pilots to infrastructure

What marks the transition from pilots to infrastructure is not simply the existence of tokens, but the emergence of repeatable operating models that can be adopted across products and market participants. Early initiatives demonstrated technical feasibility and helped clarify where the economic value of tokenization resides: reducing reconciliation requirements, shortening operational cycles, improving auditability, and enabling more continuous servicing. The next phase is characterized by industrialization through standardized onboarding and permissions models, clearer governance frameworks for smart contract changes, and deeper integration with the traditional fund lifecycle, allowing tokenized units to be issued, transferred, and serviced within established control frameworks. [4]

As these operating patterns mature, tokenization increasingly resembles a modular infrastructure layer rather than a bespoke innovation project. In practice, scaling depends on alignment across a limited number of core building blocks: (i) controlled identity and permissions frameworks, (ii) token logic and transfer restrictions that map cleanly to fund rules, (iii) reliable synchronization with NAV and reference data, and (iv) a settlement mechanisms capable of operating within appropriate safeguards. [4] This also explains why hybrid architectures remain prevalent: they allow institutions to capture benefits such as synchronized records and more efficient transfer execution while preserving the legal record of ownership and core investor protections within familiar structures. [4]

A further indicator of “infrastructure readiness” is when tokenized fund models extend beyond a single issuer or a single chain choice and start to replicate across multiple environments. The expansion of BlackRock’s USD Institutional Digital Liquidity Fund (BUIDL) to additional networks illustrates how distribution reach and interoperability considerations are becoming part of the design conversation, not an afterthought. [12]

Over time, as market practices solidify and supporting rails evolve, tokenization can move from being a channel-specific enhancement to a foundation for operating model change, with a larger share of the lifecycle executed on, or synchronized through, common digital rails. [10]

Given the above, where do we stand numerically? Tokenized money market funds surpassed USD 1 billion in total value in Q1 2024 [10]. The ecosystem has since expanded through new products and market infrastructure initiatives.

Examples include BlackRock’s BUIDL, launched on a public blockchain in March 2024 [11]. In March 2025, BlackRock and Securitize announced an expansion of BUIDL to Solana and reported that the fund had surpassed USD 1 billion in AUM. [12]

Franklin Templeton has also operated a blockchain-integrated money market fund since 2021, where the transfer agent maintains the official record of share ownership through a blockchain-integrated system, and has extended this approach to a fully tokenized UCITS product in Luxembourg. [13]

Table 2 summarizes notable recent money market funds launches, where most of the real institutional traction lies. The message is clear: tokenization of investment funds is no longer a theoretical concept or a series of isolated experiments. The industry has now entered a phase where digital transformation is not defined by strategic intent but by tangible implementation.



Table 2: List of notable recent tokenized MMF launches, from 2024 to today.

Date	Issuer	Product / initiative	Comment
Feb. 2024	WisdomTree	WisdomTree Government Money Market Digital Fund (WTGXX)	One of the first US tokenized MMFs, combining blockchain-based ownership infrastructure with a registered money market fund structure.
Mar. 2024	BlackRock	BlackRock USD Institutional Digital Liquidity Fund (BUIDL)	Initial minimum investment of USD 5 million; Fund seeks stable USD 1 per token value; > USD 1 billion AUM by March 2025.
Nov. 2024	UBS Asset Management	uMINT (UBS USD Money Market Investment Fund Token)	Institutional-grade, Ethereum-based product; Demonstrates tokenized MMFs expanding beyond US asset managers into European, and Asian institutional ecosystems.
Feb. 2025	Franklin Templeton	Franklin OnChain U.S. Government Money Fund	First Luxembourg-domiciled fully tokenized UCITS MMF.
Sep. 2025	Fidelity Investments	Fidelity Digital Interest Tokens (FDIT)	Reportedly crossed ~ USD 250–300 million AUM shortly after launch.
Dec. 2025	J.P. Morgan Asset Management	My OnChain Net Yield Fund (MONY)	Described by J.P. Morgan as the largest launch of a tokenized MMF on a public blockchain by a global systemic bank; Structured as a 506(c) private placement fund.
Nov.– Dec. 2025	Amundi	AMUNDI FUNDS CASH EUR – tokenized share	Tokenized share distributed alongside traditional channels.
Jan. 2026	Western Asset Management	Two institutional MMFs retrofitted for tokenized finance	Two existing funds updated: One aligned to GENIUS Act reserve requirements, one to blockchain-enabled intermediary distribution.
Feb. 2026	Franklin Templeton	Benji-issued tokenized MMFs used as off-exchange collateral	Live program for eligible institutions; Tokenized MMF shares remain off exchange in regulated custody while mirrored into Binance’s trading environment.
Mar. 2026	Northern Trust	NIF Treasury Instruments Portfolio – tokenized share class	Tokenized share class represents a digital mirror record of the fund’s institutional share class using blockchain.

