

CONNECT, SCALE, DIVERSIFY

Building the Asset Flywheel for Future-ready CSDs

JUNE 2026

QUINLAN
& ASSOCIATES

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EXECUTIVE SUMMARY

Central securities depositories (“CSDs”) are entering a defining phase of strategic evolution. Traditionally positioned as back-end post-trade infrastructure focused on safekeeping and settlement, CSDs are evolving into strategically important, integrated financial market infrastructures (“FMIs”) serving more than the typical wholesale market participant to include issuers and investors, supporting capital market efficiency and resilience. This shift is being driven by a combination of structural forces, including geopolitical uncertainty, evolving market needs, and the advent of innovative technologies.

To fulfil this broader ecosystem role, many CSDs are expanding their service offerings and building a “self-reinforcing asset flywheel” across three key steps:

1. **Connect:** Offer high-demand market access corridors through fit-for-purpose connectivity models (e.g., relayed, direct, or indirect links) based on trade linkages, investor demand, issuer pipelines, and geopolitical alignment.
2. **Scale:** Expand asset servicing capabilities for both domestic and foreign investors to reduce friction across the asset lifecycle, including issuance, custody, settlement, corporate actions, and tax & reporting, thereby increasing asset stickiness within the CSD ecosystem.
3. **Diversify:** Develop adjacent services to serve clients with minimal friction and maximum utility, capitalise on assets under custody (“AuC”), and capture emerging opportunities.

To successfully roll out the transformation, there are three key pillars that CSDs should consider:

1. **Strategic:** With an expanding universe of opportunities, CSDs need to assess each new corridor, service, or capability, grounded in robust market sizing, demand validation, competitive benchmarking, business case development, and a detailed feasibility study.
2. **Operational:** As service scope expands and complexity increases, CSDs must streamline existing operations and adopt fit-for-purpose service models that balance control, cost, speed, and resilience.
3. **Financial:** CSDs can also refine tariff designs across both foundational and adjacent services, including pricing methodologies, bundling strategies, and tiering structures, to reduce reliance on public funding or subsidies while preserving their core public utility function.

While the trajectory is becoming clearer, the pathway to convergence is still taking shape, requiring CSDs to navigate a series of market-specific questions to define what it truly means to become a future-ready, strategically important, and self-sustaining FMI in the evolving capital market landscape.



SECTION 1

THE STRATEGIC IMPERATIVE FOR EVOLUTION

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FROM INDIRECT TO DIRECT SERVICING

KEY TAKEAWAYS

CSDs have traditionally serviced central banks' monetary operations, along with other wholesale market participants, such as custody banks, broker-dealers, and issuing and paying agents ("IPAs"). Through these wholesale participants, CSDs also indirectly serve the wider market (e.g., private banks, asset owners, asset managers, and fund managers).

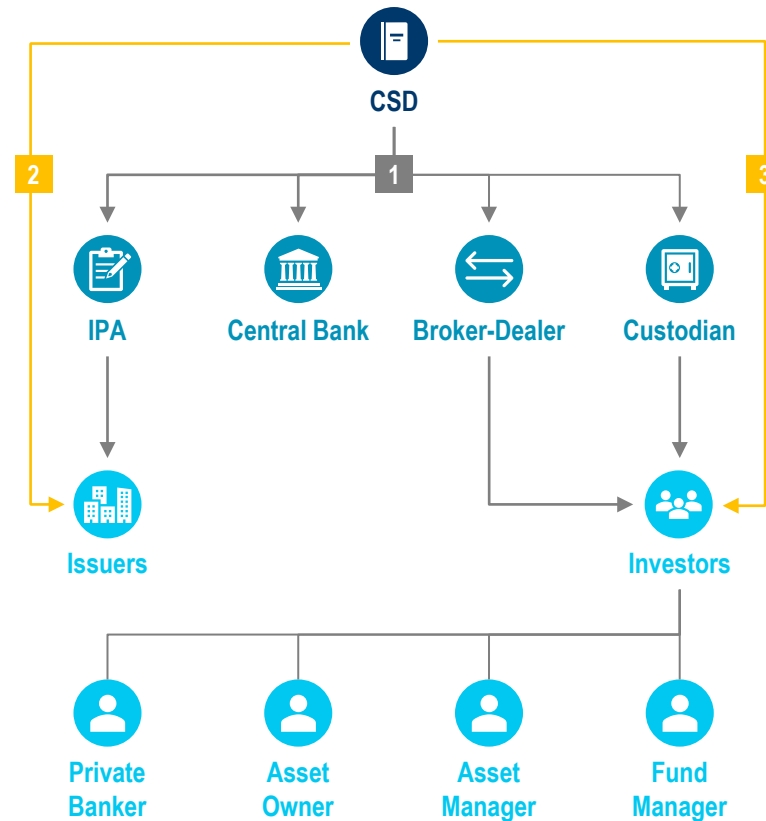
In more recent years, we are observing a growing number of CSDs expanding their direct servicing capabilities to wider market participants by extending direct market access and other relevant service offerings.

In doing so, they are evolving into more multi-utility and strategically important FMIs that play a more proactive role in enabling market access, participation, and post-trade support.

Traditionally serving wholesale market participants, CSDs are increasingly expanding toward direct connectivity with both issuers and end investors, marking a structural shift in their role

Strategic Progression

Structural Changes



TRADITIONAL DIRECT SERVICING

1

Wholesale Market Participants

CSDs serve IPAs, broker-dealers, central banks, and custodians through core post-trade functions, without direct connectivity to issuers and investors

NEW DIRECT SERVICING

2

Issuers

CSDs are moving upstream into the issuance value chain, building more direct relationships with issuers by supporting issuance, registry, and the securities lifecycle

3

Investors

CSDs are also emerging as a direct service provider to end investors, particularly institutional investors, thereby reducing reliance on global custodians ("GCs") and sub-custodians

● CSD ● Existing CSD Member ● New CSD Member → Traditional Direct / Indirect Servicing → New Direct Servicing

FROM FUNDAMENTAL TO COMPREHENSIVE

KEY TAKEAWAYS

The role of CSDs is increasingly converging with that of custodians, as CSDs expand beyond their traditional core functions of safekeeping and settlement to offer broader, more integrated services to a wider client base.

Domestic CSDs are increasingly seeking to play a more critical role in their local capital market by extending cross-border connectivity and enhancing service capabilities, with the aim of broadening their client base, improving market liquidity, and strengthening overall market utility.

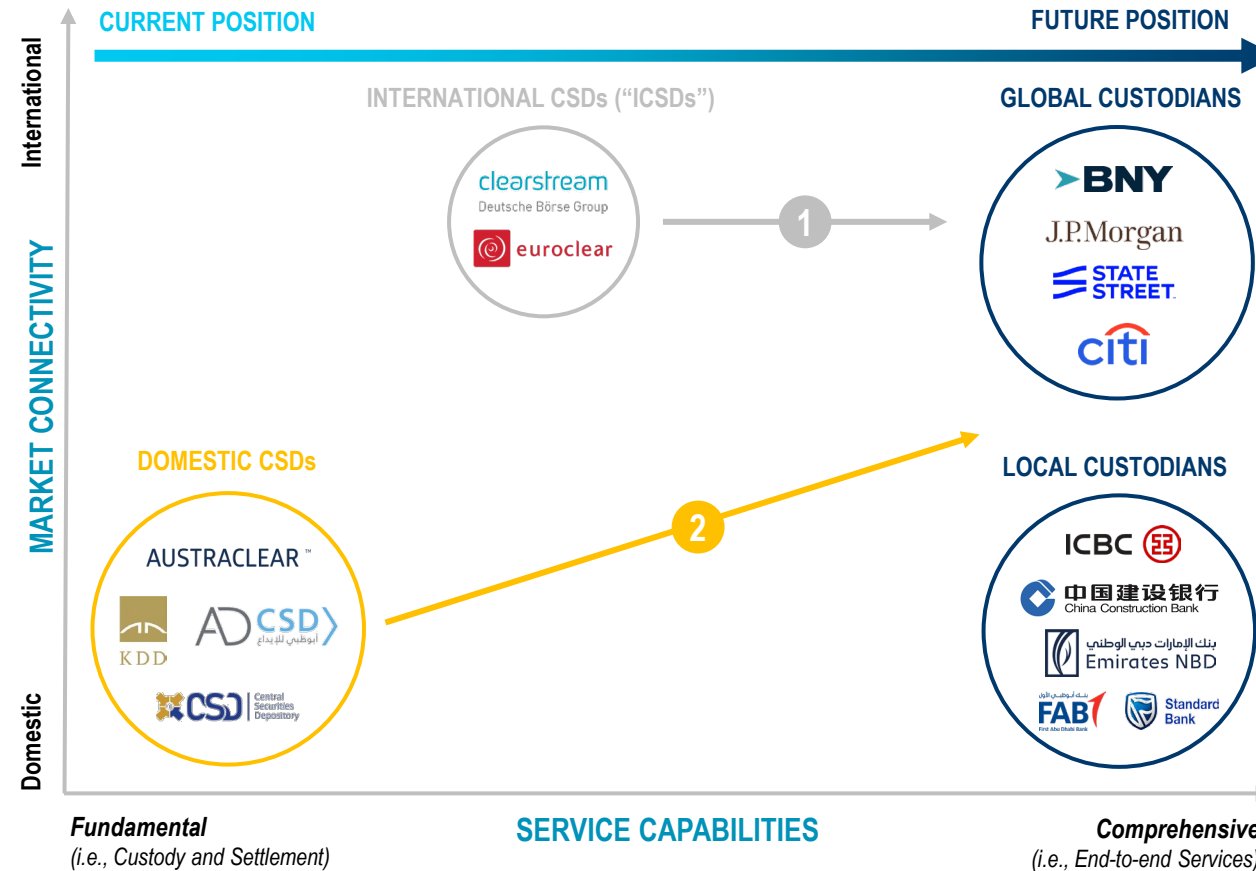
In practice, many CSDs are still in the early stages of their transformation, focusing on sharpening their strategic proposition as they expand international linkages and service scope within selected focus areas.

Overall, these trends suggest a broader structural shift among CSDs: from a simple post-trade supporting role to more expansive, service-oriented FMIs.

To meet the demand from new client segments, CSDs are expanding their market connectivity and service capabilities to become more structurally important FMIs

Market Landscape

CSDs and Custodians



Report Focus

Key Trends

1

SERVICE CONVERGENCE
Banking licences enable ICSDs to offer comprehensive post-trade services that converge with GC propositions

2

STRATEGIC PROGRESSION
Domestic CSDs are expanding their service suite and connectivity to address evolving market needs beyond safekeeping and settlement

RATIONALE (1/2) – MARKET EFFICIENCY

KEY TAKEAWAYS

Custodians currently provide convenient cross-border market access, but typically in a bundled service model that can obscure underlying fee components, including intermediary margins.

As CSDs broaden their service coverage, similar to that of global custodians, those that establish direct linkages with other CSDs can look to offer a more modular, service-based fee.

By reducing reliance on multiple intermediary layers, this structure removes embedded intermediary margins and can deliver more transparent wholesale pricing.

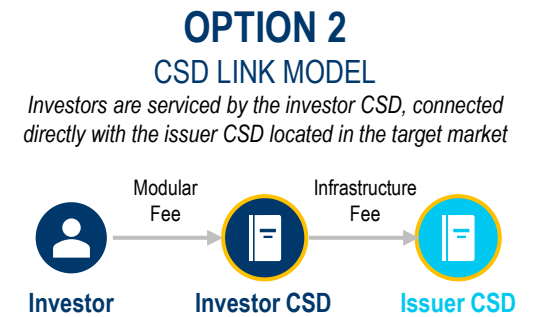
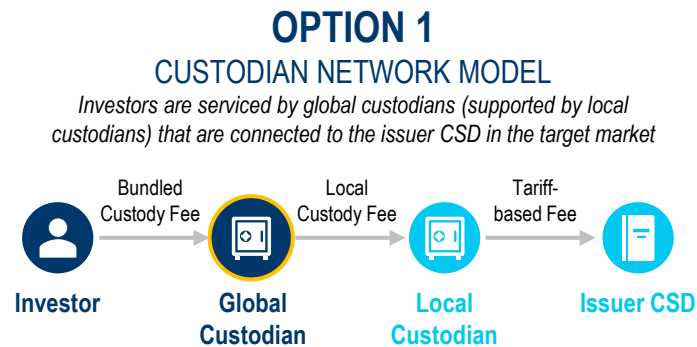
By broadening the range of available access models, CSD links can enhance market optionality, improve infrastructure-level price discovery, and support a more efficient post-trade ecosystem. The policy value of this model lies not in replacing existing custodians but in giving participants greater choice to balance service coverage, operational convenience, and cost transparency.

The CSD link model provides market participants with an alternative channel for international market access, reducing intermediary dependency and enhancing infrastructure-level fee transparency

Market Access Models

Fee Flow Chart

● Market A
 ● Market B
 Top Value Capture Player
 ✓ High
 - Moderate
 ✗ Low



Allows investors to access a broad set of jurisdictions through a single contractual relationship and a relatively standardised operating model	✓	Market Coverage	-	Allows eligible institutions to access foreign markets through CSD-to-CSD connectivity, but subject to established links
Offers broader end-to-end services, including asset servicing, tax support, FX, cash management, reporting, compliance support, and client servicing	✓	Service Coverage	✗	Offers core services (e.g., settlement, custody, and connectivity) while broader investor services may remain with other intermediaries
Provides valuable aggregation, but can introduce an additional intermediation layer with involvement of local custodians and/or CSD	✗	Level of Disintermediation	✓	Provides infrastructure-level connectivity but may require participants to manage market-specific operational requirements more directly
Charges aggregated fees, where settlement, custody, asset-servicing, reporting, FX, tax, and other adjacent services are bundled together	✗	Fee Structure	✓	Charges service-specific fees, where custody, settlement, connectivity, and adjacent services (e.g., reporting) are typically priced separately
Negotiated bilaterally and hence may vary by client, market, asset class, volume, service scope, and relationship context	✗	Fee Transparency	✓	Published through formal fee schedules, which may vary by service type, usage level, and applicable waiver / exemption

RATIONALE (2/2) – MARKET RESILIENCE

KEY TAKEAWAYS

While the custodian network model remains important for convenient cross-border market access and service coverage, the heavy reliance on a concentrated set of incumbents, especially in the US, may result in dependency risks and limit market participants' control over asset safety and access channels.

CSD link models can strengthen market resilience by providing an infrastructure-level alternative to traditional custodian network access, enabling market participants to diversify custody and settlement dependencies while preserving access to foreign markets.

The continued evolution of CSDs can support domestic capital market resilience by offering market access channels to market participants, reducing dependency concentration, and enhancing continuity across cross-border post-trade flows.

Heightened geopolitical uncertainty is reinforcing the need for diversified asset safekeeping and settlement channels, helping strengthen the resilience of capital markets

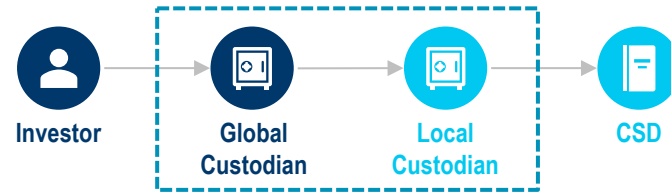
Safekeeping Models

Intermediated vs. Direct

→ Asset Safekeeping

INTERMEDIATED SAFEKEEPING

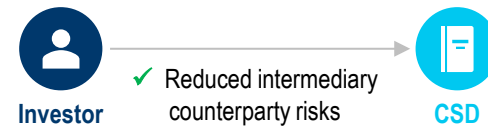
As investors have no direct access to the CSD, safekeeping is delivered through a chain of custodians, where each party holds securities on behalf of the next layer



✗ Exposure to custodian concentration risks (e.g., sanctions, tariff escalation, etc.)

DIRECT SAFEKEEPING

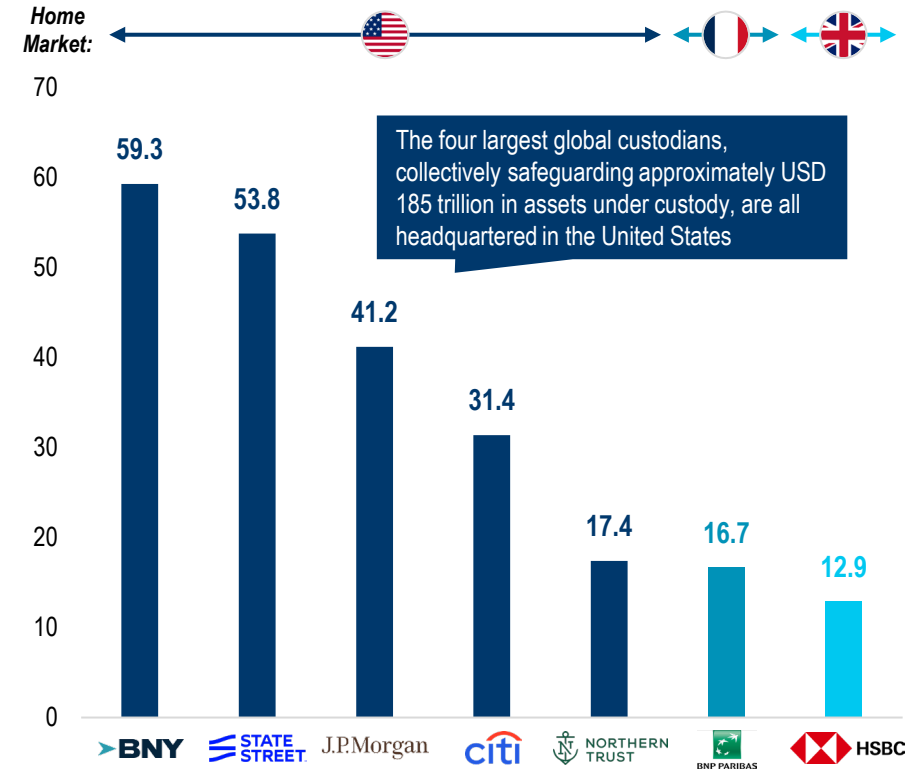
Securities can be held in an investor account opened at the CSD, making the CSD the single point of safekeeping and legal record for ownership



✓ Reduced intermediary counterparty risks

Top 7 Global Custodians

2025, USD¹ Trillion of Assets under Custody and/or Administration



Global Banks Risk Management Survey (% , 2026):

71%... identified geopolitical tension as an emerging risk

74%... cited trade policy & tariff shifts as key impacts of geopolitical risk

¹EUR 1 = USD 1.175

Source: Industry interviews, global custodians, IIF, Quinlan & Associates analysis

SELF-REINFORCING ASSET FLYWHEEL

KEY TAKEAWAYS

To become a strategically important FMI that enhances market efficiency and resilience, CSDs need to build a self-reinforcing asset flywheel.

The priority is not only to bring assets into the ecosystem but to ensure those assets remain active, circulate efficiently, and support broader market development.