By contrast, ETF-related tokenization is currently developing faster on the distribution, collateralization, and market-structure side than on the primary issuance side. The strongest developments today come from regulated trading venues and exchange-led initiatives supporting tokenized equities and ETPs/ETFs.

Platforms such as Ondo Global Markets or xStocks already provide tokenized exposure to ETFs by issuing blockchain-based instruments that track the economic performance of underlying listed ETFs. While the ETFs

themselves continue to trade on traditional exchanges such as NYSE or Nasdaq, settle through infrastructures such as DTCC and rely on conventional shareholder registers, tokenization is progressively extending the utility of these instruments beyond simple distribution. In particular, the increasing eligibility of ETFs as collateral within digital asset ecosystems is creating new use cases around liquidity management and margining. Combined with tokenized access models, this could make ETF tokenization particularly attractive, as ETFs are already highly standardized, liquid and widely used instruments within collateral and securities financing markets.

6.2 Operating speed in light of T+1 settlement

Tokenization can enable new operating models, including faster settlement, more automated transfer restrictions, and improved audit trails for key events. Its value is greatest where it reduces operational exceptions and reconciliation requirements across multiple intermediaries, rather than simply creating a new investor interface.

The progressive shortening of settlement cycles in public markets is also likely to accelerate the need for operating model transformation across the fund industry. With major jurisdictions such as the United States already moving to T+1 settlement, and other markets considering similar timelines, traditional fund processing cycles (where subscriptions, redemptions, and confirmations may still take T+3 to T+5) are becoming increasingly misaligned with the settlement cycles of the underlying assets. Maintaining these longer operational timelines will become progressively more difficult as asset-side settlement continues to accelerate.

In this context, DLT and digital register infrastructures could play an important role in enabling more synchronized transaction processing and supporting shorter, more efficient settlement cycles across the investment management value chain.

6.3 Tokenized fund versus the traditional fund value chain

A useful way to assess tokenized fund initiatives is to map them against the traditional fund lifecycle. Regardless of the underlying blockchain or infrastructure choice, most models require clear decisions across a common set of building blocks:

- **Identity and permissions:** How investors are onboarded, whitelisted, and maintained in compliance with AML, KYC, and sanctions requirements.
- **Token logic:** How transfer restrictions, corporate actions, and governance mechanisms for upgrades or emergency controls are implemented.
- **NAV and valuation:** How on-chain records interact with NAV calculation cycles and how valuation and reference data are synchronized.
- **Cash and settlement:** Which payment rails are used, how reconciliation is managed, and whether atomic delivery-versus-payment (DvP) can realistically be achieved.
- **Custody and key management:** How responsibilities are allocated, including segregation of duties, and recovery procedures.

6.4 What kinds of hybrid models exist (and how they differ)

Despite the strong narrative around disintermediation, most tokenized fund implementations currently rely on hybrid architectures that preserve core institutional roles while digitizing the interfaces between them. Rather than fully replacing the existing fund ecosystem, these models introduce DLT as an additional infrastructure layer designed to synchronize data and transaction flows across participants.

International Organization of Securities Commissions (IOSCO) for example, describes tokenized fund structures in which on-chain transfers are mirrored within an off-DLT system operated by the transfer agent, which continues to serve as the legal record of ownership [4]. In these models, blockchain-based tokens represent economic interests in the fund, while the authoritative shareholder register remains within the traditional transfer agency infrastructure. This approach allows asset managers to benefit from improved transparency and transaction efficiency while preserving established legal certainty and investor protection mechanisms.

Several hybrid architectures have emerged in practice:

- A **first model** can be described as a “tokenized representation” architecture. In this approach, the fund’s official share register remains fully off-chain and continues to be maintained by the transfer agent or administrator. A digital token is issued on a blockchain to represent a claim on those shares. When tokens move between wallets, the transfer agent updates the official register accordingly. This structure effectively treats the blockchain as a synchronized messaging and reconciliation layer rather than as the primary system of record.
- A **second model** involves a “mirrored register” architecture. Here, transfers recorded on the blockchain are simultaneously replicated into the transfer agent’s traditional register through automated interfaces. The blockchain therefore functions as a real-time operational ledger, while the off-chain register remains the legally binding record of ownership maintained by the TA. This dual-record structure is particularly attractive in jurisdictions where legal frameworks still require a conventional shareholder register, such as Luxembourg.
- A **third model** focuses on on-chain settlement with off-chain fund accounting. In this structure, the transfer of fund units (and potentially tokenized cash) occurs on a distributed ledger, enabling near-instant settlement and atomic delivery-versus-payment. However, key operational processes such as NAV calculation, portfolio valuation, and regulatory reporting continue to rely on existing fund administration systems. The blockchain layer therefore accelerates transaction processing while leaving valuation and accounting functions largely unchanged.
- Another emerging architecture centers on permissioned network infrastructures operated by regulated financial institutions. In these environments, multiple market participants, including asset managers, transfer agents, custodians, and distributors, share access to a controlled distributed ledger. Each participant retains its traditional responsibilities, while the ledger serves as a shared data infrastructure that reduces reconciliation requirements and improves transparency.