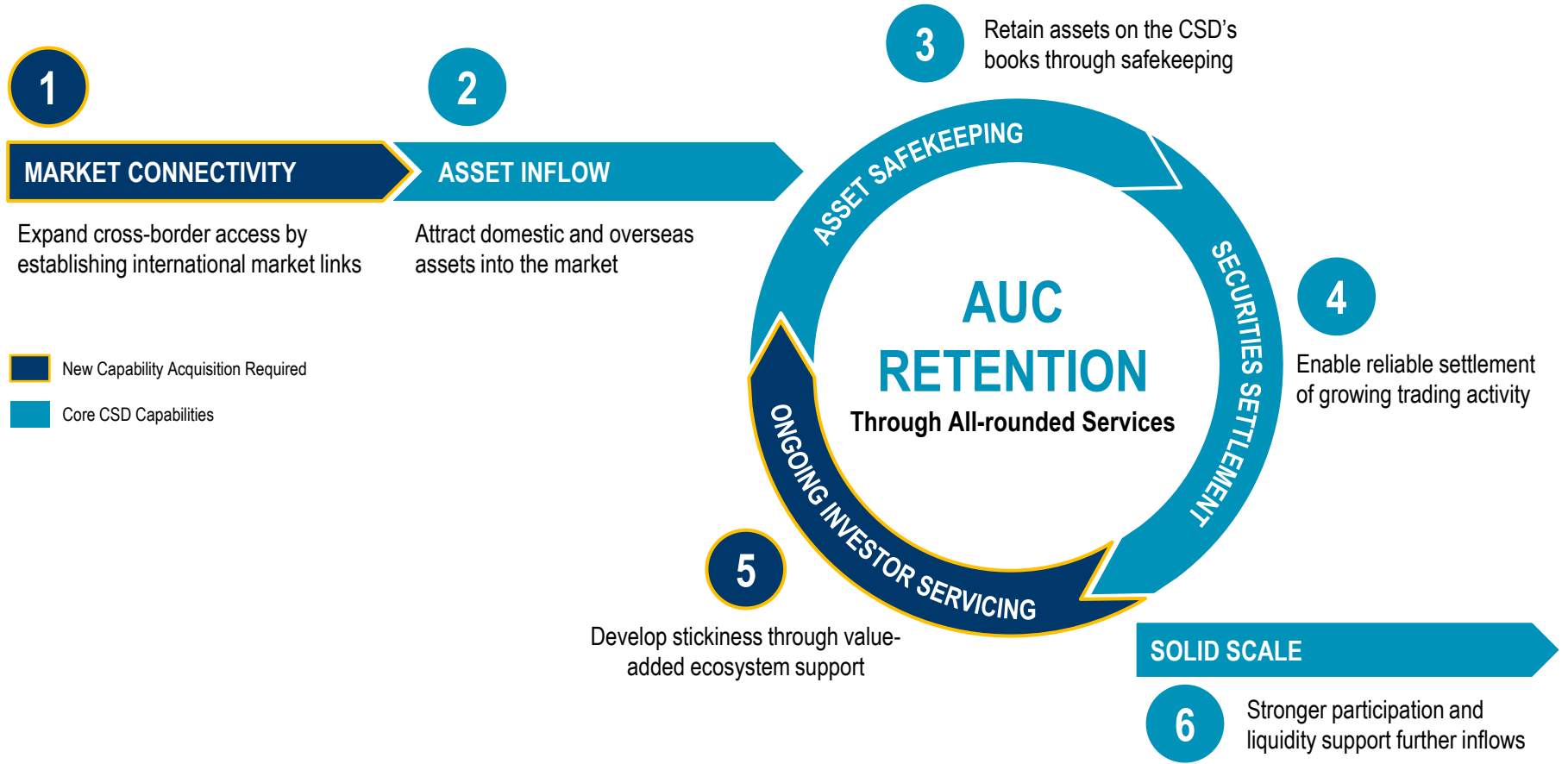
Stronger market connectivity helps attract assets and participants into the ecosystem. Deeper servicing capabilities helps retain those assets by improving market usability, participant experience, and operational efficiency.

Over time, this flywheel strengthens market scale, supports sustainable cost recovery, and provides the foundation for CSDs to activate adjacent infrastructure capabilities that enhance the efficiency, resilience, and competitiveness of domestic capital markets.

To enhance market efficiency and resilience, CSDs need to move beyond safekeeping / settlement and acquire the capabilities required to build a self-reinforcing asset flywheel

Self-reinforcing Asset Flywheel

Flowchart





SECTION 2

TRANSFORMATION ROADMAP

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OVERVIEW

KEY TAKEAWAYS

To chart the path forward, CSDs should consider three phases of evolution:

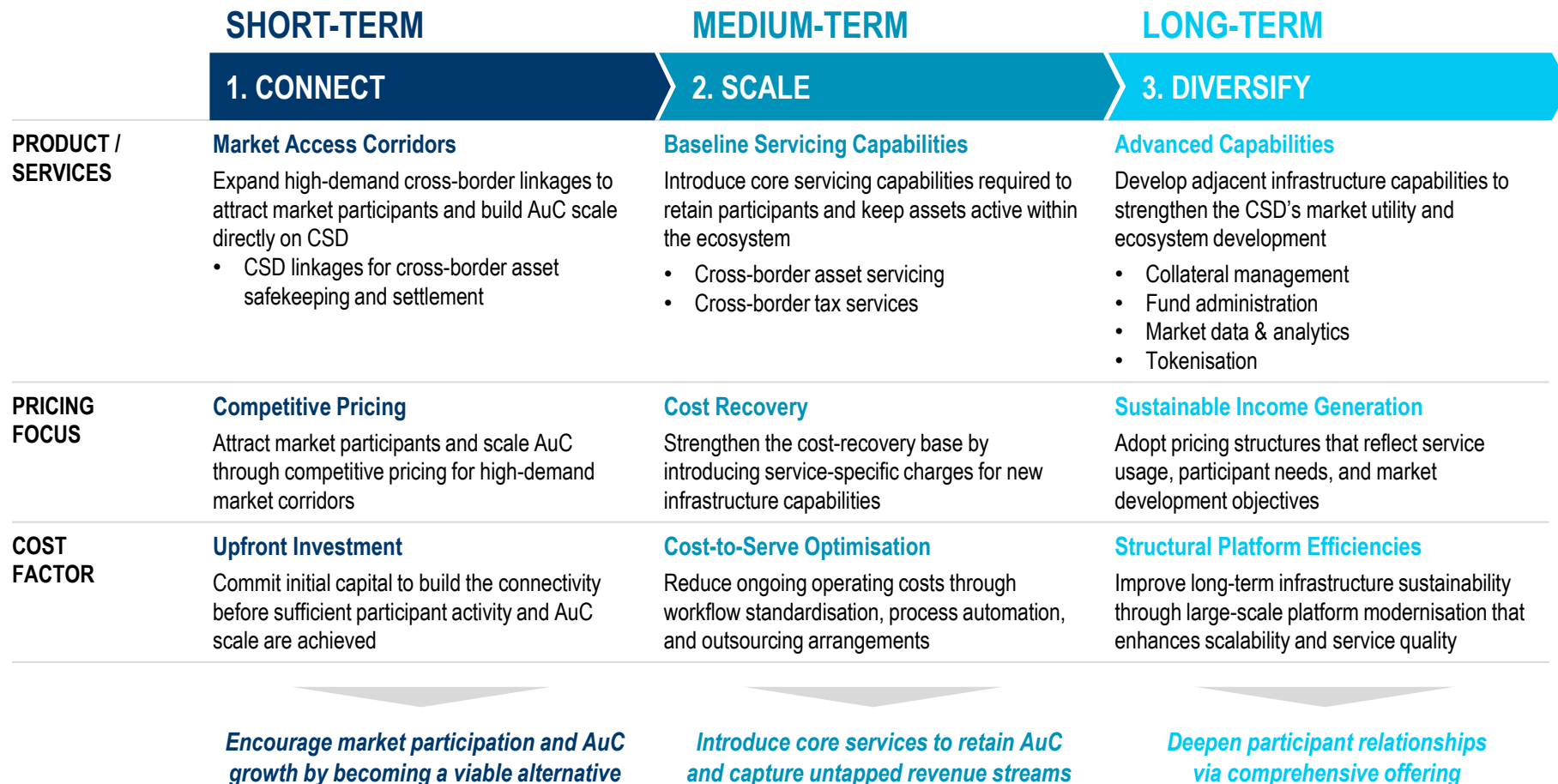
- 1. Connect:** Bringing assets and participants into the ecosystem through cross-border links and highly competitive pricing for core settlement and custody services;
- 2. Scale:** Retaining assets and deepening the ecosystem through enhanced servicing capabilities, diversifying revenue streams while shifting the operational focus to reducing cost-to-serve; and
- 3. Diversify:** Leveraging scale to activate adjacent infrastructure capabilities, including collateral optimisation, data analytics, liquidity management, and other ecosystem-wide capabilities.

By progressing through these three phases of transformation, CSDs can move beyond their traditional custody and settlement role to become strategic FMI's.

CSDs can look to become more strategically important FMIs by: (1) expanding market access; (2) deepening ecosystem participation; and (3) introducing additional value-added capabilities

Roadmap Considerations

By Key Considerations



1. CONNECT

KEY TAKEAWAYS

Cross-border connectivity is not a plug-and-play operational exercise. In practice, establishing connectivity requires significant coordination, along with time, cost, and effort. Poorly designed links also risk becoming infrastructure that is operationally heavy, yet commercially underutilised.

Therefore, CSDs need to consider two interdependent dimensions when shaping their connectivity strategy: (i) which market corridors to prioritise and (ii) what form of interoperability or connectivity model to adopt with each. These decisions should be guided by the target jurisdiction's underlying market structure and regulatory environment.

In markets with strict capital controls, direct ICSD access could be a more practical route. Where there are strong trade linkages and policy alignment, bilateral direct links can create a unique competitive advantage.

For connectivity build-out, CSDs should prioritise identifying target markets and then select appropriate connectivity models that align most closely with their priorities

Key Considerations

Cross-border Connectivity Build-out

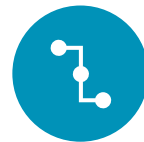
Key Considerations



PRIORITY MARKETS

Where should connectivity be built first?

Since establishing connectivity is costly, operationally intensive, and time-consuming, CSDs should prioritise corridors capable of generating sufficient volume



CONNECTIVITY MODEL

How should interoperability be designed?

Different connectivity models involve varying trade-offs across implementation cost and speed, control, and scalability potential, requiring CSDs to carefully select fit-for-purpose models

Connectivity Models

Example

DIRECT LINK

A domestic CSD has a securities account in another CSD, without relying on intermediaries



RELAYED LINK

A domestic CSD connects through an intermediary CSD, which has an omnibus securities account in a foreign CSD



INDIRECT LINK

A domestic CSD connects to a foreign CSD via an intermediary, usually a custodian / sub-custodian



¹CMU OmniClear; ²China Central Depository & Clearing; ³National Bank of Belgium Securities Settlement System
Source: Euroclear, Euronext, Clearstream, CMUOC, Quinlan & Associates analysis

2. SCALE

KEY TAKEAWAYS

While market connectivity is essential to attracting assets into the ecosystem, connectivity alone does not ensure that those assets remain active and engaged over time.

To support asset retention, CSDs need to strengthen core asset-servicing that reduces friction across the full post-trade lifecycle; from market entry and settlement through to corporate actions, tax processing, and ongoing administrative support.

These capabilities can make domestic markets easier to access, operate in, and rely upon, particularly for overseas participants that may otherwise face greater complexity in navigating local market practices.

In this context, asset servicing and participant support are key enablers of AuC retention, ecosystem participation, and long-term domestic capital market resilience.

However, connectivity alone does not drive AuC growth; CSDs also need servicing capabilities that enhance investor engagement, increase activity across the lifecycle, and improve asset stickiness

Asset Servicing

Value Chain and Case Studies

	Description	Case Study
<p>Onboarding & Access</p>	<p>Help participants seamlessly create and access accounts and transact across markets</p> <ul style="list-style-type: none"> • Simplified onboarding process • Cross-border account structure establishment 	<p>Simplified Market Entry</p> <p>India's NSDL unveiled a unified portal that removes duplicate and manual steps to simplify registration processes for global investors</p>
<p>Post-Holding Events</p>	<p>Support investors after assets are held, such as events relating to income and investor rights</p> <ul style="list-style-type: none"> • Corporate actions (e.g., redemption, splits, etc.) • Proxy & meeting service 	<p>Overseas Depository Receipt ("DR")</p> <p>KSD issued the first electronic overseas DR in 2021 to hold Korean securities on behalf of foreign investors to enable investment access</p>
<p>Tax & Reporting</p>	<p>Assist investors in meeting tax and record-keeping needs by offering data visibility</p> <ul style="list-style-type: none"> • Tax withholding and reclaims • Position reporting 	<p>Market Taxation Guide</p> <p>Clearstream provides taxation information and instructions to guide investors in tax relief / refunds in markets where it operates a link</p>

3. DIVERSIFY (1/3)

KEY TAKEAWAYS

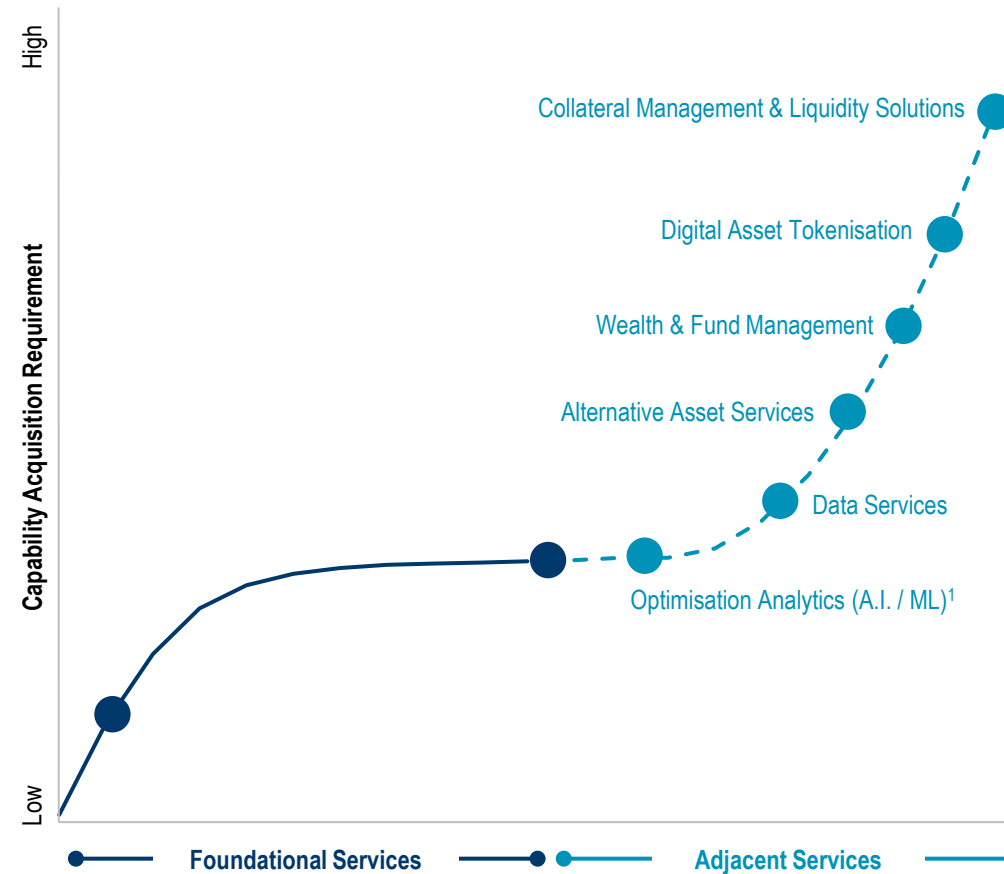
After establishing market connectivity and asset-servicing capabilities, the next stage of CSD evolution is to activate adjacent infrastructure capabilities that deepen market utility, strengthen participant engagement, and support long-term infrastructure sustainability. CSDs are well positioned to support these functions, given their trusted role as regulated market infrastructures and their central position across post-trade flows.

These capabilities may include collateral management, securities financing, liquidity support, fund services, data services, and other ecosystem-wide functions that help participants make more productive use of assets held within the CSD ecosystem. Any expansion into new capabilities should be carefully approached as they must remain aligned with the CSD's public utility mandate, regulatory perimeter, operational resilience requirements, and risk-management standards. In this context, strategic partnerships and targeted technology investments can play an important role in accelerating capability build-out.

In the longer term, it is important for CSDs to evolve beyond their core capabilities and pursue adjacent services, capturing numerous emerging opportunities

Evolution of Services

From Foundational Services to Adjacent Services



¹Artificial Intelligence / Machine Learning
Source: Clearstream, Euroclear, Nasdaq, Quinlan & Associates analysis

CSDs	Service Offering
Deutsche Börse Group	A.I.-enabled Collateral Optimisation Automate the design and negotiation of collateral, based on requirements shared in natural language
	A.I.-driven Settlement Analytics Predict fail / mismatch trades and recommend resolution paths for T+1 settlement
Deutsche Börse Group	Alternatives Distribution Distribute private market funds to wealth funds by partnering with Blackstone
Nasdaq <small>(CSD Operating in Estonia, Iceland, Latvia & Lithuania)</small>	Fund Registration Maintain the ownership records / register of investment fund units on behalf of the fund issuers or managers
	Tokenised Bond Issuance and Settlement Facilitate the issuance, distribution, and primary market settlement of digital native notes
Deutsche Börse Group	Integrated Tri-party Collateral Management Enable a single pool of collateral for both bilateral and tri-party collateral movements

3. DIVERSIFY (2/3)

KEY FINDINGS

Digital asset adoption is emerging as one of the most significant post-trade shifts. This is driving FMI to progressively incorporate distributed ledger and blockchain-based capabilities into post-trade infrastructure to meet growing market demand.