Across these hybrid models, the underlying principle remains consistent: tokenization is introduced incrementally, focusing on areas where distributed infrastructure can deliver measurable efficiency gains without disrupting legal frameworks or investor protection mechanisms. Asset servicers therefore continue to perform key operational or oversight functions, even as parts of their operational workflows become increasingly automated or synchronized through shared ledgers.

A critical success factor in this transition will be interoperability. The digital transformation of the fund industry is unlikely to occur through a single technological shift, but rather through successive waves of adoption in which traditional infrastructures and tokenized systems coexist for an extended period. Seamless interoperability between on-chain and off-chain infrastructures will therefore be essential, enabling asset managers, transfer agents, custodians, and distributors to operate across both environments without creating additional operational fragmentation.

Interoperability between different tokenization platforms and distributed ledger networks will be equally important. Without common standards or effective connectivity layers, tokenization risks creating

a new generation of isolated vertical solutions, each functioning as its own closed ecosystem. In such a scenario, the industry would simply replace today's fragmented infrastructure with new digital silos, undermining many of the efficiency gains that distributed ledger technology is intended to deliver.

Ensuring interoperability across platforms, market infrastructures, and regulatory environments will therefore be a key condition for realizing the full benefits of tokenization in investment management.

As regulatory clarity improves and tokenized market infrastructure continues to mature, some of these hybrid architectures may gradually evolve toward more native on-chain models (see chapter 8). For the foreseeable future, however, hybrid designs are likely to remain the dominant implementation approach, enabling asset managers to capture the benefits of tokenization while maintaining compatibility with existing regulatory, legal, and operational frameworks.



7. Savings and Investments Union (SIU), the Market Integration Supervision Package (MISP), and the DLT opportunity

Tokenization and digital registers are evolving alongside broader European policy efforts aimed at addressing one of the EU's longstanding structural challenges: the fragmentation of capital markets across the member states. The Savings and Investments Union (SIU) initiative builds on earlier Capital Markets Union (CMU) efforts and seeks to improve the flow of savings across borders into productive investments. A central objective is to create deeper and more integrated capital markets capable of mobilizing private capital more efficiently.

Within this broader agenda, the Market Integration Supervision Package (MISP) adopted by the European Commission in December 2025, focuses on reducing operational and regulatory barriers that continue to limit cross-border activity in European financial markets [5]. In practice, the package targets areas such as:

- the simplification of cross-border post-trade processes.
- improved access to consolidated market data.
- greater harmonization of market practices and reporting standards.
- reduction of operational friction in securities settlement and clearing.

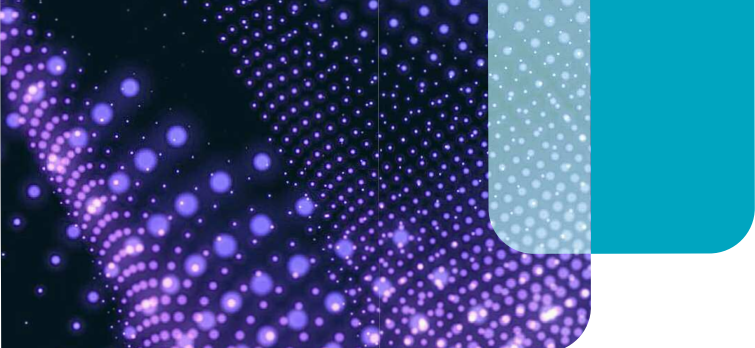
While these initiatives are not specifically designed around DLTs, they address many of the same structural frictions that are driving the development of tokenized market infrastructure.

From an asset management perspective, the relevance of these policy initiatives lies primarily in their potential to improve scale and operational efficiency. If regulatory and operational barriers are reduced, the marginal cost of distributing funds across European markets is likely to decline. In turn, this strengthens the economic case for investing in modernized operational infrastructure, including digital registers, API-based connectivity, and tokenized settlement rails.