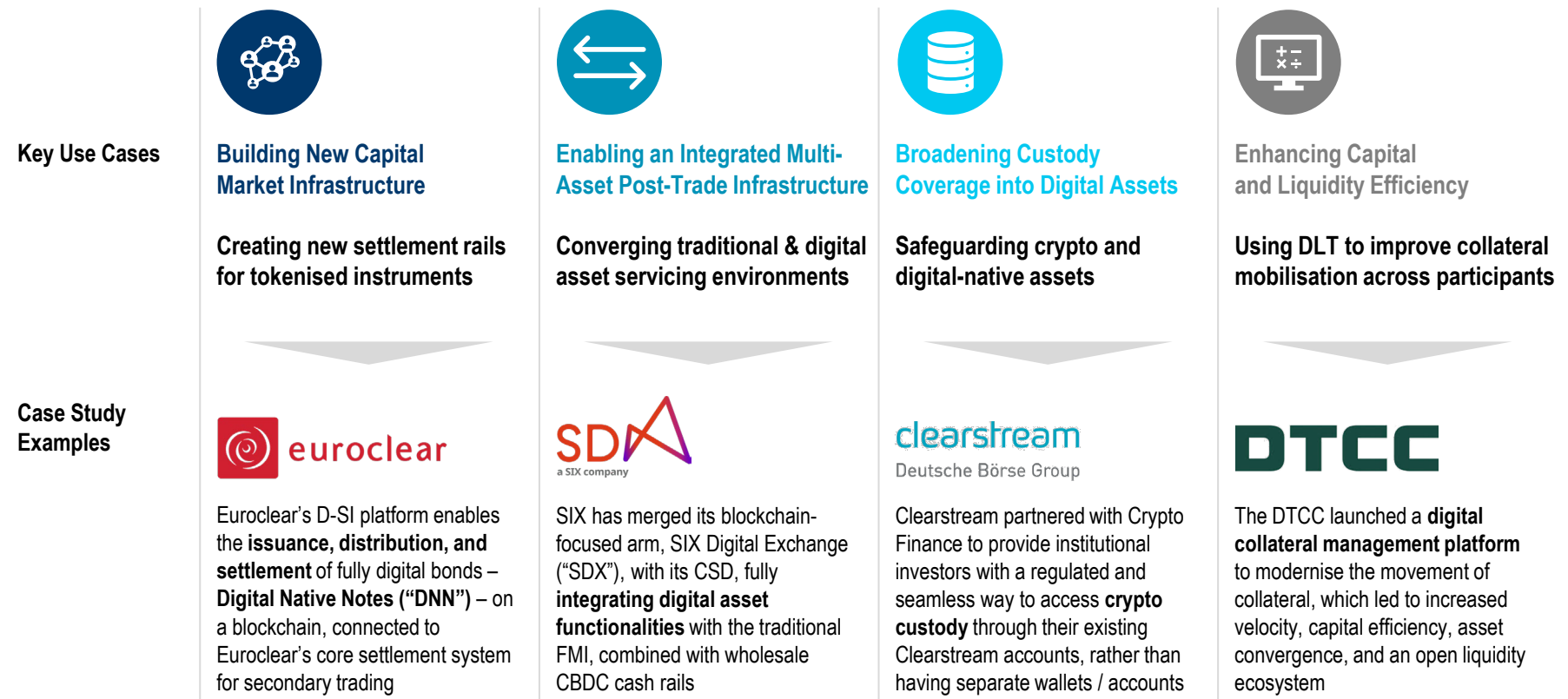
As a result, tokenisation and digital assets are broadening the scope of post-trade activity, creating new areas where CSDs are well positioned to play a more central role as core FMIs that support both traditional and digital asset ecosystems.

In response, numerous CSDs are pursuing multiple strategic pathways, including building new digital capital market infrastructure, offering crypto custody services, enhancing collateral management capabilities, and progressively integrating traditional and digital post-trade systems into more unified platforms.

The rise of tokenisation is creating new opportunities for CSDs to evolve toward a more integrated post-trade ecosystem, with CSDs actively integrating digital asset capabilities and offerings

DLT and Digital Asset Exploration

Key Use Cases and Case Studies



3. DIVERSIFY (3/3)

KEY TAKEAWAYS

The Euroclear case demonstrates that CSDs can expand into higher-value adjacent services, with diversification helping to strengthen and sustain long-term revenue growth.

A decade ago, Euroclear's revenue base was largely anchored on core custody and settlement services. Since then, it has expanded into adjacent businesses, including FundsPlace, Collateral Highway, and a suite of data services.

Together, these adjacent offerings now account for ~39% of Euroclear's income (as of 2025), reflecting a meaningful shift in both revenue mix and business model. FundsPlace has become the largest contributor within this portfolio, while the collateral and data businesses continue to grow at a rapid pace.

This expansion has also broadened Euroclear's client base. Through FundsPlace, Euroclear Bank now serves over 3,000 fund distributors and 2,500 asset managers, while its collateral services continue to onboard new institutional participants, including MUFG most recently.

Euroclear has expanded beyond core FMI utilities into adjacent traditional finance services and data-driven offerings, representing ~40% of its income in 2025

Case Study

Euroclear Bank



Euroclear Bank is the ICSD within the Euroclear Group, serving the international markets by providing cross-border settlement and custody for a wide range of securities, particularly Eurobonds. In the past years, Euroclear Bank has ventured into diversified, flagship services to build a more integrated ecosystem.

Adjacent Services

Euroclear, By Order of Contribution to Business Income¹

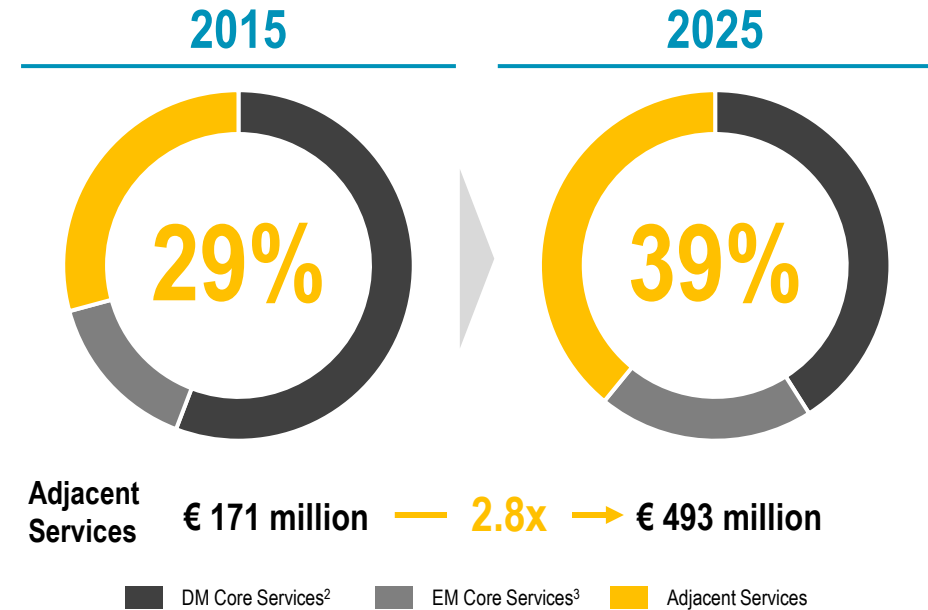
FundsPlace
End-to-end fund solutions including trading and custody, fund admin., asset servicing, and custom fund data provision on a pay-per-use basis

Collateral Highway
A platform allowing clients to source, mobilise, and segregate collateral, including delivering collateral to central banks in T2 on their behalf

Data Services
A suite of data, reporting, and analytics solutions that leverage the large volume of settlement and asset custody data held within its infrastructure

Revenue Composition

Euroclear Bank, Business Income, 2015-25



EXPANDED CLIENT SEGMENTS FROM FUNDSPLACE:



LATEST CLIENT FOR COLLATERAL SERVICES:



¹Business income is only a portion of Euroclear Bank's overall revenue, excluding interest and banking income; ²Issuance and Settlement of Eurobonds and European Assets; ³Issuance and Settlement of Bonds in Other Emerging / Frontier Markets
Source: Euroclear, Quinlan & Associates analysis



SECTION 3

PATH TO SUCCESSFUL TRANSFORMATION

TRANSFORMATION PILLARS

KEY FINDINGS

To move ahead with strategic progression, CSDs should translate their ambition to a defined and executable roadmap. This requires unpacking the transformation across 3 pillars:

- **Strategic:** Considerations around the market opportunity and feasibility, whether it is for a new service offering or corridor, to shape the strategic roadmap of the CSD;
- **Operational:** Considerations for enhancing the efficiency of current operations and executing the new strategic roadmap, focusing on readiness across technology / infrastructure, regulatory alignment, and adequate staffing and external support; and
- **Financial:** Considerations around the pricing model and underlying unit economics for a clear pathway to financial sustainability.

Ultimately, operational readiness and financial viability should support strategic ambitions.

Looking ahead, CSDs should define their strategic role and roadmap, develop the necessary operational capabilities to deliver it, and establish a pathway to financial sustainability

Transformation Pillars

Key Considerations



STRATEGIC

Description

Define the CSD's long-term positioning, growth ambitions, and role within the evolving global post-trade ecosystem

Key Considerations

Market Attractiveness

- Value of the opportunity, such as a new corridor or service, with consideration for demand outlook and strategic relevance

Implementation Feasibility

- Practicality of pursuing the opportunity, considering structural and internal constraints



OPERATIONAL

Develop the capabilities to support the CSD's evolving role and accommodate greater connectivity and service complexity

Current Operational Efficiency

- Efficiency of current systems and processes to improve performance and maintain a low cost-to-serve

New Capability Delivery

- Readiness to implement new services, including technology, regulatory, governance, talent, and partner ecosystem



FINANCIAL

Build pricing models and revenue streams that support the long-term financial sustainability of the CSD

Pricing Model

- Suitability of the pricing structure in reflecting cost drivers and aligning with market's willingness to pay

Sustainability

- Long-term financial viability, including unit economics and the pathway to self-sustaining operations

1. STRATEGIC CONSIDERATIONS

KEY TAKEAWAYS

Given the range of potential avenues through which CSDs can expand their product and service portfolios, clear prioritisation is critical to ensure resources are directed towards the most attractive and executable opportunities.