7.1 Why policymakers care: Fragmentation and under-utilized savings

One of the structural motivations behind the SIU initiative is the large proportion of European household wealth that remains outside capital markets. The European Commission has highlighted that approximately EUR 10 trillion of EU household savings are currently held in bank deposits, representing around 70% of household financial assets. A key objective of the SIU is therefore to facilitate the reallocation of part of these savings toward long-term investments, including equities, investment funds, and pension products [14].

Achieving this objective requires addressing both structural and operational fragmentation across European capital markets. Although the EU has a large and sophisticated financial sector, capital market activity remains unevenly distributed across Member States. Differences in market practices, tax regimes, post-trade infrastructures, and reporting frameworks continue to create friction that discourages cross-border investment flows.



In the investment fund industry, these frictions often translate into operational complexity. Asset managers distributing funds across multiple EU markets frequently need to navigate different distribution arrangements, country-specific reporting requirements, and fragmented operational interfaces with market infrastructures. This increases costs and can limit the ability of smaller or mid-sized asset managers to scale distribution across Europe.

Reducing these barriers is therefore not only a regulatory objective, but also a structural prerequisite for building deeper and more integrated capital markets within the EU.

7.2 The potential role of tokenized market infrastructure

While the SIU and MISP initiatives are primarily regulatory and policy-driven programs, they intersect with a broader technological evolution in financial market infrastructure. In particular, digital registers and DLTs can address some of the operational frictions that arise in fragmented post-trade environments.

Digital registers and distributed ledger systems offer an alternative architecture in which key transactional events can be recorded within a shared or synchronized environment. If implemented carefully, such infrastructures could contribute to several of the operational objectives targeted by the SIU and MIP initiatives. For example, DLT could directly support the SIU's third pillar objective of strengthening European market integration through the use of new technology. Standardized digital registers could simplify cross-border fund distribution by reducing reconciliation points between distributors, transfer agents, and custodians. Similarly, synchronized settlement records could support shorter settlement cycles and improve transparency across the post-trade value chain.

Importantly, the role of distributed infrastructure in this context remains supportive rather than determinative. The success of initiatives such as the SIU will ultimately depend on regulatory alignment, market participation, and investor confidence. Nevertheless, as European capital markets become more integrated, the case for modernizing underlying operational infrastructures, including digital registers and distributed ledgers, becomes increasingly compelling.



8. Governance, regulation, and risk in on-chain funds

Tokenization changes where risks reside. While DLT can reduce reconciliation breaks and operational friction, it also introduces technology, cybersecurity, and governance risks that must be managed with the same rigor as traditional market and liquidity risks. This chapter serves as a practical counterbalance: the value chain can only be redesigned successfully if legal certainty, operational resilience, and investor protections remain credible.

In many discussions, tokenization is presented primarily as a technology upgrade. In practice, however, it also represents a transformation of the control model itself. Ownership records, transfer restrictions, and in some cases corporate action logic move into a programmable infrastructure layer. That layer must be properly governed, audited, and resilient to operational or technical failures. Without these safeguards, tokenization could ultimately increase risk even as it reduces manual processes and operational effort.

8.1 Regulatory perimeter in Europe

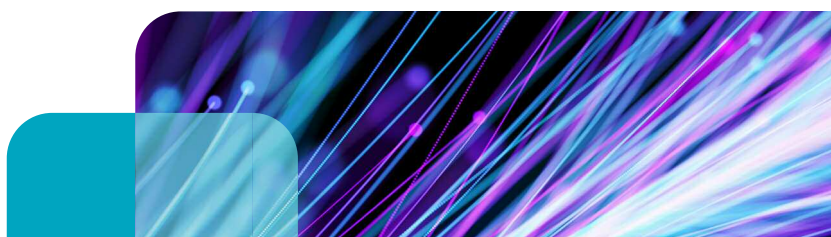
In the EU, several regimes shape how tokenized instruments and supporting infrastructure can operate:

- **DLT pilot regime:** Applicable from 23 March 2023, this framework establishes the legal basis for trading and settlement of digital assets that qualify as financial instruments under MiFID II, while facilitating the development of new types of DLT market infrastructures around trading and settlement services. [15]

- **Markets in Crypto-Assets (MiCA):** Introduces a harmonized EU framework for crypto-assets that are not already covered by existing financial services legislation. It sets out rules for the issuance, trading, and supervision of crypto-assets, including asset-referenced tokens and e-money tokens, covering areas such as transparency, disclosure, authorization, and regulatory oversight [16].

- **Digital Operational Resilience Act (DORA):** Applicable since 17 January 2025, DORA strengthens requirements relating to ICT risk management and operational resilience. In the context of tokenization, DORA is particularly significant because distributed ledger infrastructures, including public blockchains, are treated as part of a financial institution's ICT environment. Institutions relying on public blockchain networks must therefore demonstrate their ability to maintain operational continuity and appropriate risk controls in scenarios involving network congestion, forks, validator failures, or outages affecting the underlying blockchain infrastructure. [17]

Taken together, these three regulatory regimes create a clearer framework for scaled adoption by addressing market structure, asset classification, and operational resilience in a complementary manner. They reduce uncertainty around what is permitted, under which regulatory framework, and under which resilience requirements. This, in turn, makes it easier for financial institutions to move from pilot initiatives toward production-grade tokenized fund models, particularly those based on hybrid architectures and regulated infrastructure pathways.





8.2 Control domains that require explicit ownership

Firms seeking to scale tokenized fund models must clearly define responsibilities across several critical control domains. Smart contract assurance is a primary concern. Because smart contracts effectively encode operational logic and investor rights, they require rigorous code reviews, independent security audits, and robust governance procedures for upgrades or emergency interventions. Key management is equally critical. Institutions must establish clear frameworks governing how private keys are generated, stored, accessed, and recovered, while ensuring appropriate segregation of duties and secure custody arrangements.

Operational oversight must also extend to monitoring and incident response capabilities. Tokenized infrastructures require continuous network monitoring, resilience testing, and clearly defined escalation procedures in the event of technical disruptions. These mechanisms must align with broader operational resilience requirements, including those introduced under DORA [17].

Finally, compliance controls must be embedded directly into the infrastructure architecture. AML requirements, transfer restrictions, and eligibility checks must be consistently enforced and properly recorded within the system, ensuring that regulatory obligations remain effective even as transactions move onto programmable infrastructure layers.

8.3 Governance-by-design for scalable adoption

For tokenized fund models to scale sustainably, several design principles should guide implementation. First, firms should focus on the investor register and operational workflow rather than on the underlying blockchain technology itself. The key question is not which chain is used, but which entity maintains the legal record of ownership and how discrepancies or operational errors are resolved. Clarifying this governance layer from the outset helps avoid ambiguity around investor rights and responsibilities.

Second, auditability should be embedded by design. Shared ledgers can provide powerful audit trails, but only if identities, permissions, and data retention rules are clearly defined and properly governed. Without these controls, transparency can quickly become incomplete or misleading.

Finally, resilience must be treated as a core product feature rather than an afterthought. Monitoring capabilities, operational safeguards, and third-party risk management should be integrated into the system architecture from the beginning to ensure that tokenized infrastructures meet the reliability resilience standards expected in regulated financial markets.

9. Outlook:

Tokenized funds coexisting with tokenized assets

Tokenized funds may not represent the only long-term outcome for the industry. While they are likely to remain an important structure, the progressive tokenization of real-world assets could eventually enable portfolios to be constructed directly from tokenized building blocks, reducing reliance on traditional fund wrappers.

This evolution is likely to be gradual, with multiple end-states coexisting in parallel. Investment funds continue to provide essential functions, including governance, fiduciary oversight, diversification, and investor protection. These functions are likely to remain valuable. However, the surrounding operational infrastructure may evolve significantly. If transfers, restrictions, and settlement processes become embedded directly within DLT infrastructure, the fund wrapper may gradually shift from being a primarily a processing engine toward functioning more as a governance and oversight layer.

A useful way to frame this transition is through three potential evolution paths. These paths are not mutually exclusive. Many asset managers are likely to operate several models in parallel, often beginning with Path 1 for selected products, gradually expanding toward Path 2 to achieve operational scale, while monitoring Path 3 as market for tokenized underlying assets continue to mature. [4]

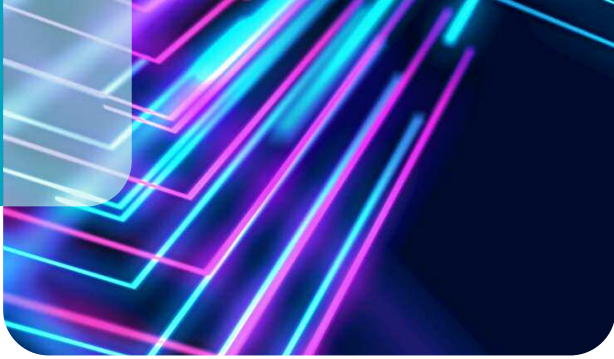
9.1 Three evolution paths

- **Path 1: Tokenized wrapper.** Traditional funds tokenize their units while keeping most of the existing value chain intact, using DLT primarily as a distribution and transfer layer.
- **Path 2: Tokenized register and rails.** The investor register and settlement processes become shared or synchronized, reducing reconciliation requirements and accelerating operational cycles.
- **Path 3: Tokenized building blocks.** Assets, cash, and collateral become tokenized and composable, enabling portfolio-level constructions that combine tokenized assets without relying exclusively on traditional fund wrappers. This more radical “post-fund hypothesis” is explored further in a dedicated section below.