CSDs should consider two core dimensions when assessing these opportunities:

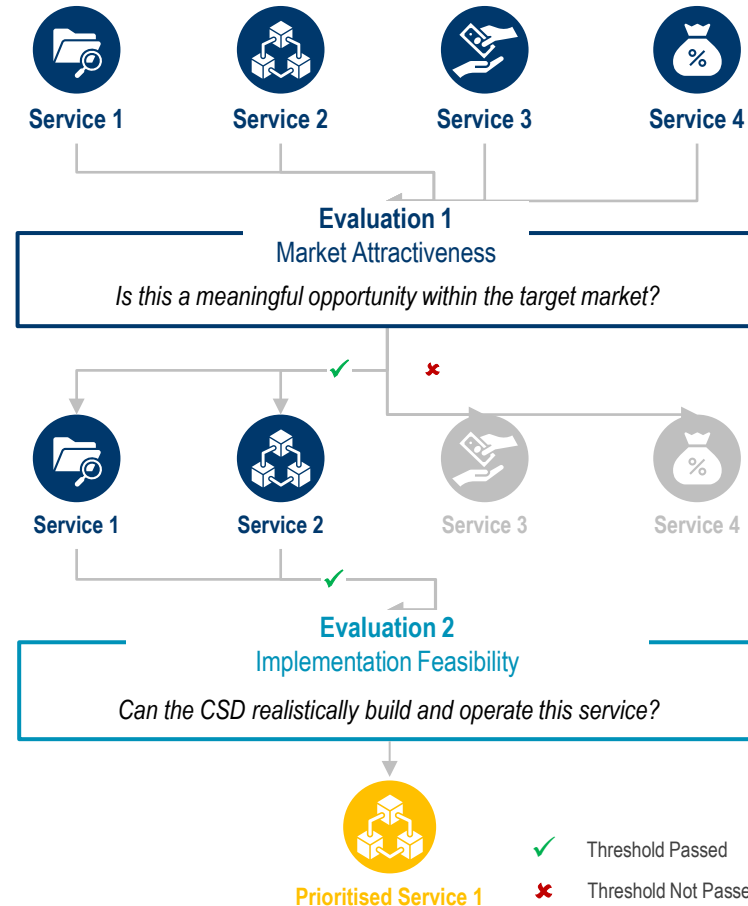
- 1. Market Attractiveness:** assess the potential demand for each prospective service, including addressable market size, pricing power, revenue potential, and strategic relevance
- 2. Implementation Feasibility:** evaluate the practicality of launching and scaling each service, taking into account resource requirements, implementation timelines, capability gaps, regulatory complexity, and operational readiness.

This assessment should ultimately be supported by a robust business case, underpinned by pressure-tested financial projections, to validate the opportunity and secure management buy-in.

To prioritise new service rollouts, CSDs should assess each opportunity against two core dimensions: (1) market attractiveness and (2) implementation feasibility

Prioritisation Framework

Key Evaluation Criteria



1

MARKET ATTRACTIVENESS

CSDs can assess whether there is sufficient market demand and whitespace for the service to succeed financially

- Addressable market size
- Growth trajectory
- Pricing power and monetisation potential

Need for robust market sizing and demand validation, competitive benchmarking, and business case development

2

IMPLEMENTATION FEASIBILITY

If there is sufficient demand, then CSDs can evaluate the practicality of launching and sustaining the service operationally

- Technology requirements
- Regulatory / licensing complexity
- Time-to-market
- Required investment / cost

Need for detailed feasibility study, including status quo evaluation of the current technology architecture and a regulatory assessment

2. OPERATIONAL CONSIDERATIONS (1/2)

KEY TAKEAWAYS

As CSDs look to introduce new products and services, operational efficiency must be kept front of mind.

Lowering the cost to serve will be especially important in a competitive market landscape, where pricing can influence the ability to attract assets and participant activity. Numerous CSDs are already pursuing this in practice, leveraging cloud technologies, automation, and data standardisation to lower operational overheads.

Meanwhile, new capability acquisition raises other key operational considerations such as appropriate service model, legacy integration, regulatory compliance, governance model, rulebook, and staffing arrangements.

When scaling, CSDs should enhance current operational efficiency and ensure new capabilities are supported by the necessary operational readiness to execute and sustain them

Current Operational Efficiency

Cost Mitigation Measures



CLOUD ADOPTION

Brazil's B3 reduced operating and maintenance costs by building its scalable CSD operating system on a cloud environment



AUTOMATION

Post-trade automation at DTCC enabled T+1 settlement, significantly reducing human errors and associated operating costs



DATA STANDARDISATION

Clearstream's adoption of the SWIFTNet and ISO15022 streamlined communication and lowered maintenance costs

New Delivery Capabilities

Operational Considerations



SERVICE MODEL

The choice to build, buy, or partner with a third-party vendor before rolling out a new product or service



LEGACY INTEGRATION

Moderations to ensure seamless connectivity between the newly introduced technology systems and the existing infrastructure



REGULATORY COMPLIANCE

Alignment with regulatory expectations, policies, and principles (e.g., PFMI¹ and CSDR²)



GOVERNANCE MODEL

A structured framework that defines how a new product / service is managed, with clear decision-making and accountability



RULEBOOK / SERVICE GUIDE

New rulebooks to guide market participants on updated processes arising from the service launch or technological upgrades



STAFFING ARRANGEMENTS

Required staff capacity and capabilities to manage the new service and address any issues

Elaborated on the Next Slide

¹Principles for Financial Market Infrastructures; ²Central Securities Depositories Regulation
Source: B3 Brazil, DTCC, Clearstream, SWIFT, Quinlan & Associates analysis

2. OPERATIONAL CONSIDERATIONS (2/2)

KEY TAKEAWAYS

A key operational consideration for CSDs expanding into new capabilities is the chosen service delivery model.

Leading CSDs do not build every service in-house. Instead, many use hybrid models that retain control over core infrastructure while partnering with specialist providers for adjacent functions such as collateral management, asset servicing, and fund data solutions.

These partnerships enable CSDs to access proven technologies, specialised expertise, and faster time-to-market without the need to replicate capabilities internally. For example, South Africa's Strate, Euroclear, and Chile's DCV have partnered with external providers to roll out collateral management and corporate action services.

There are still clear advantages to in-house development, such as greater autonomy and deeper customisation. Ultimately, the optimal choice depends on the service nature and the CSD's priorities (e.g., speed, scalability, etc.).

For example, CSDs may choose to build in order to have full autonomy and customisation, or outsource to leverage existing expertise and accelerate time-to-market for adjacent services

Service Model Considerations

Build vs. Outsource / Partner



BUILD

Organic Development



OUTSOURCE/PARTNER

Specialised Service Providers

DESCRIPTION Develop and operate the capability with the existing team and IT resources Obtain the service capability from an external partner using their technology and expertise

CRITERIA

Affordability	✘	✓
Control	✓	-
Customisation	✓	-
Scalability	-	✓
Talent Needs	✘	✓
Time-to-market	✘	✓

Outsourcing / Partnership Arrangements



Centralised Collateral Management Service

Strate (CSD of South Africa) partnered with Clearstream to launch a centralised collateral management service for the domestic capital market



Tokenisation Initiatives

Euroclear partnered with Digital Asset on a gold tokenisation pilot to enable faster collateral mobilisation in 2024 (subsequently engaged in other projects)



Back-end Operations

DCV (CSD of Chile) partnered with Nasdaq to implement the core system that enables capabilities including corporate event management and registry

✓ Favourable - Dependent ✘ Unfavourable

3. FINANCIAL CONSIDERATIONS (1/4)

KEY TAKEAWAYS

In the early stages of buildout, particularly where core services are highly commoditised and largely undifferentiated, pricing becomes a key factor of consideration for participants. Beyond pricing levels, the simplicity and modularity of the fee structure are also critical, as overly complex pricing can act as a friction point to onboarding and adoption.

Pricing levels are especially important as they directly affect the speed at which a CSD can build scale. Offering core services at competitive rates can help attract assets under custody and drive early transaction activity, even if this results in low or negative margins in the initial asset collection phase.

This is particularly relevant in emerging and smaller debt securities markets, where market access fees are typically charged at a premium. This creates an opportunity for domestic CSDs to position themselves as an attractive alternative to established ICSDs, given the high price sensitivity of market participants.

Domestic CSDs are well positioned to provide a lower-cost market access channel in emerging debt capital markets

Pricing Considerations

For Core Services

Key Considerations



Implement Simple Pricing Structures

A **modular** and **simplified** pricing structure can materially reduce complexity and lower barriers to adoption, making it easier for participants to onboard and scale usage



Capture Emerging Market Whitespace

ICSDs charge high premiums to access emerging markets, creating an opportunity for **domestic CSDs to offer direct market access and servicing at a lower price point**, similar to the role played by GCs

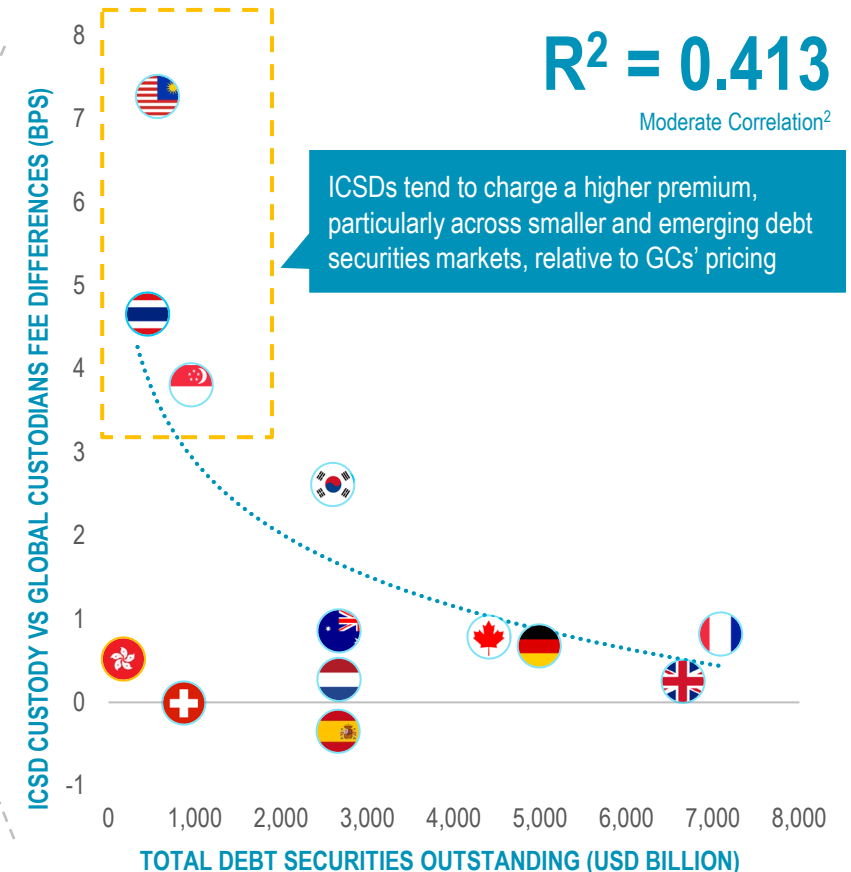


Expect Margin Compression

Under this pricing approach, CSDs should expect **compressed – or even negative – margins** in early years as economies of scale have yet to materialise

Pricing Landscape

Total Debt Securities Outstanding vs. ICSD vs GC Custody Fee Differences¹



Note: China and US charges have been excluded due to their large, incomparable debt securities markets, New Zealand and Macau have been excluded due to lack of data availability, ¹Fees were calculated based on USD 500 million AuC, ²Negative values were excluded from the exponential regression as negative spreads represent a 'scarcity premium' or 'specialness' rather than a standard liquidity-cost relationship

Source: Bank for International Settlements, Clearstream, Euroclear, Quinlan & Associates analysis

3. FINANCIAL CONSIDERATIONS (2/4)

KEY TAKEAWAYS

Once CSDs have defined the new services and corridors they wish to pursue, pricing strategy becomes critical.