What evolves across these paths is the “center of gravity” for processing and control. In Path 1, the fund remains the primary processing hub, with DLT functioning mainly as an interface layer. In Path 2, processing becomes more synchronized across participants, compressing the value chain around shared infrastructure and common settlement rails. This shift highlights the growing importance of infrastructure providers capable of orchestrating register, distribution, and execution layers, such as Clearstream Fund Services.

In Path 3, the fund wrapper becomes less operationally necessary, as portfolios can increasingly be assembled from tokenized claims with embedded rules and more continuous servicing capabilities. [4]





Dimension	Path 1: Tokenized wrapper	Path 2: Tokenized register and rails	Path 3: Tokenized building blocks
Primary objective	Enhance distribution and improve transfer experience with minimal disruption.	Reduce operational friction by synchronizing ownership and lifecycle events.	Enable composable portfolios built from tokenized assets, cash, and collateral.
What is tokenized	Fund units/share classes.	Fund units plus more of the register and transaction workflow.	Underlying assets (and eventually cash/collateral) as tokenized components.
Where the "golden record" sits	Typically remains with existing TA/legal register.	Moves toward synchronized/shared record.	Depends on asset class and infrastructure, but ownership and constraints increasingly live in common digital rails.
Operational impact	Limited: existing intermediaries remain; interface becomes digital.	Medium/high: fewer reconciliations, faster cycle times, clearer audit trails [4].	High: portfolio construction and servicing can shift toward infrastructure-level orchestration and away from fund wrappers.
Value chain implications	TA, order routing, custody largely unchanged.	TA/orchestration roles compress or re-scope, routing becomes more automated, oversight becomes more continuous [4].	New roles emerge around orchestration, identity/permissions, and risk controls at portfolio level.
Likely adoption pattern	Fastest initial adoption.	Next scaling step as benefits become provable and repeatable [4].	Longer-term, uneven by asset class; likely starts where assets are standardized and infrastructure is ready.
What could go wrong	"Token label" without economic impact; limited savings if core operations remain unchanged.	Dual-run complexity, governance gaps in exception handling, uneven ecosystem adoption [4].	Loss of governance and controls if traditional compliance and trust roles were to disappear.

Key takeaway

Multiple operating models will coexist, but value will increasingly concentrate around shared infrastructure and orchestration capabilities.

What this means in practice

Strategic positioning will depend on which parts of the value chain firms choose to own versus outsourcing to infrastructure providers.

9.2 Practical implication for fund managers

The strategic question is therefore not simply, “Should we tokenize a fund?,” but rather, “Do we want to become a price-taker on someone else’s infrastructure?” Asset managers that approach tokenization purely as a wrapper exercise may improve distribution optics without materially enhancing unit economics or strengthening control over the client experience.

By contrast, managers that standardize workflows and build strong digital interfaces are more likely to retain strategic leverage. They can participate in shared infrastructure where it creates operational benefits, while continuing to control the parts of the value chain that drive client trust, differentiation, and long-term competitive advantage. [4]

9.3 The post-fund hypothesis

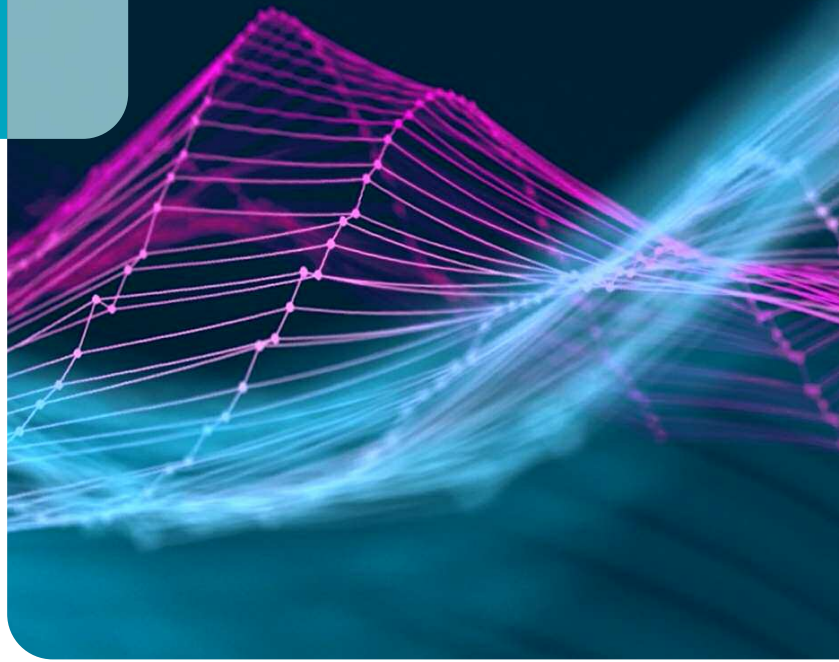
Throughout most of this paper, tokenization has been framed primarily as an efficiency layer: a perspective that is both practical and realistic in the medium term. However, this framing may underestimate the longer-term implications of a fully tokenized financial ecosystem. If both the asset side and the investor side of the investment management value chain ultimately move fully on chain, the concept of the “fund” itself could become increasingly optional. The fund structure may persist, but it may no longer be necessary in the way it historically has been.