Importantly, CSDs will need to consider an appropriate pricing model, namely:

- **Market-based pricing:** Align fees with prevailing industry benchmarks to ensure competitiveness, particularly for commoditised core services (e.g., custody).
- **Cost-plus pricing:** Set fees based on underlying delivery costs plus a defined margin, ensuring cost recovery, which may be more suitable for services such as market data or standard reporting.
- **Value-based pricing:** Price according to the perceived or measurable value delivered to participants, typically relevant for newer or differentiated services where clear market benchmarks have not yet fully developed, such as innovative digital asset capabilities.

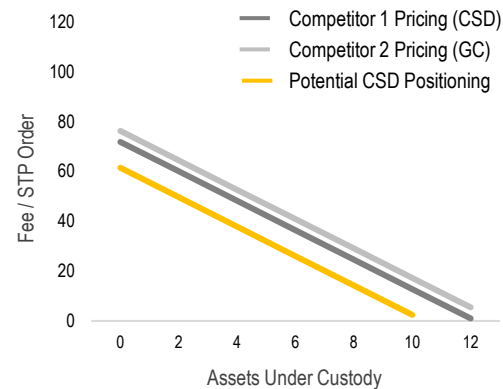
A well-designed pricing strategy can optimise value delivery across the client base, which is particularly important as CSDs expand into new services

Pricing Model

Illustrative, HKD

MARKET-BASED

Align fees with prevailing rates of CSDs & GCs



Example

Asset custody and safekeeping

Pros

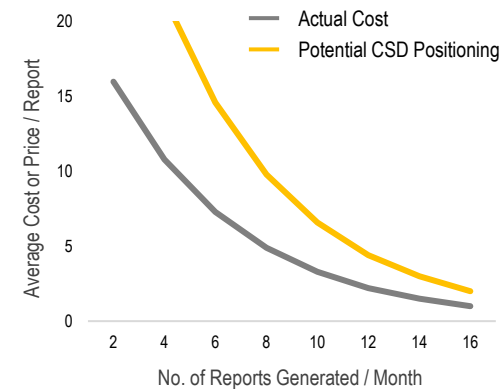
- ✓ Align with consumer expectations
- ✓ Charge competitively against peers

Cons

- ✗ May not reflect the actual cost nor the service's unique value

COST-PLUS

Base fees on internal costs plus a target margin



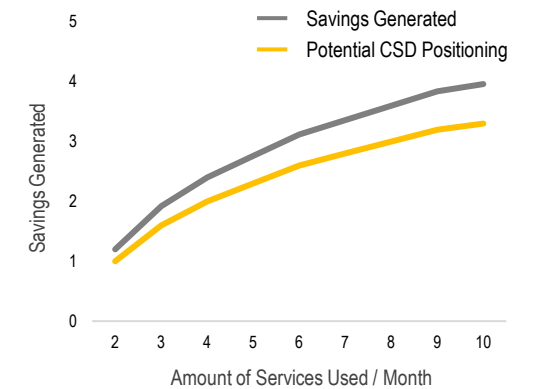
Market data and analytics

- ✓ Ensure cost recovery
- ✓ Generate a predictable margin

- ✗ Limited accounts for willingness to pay or market competition

VALUE-BASED

Charge by perceived / measurable benefits



Tokenised / digital asset issuance

- ✓ Monetise from high-value services
- ✓ Align fees with RoI on each client

- ✗ Requires clear value articulation
- ✗ May require client education

¹Value-added Service

Source: Clearstream, Edaa, Quinlan & Associates analysis

3. FINANCIAL CONSIDERATIONS (3/4)

KEY TAKEAWAYS

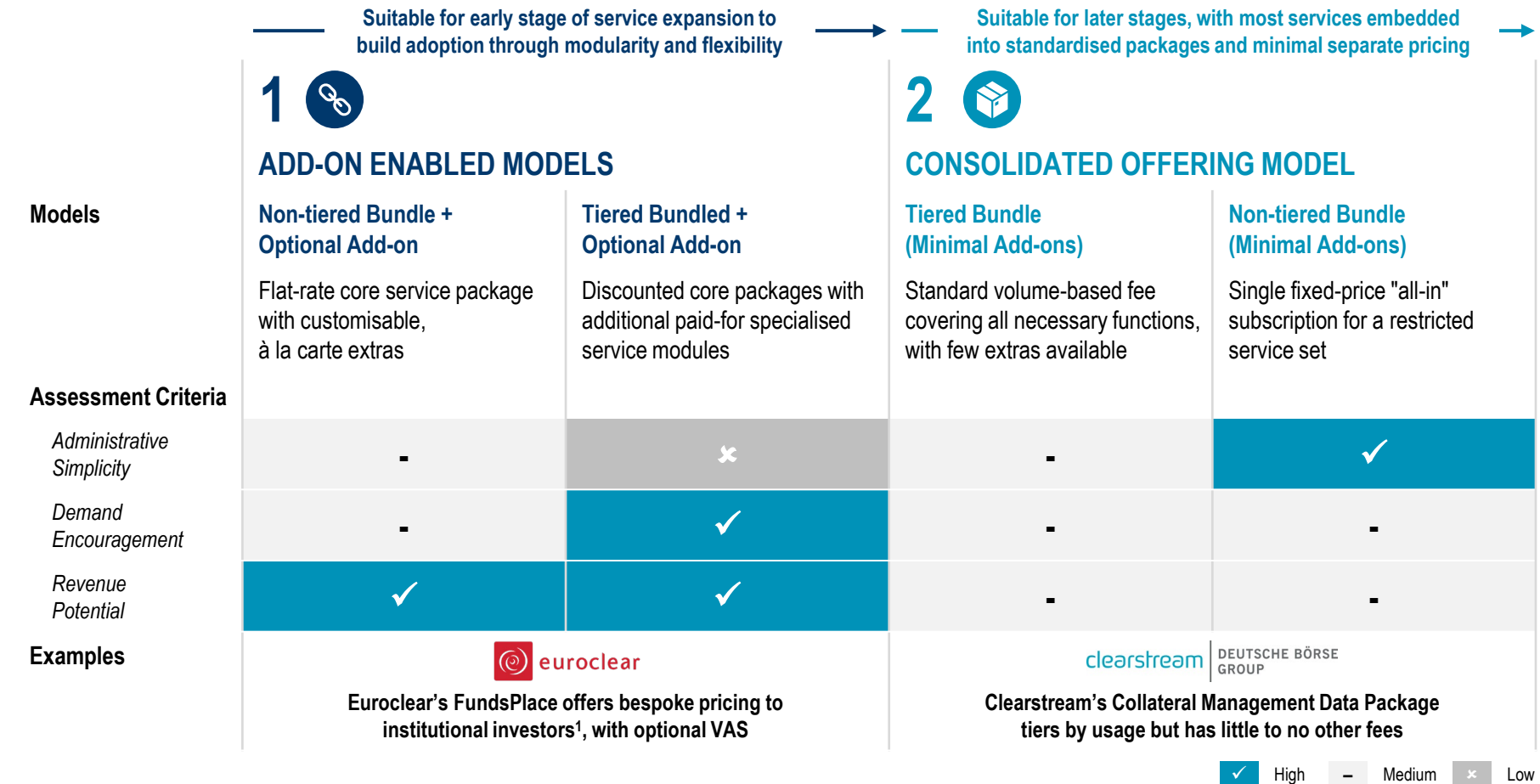
In the early stages of a new service offering, add-on enabled models can be effective, allowing CSDs to package core services into a competitively priced base offering. Adjacent services can then be offered as optional modules, allowing participants to select and pay for services based on specific needs. For example, Euroclear's FundsPlace provides bespoke pricing to institutional investors, with optional VAS that can be accessed on a pay-per-use basis.

As services mature and adoption increases, CSDs may consolidate services into broader bundled offerings with minimal separate charges. Complementing this, tiered pricing by participant type (e.g., global banks vs. local brokers) or usage intensity (e.g., high-asset custodians vs. low-volume participants) helps ensure that pricing remains fair and accessible. For example, Clearstream's collateral management data packages are priced according to the value of securities allocated as collateral across predefined tiers.