A traditional investment fund combines several essential functions within a single legal and operational structure. These functions typically include:

1. Capital pooling.
2. Governance and fiduciary oversight.
3. Valuation through NAV calculation.
4. Liquidity management through subscriptions and redemptions.
5. A legal wrapper providing regulatory oversight and investor protection.

Operationally, the fund also consolidates a range of infrastructure functions, including investor register maintenance, subscription and redemption processing, settlement coordination, custody, and reporting. Historically, these functions were closely interconnected because financial infrastructure itself was highly fragmented. Settlement processes involved multiple intermediaries, while access to assets required





significant operational coordination. In this context, the fund evolved not only as an economic mechanism for pooling capital, but also an operational solution for managing complex financial infrastructure.

Tokenization changes the operational rationale underlying traditional fund structures. The truly disruptive threshold may be reached once underlying assets and cash become natively tokenized, investors operate through on-chain digital identities, compliance rules are embedded within programmable logic, and transfers become atomic and final. In such an environment, the entire ownership lifecycle could be executed through synchronized smart contracts.

The fund ceases to be a vehicle coordinating fragmented infrastructure but rather becomes a programmable allocation logic. Once allocation logic becomes programmable, composable, and interoperable, the wrapper becomes optional.

In a fully tokenized ecosystem, an investor operating through a digital wallet could theoretically:

- Hold fractional exposure to multiple tokenized assets directly.
- Allocate capital through programmable portfolio allocation contracts.
- Rebalance exposures automatically through embedded rules.
- Pay management or performance fees through automated mechanisms.
- Enforce regulatory and mandate constraints through coded permissions.

In this framework, the fund functions less as a legal container and more as a programmable portfolio logic. Its role begins to resemble that of a financial protocol or application layer rather than a conventional investment vehicle.

Despite the technological possibilities outlined above, an important constraint remains: legal accountability. Smart contracts can enforce operational rules and automate transactions, but they cannot fully replace the legal framework that govern financial relationships. Even in highly digitalized markets, some form of governance and legal oversight layer is therefore likely to remain necessary.

As a result, the traditional fund structure may evolve into a thinner legal and governance shell sitting on top of increasingly automated infrastructure. The more fundamental open question is therefore not whether change will occur, but to what extent will regulatory frameworks accommodate more radical transformation versus favoring a more gradual and controlled evolution.

10. Conclusion

► From theory to implementation

Tokenization of investment funds is no longer a theoretical concept or a series of isolated experiments. Over the past few years, leading asset managers, market infrastructures, and fund service providers have moved from exploration to execution by launching tokenized fund structures, digital share classes, and blockchain-enabled distribution and settlement solutions.

► From processes to infrastructure

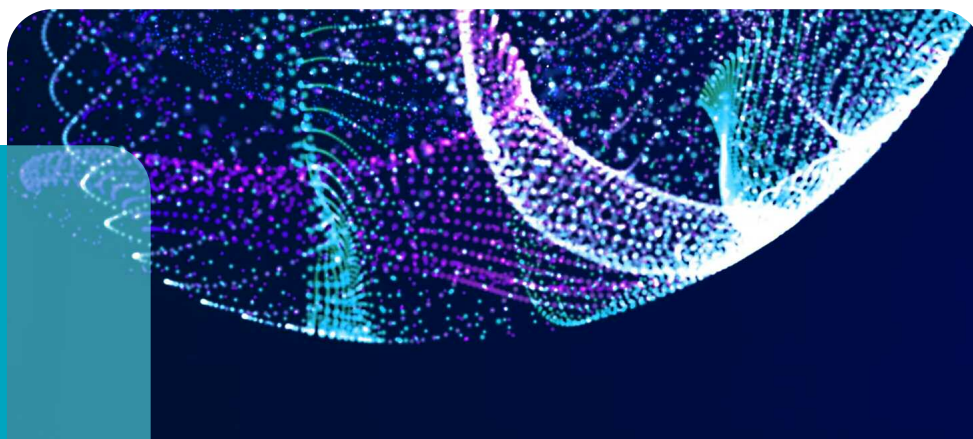
The industry has now entered a phase in which digital transformation is no longer defined by strategic intent, but by tangible implementation. For asset and investment managers, the question is no longer whether tokenization will play a role in their operating model, but how quickly and to what extent will it reshape their value chain, cost structure, and ultimately their relationship with investors.

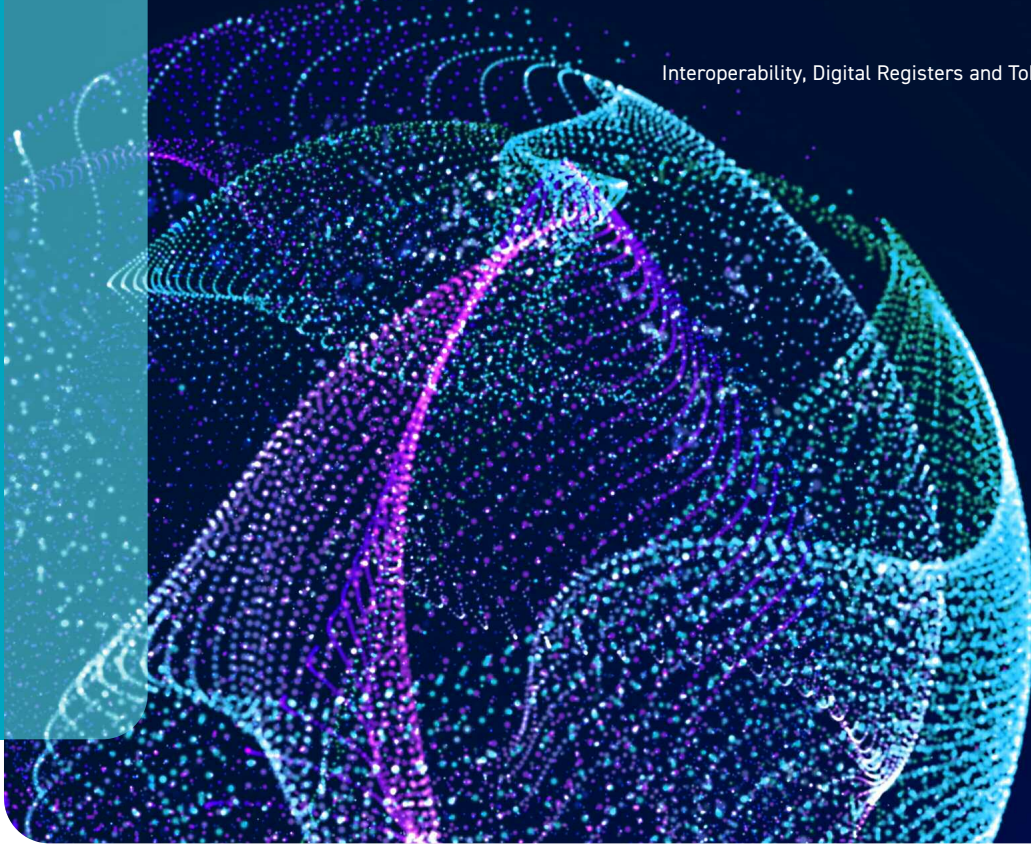
► A shift in the value chain

Tokenization will not eliminate the fund structure overnight. However, it has potential to shift where economic value accrues by moving record-keeping and settlement closer to shared infrastructure layers. Managers that approach tokenization merely as a surface-level product feature may miss the deeper opportunity: redesigning the operating model to become digital-first, data-driven, and interoperable.

► A question of strategic positioning

The near-term winners are likely to be firms that first simplify and automate their operations, and then selectively adopt tokenized infrastructure where it delivers measurable benefits: faster processes, lower error rates, improved client experience, and greater transparency.





► Looking ahead: coexistence and evolution

The long-term question is whether, as tokenized assets mature, the fund wrapper becomes one option among many rather than the default vehicle for portfolio construction. Our view is that operational and economic incentives will progressively weaken the relative attractiveness of traditional fund structures. Nevertheless, the continued need for legal accountability and robust governance frameworks is likely to preserve the fund, at least as a layer of trust and oversight.

► A pragmatic path forward

A practical roadmap for fund managers and service providers can be structured around four steps. First, reduce internal fragmentation through the standardization of data and workflows. Second, modernize the investor record through digital registers and API-first integration models. Third, pilot tokenized share classes within controlled environments to better understand governance and control implications. Fourth, scale selectively as standards, regulation, and settlement infrastructure continue mature. Such an approach avoids both extremes: ignoring tokenization altogether or overcommitting to immature operating models.

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