As CSDs broaden their service portfolios, they gain greater flexibility to introduce tiering and bundling mechanisms to encourage adoption and reflect differing usage patterns

Service Bundling Considerations

Non-Exhaustive, Illustrative



¹Tiered based on institutional investor needs and required services, ²Not common among CSDs

Source: Euroclear, Clearstream, Quinlan & Associates analysis

3. FINANCIAL CONSIDERATIONS (4/4)

KEY TAKEAWAYS

Most CSDs – particularly given their role as public utility infrastructures – are not expected to be self-sustaining from inception.

In the early stages, a CSD may operate in a fully subsidised state, where public support absorbs the gap between revenues and costs to ensure market confidence and foundational service delivery.

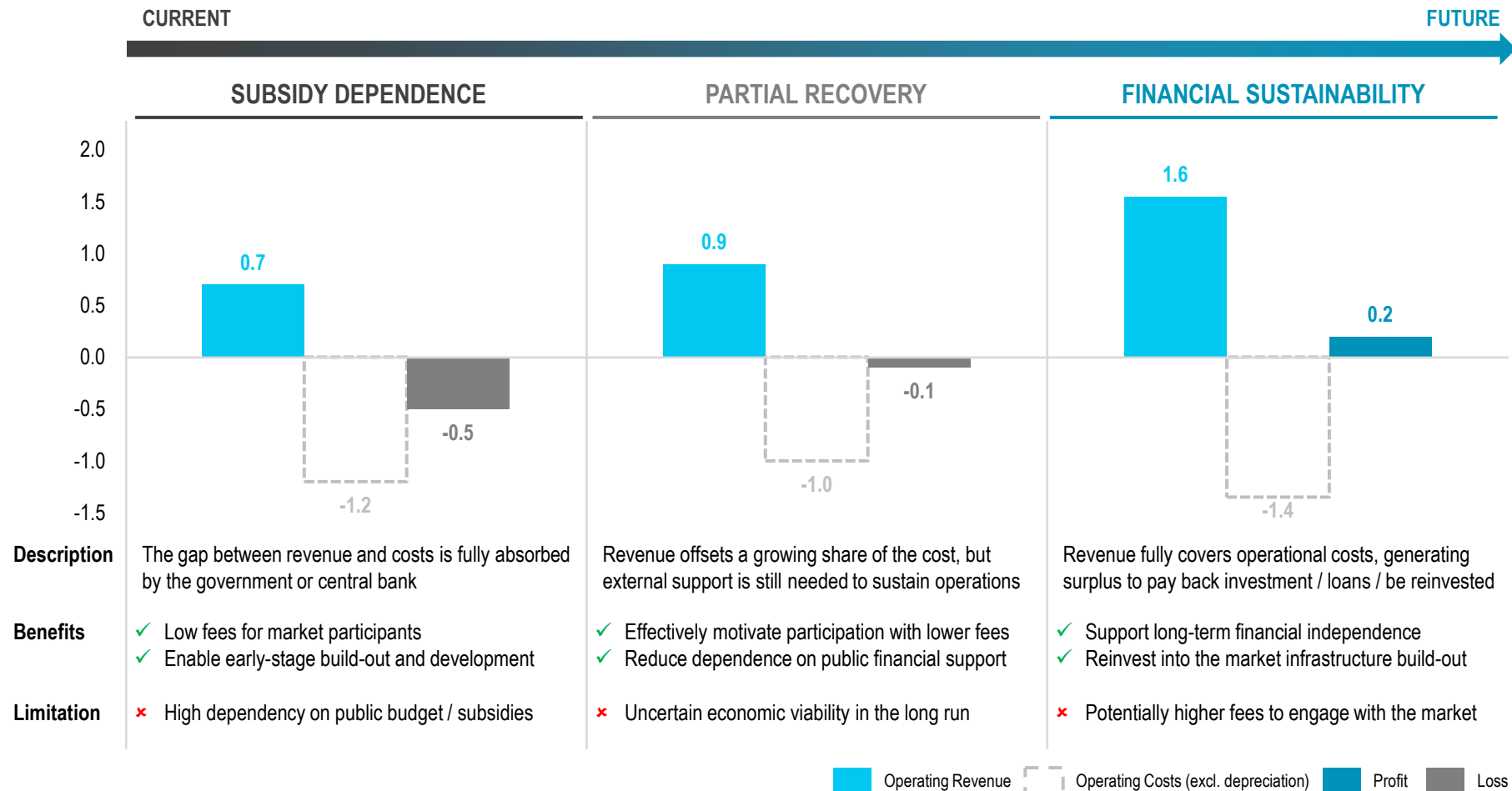
As the platform matures, CSDs may transition into a partial cost-recovery model, with growing revenues offsetting an increasing share of operating costs, though some level of public support may still be required.

In the long term, CSDs can move towards financial sustainability – namely, reaching a steady state in which they generate enough revenues to cover costs without ongoing reliance on government subsidies (i.e., taxpayer money) while continuing to fulfil their core public utility mandate.

We see a compelling opportunity for CSDs to reduce their reliance on subsidies (i.e., taxpayer money), move towards partial cost recovery, and ultimately achieve long-term financial sustainability

Economic Viability

Illustrative, USD Million





SECTION 4

HOW WE CAN HELP

HOW WE CAN HELP

KEY TAKEAWAYS

The evolution of CSDs raises a series of interconnected questions, each carrying different operational, regulatory, ecosystem, and financial considerations that require a fit-for-purpose approach rather than a one-size-fits-all strategy.

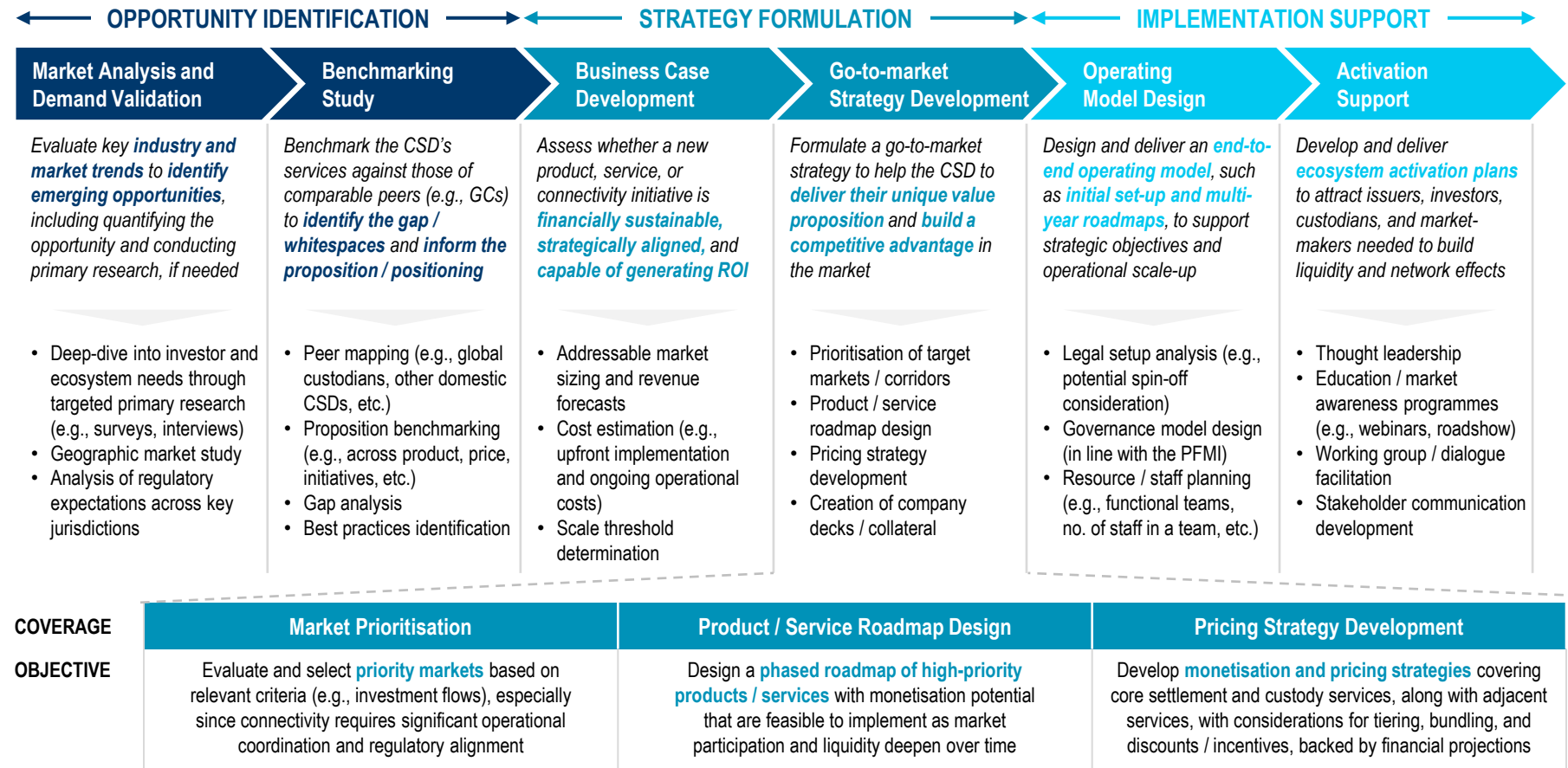
Leveraging our deep global experience working with FMIs, Quinlan & Associates can support CSDs in navigating the evolving post-trade landscape by helping them identify where they can play and how they can differentiate within the broader regional and global post-trade ecosystem.

Beyond strategy development, we can support implementation through operating model design, ecosystem activation initiatives, stakeholder engagement, and market outreach services, helping translate strategic ambition into executable and financially viable outcomes.

Quinlan and Associates offers a range of support to CSDs, including opportunity identification, strategy formulation, and implementation support

Areas of Support

Description



QUINLAN & ASSOCIATES

STRATEGY WITH A DIFFERENCE

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