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The architecture of unified sovereignty

How leading asset managers resolve the paradox of scale

Contents

03 **Four architectural principles for sovereign wealth funds**

05 **The universal challenge: Why asset managers fail at scale**

07 **A framework for success**

22 **The NTT DATA difference: Authority through execution**

25 **A blueprint for lasting sovereignty**

27 **Contact us**

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Four architectural principles for sovereign wealth funds

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Four architectural principles for sovereign wealth funds

Institutional asset managers face a basic structural choice: centralize control and risk slowing the organization, or decentralize authority and risk portfolios drifting into silos. But the world's most effective institutions have resolved this tension.

Singapore's Temasek, Norway's Government Pension Fund Global (GPFG), Canada's Canada Pension Plan (CPP) Investments and New Zealand's Super Fund have systems that keep strategy unified while giving investment teams room to act — creating coherence at the top and autonomy at the front line.

NTT DATA has built such an architecture through sustained execution.

Across two major consolidation waves in our own business — first unifying 25 technology services entities into a single operating company, then integrating 42 ERP systems and more than 500 legal entities across three continents — we saw a consistent pattern: Consolidation is not perfected in planning. It is refined, tested and strengthened through day-to-day-operation.

This perspective is based on primary research on sovereign wealth fund governance and transformation (Temasek, GIC, Norway GPFG, Canada CPP Investments, New Zealand Super Fund, Saudi PIF) as well as international management scholarship, interviews with NTT DATA executives, and our own internal playbooks,[1] methodologies and frameworks. It introduces our Unified Sovereignty Framework: four architectural principles that help sovereign wealth funds manage consolidation, expand portfolios or modernize governance to build durable, scalable institutional capability.

[1]Canada Pension Plan (CPP). How We Invest. Accessed in January 2026.
New Zealand Super Fund. Reference portfolio. Accessed in January 2026.
Norges Bank Investment Management. Investment strategy. Accessed in January 2026.
Temasek Holdings. Investment Approach. Accessed in January 2026.

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The universal challenge: Why asset managers fail at scale

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The universal challenge: Why asset managers fail at scale

Whether they're managing 20 portfolio companies or 200, in one jurisdiction or across many, asset managers encounter similar problems.

The integration trap

Trying to consolidate operations, systems and governance all at once

Result: Long planning cycles that stall progress, and major failures once implementation finally begins.

The localization trap

Allowing portfolio entities to keep their own systems and standards

Result: Creating data fragmentation that blocks oversight, weakens risk controls and limits AI-driven improvement.

The politicization trap

Replacing professional governance with political oversight

Result: Talent loss and pushing decisions toward the short term.

The velocity trap

Pushing consolidation faster than underlying dependencies allow

Result: Installing systems before data governance is in place and moving assets before legal structures are ready.

These traps are not limited to emerging institutions. They also challenge mature sovereign wealth funds, corporate holding companies and private equity platforms, just as often.

Kane Stavens, an FSI Consulting Partner at NTT DATA, notes:

> "Consolidation efforts often fail when teams move too fast and skip essentials like data ownership, legal readiness and decision rights."

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A framework for success

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A framework for success

The framework that follows has been tested in a wide range of organizational settings, including our own.



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Paul Sommerin, an FSI Consulting Partner at NTT DATA, explains:

> “Top asset managers don’t debate centralization. They define what’s mandatory and where local judgment applies.”

Principle 1: Strategic architecture, adaptive by design

The universal pattern

Asset managers implement nonnegotiable strategic infrastructure while allowing controlled operational variation. This is not a compromise; it is a disciplined interface design.

Consider the contrast:

Institution	Centralized (not negotiable)	Licensed (adaptable)
Canada CPP Investments	Total fund risk appetite, reference portfolio, total cost framework	Investment departments determine execution strategies, geographic focuses, asset class weightings within mandate
New Zealand Super Fund	Reference portfolio passive benchmark, passive management for 80% of assets	Active managers compete for 20% active mandate with full discretion within risk budget
Norway GPFG	Ethical exclusion criteria, equity/bond allocation, 3% spending rule	Norges Bank Investment Management operates with full independence on security selection, timing, implementation
Temasek	Total shareholder return (TSR) as primary KPI, dividend discipline, board independence standards	Portfolio companies operate with professional management, sector-specific strategies, market-competitive compensation

Table 1: Top asset managers clearly define what’s mandatory and where local judgment applies

The pattern is consistent: Strategic coherence at the top enables operational diversity at the bottom. The interface is precisely defined in terms of what is mandatory, what is permitted and who decides.

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The NTT DATA implementation

Agnes Lim, CFO for NTT DATA in Asia Pacific, captures the model well:

> We may customize 20% for our service towers… but 80% must stay consistent.”

Our 80% — the strategic infrastructure — covers:

- Unified chart of accounts and master data definitions
- Core financial workflows and risk reporting standards
- Consolidated risk and compliance architecture
- Standardized environmental, social and governance (ESG) measurement and disclosure frameworks

Our 20% — the licensed adaptation — covers:

- Local tax reporting formats and regulatory compliance variations
- Client-facing processes where market norms differ
- Sector-specific operating KPIs (data centre uptime versus consulting utilization rates)

The critical mechanism is governance, not goodwill. Localization flows through a structured demand funnel: a business case, an integration impact assessment and approval from the architectural review board.

NTT DATA insight

As **Lim** explains:

> “We route new requests through our demand funnel to confirm whether existing tools can meet the requirement. It takes a bit more coordination up-front, but it keeps us aligned and avoids duplication.”

This friction is intentional. It keeps changes aligned and prevents teams from creating quick fixes that eventually turn into the technical debt that slows integrations.

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How this applies to sovereign wealth funds

For asset managers consolidating diverse portfolios, the principle translates to:

1. **Strategic infrastructure (mandatory):**
   - Investment valuation methods and risk measurement standards
   - Board composition requirements, including independence and qualifications
   - ESG reporting frameworks aligned to the Task Force on Climate-related Financial Disclosures, the Global Reporting Initiative or equivalent
   - Dividend policy mechanics and capital allocation frameworks
   - Information security and data governance standards
2. **Licensed adaptation (granted):**
   - Sector-specific operating KPIs (utility uptime versus banking return on equity versus technology growth)
   - Local market-competitive positioning and pricing strategies
   - Community, labour and stakeholder engagement rules
   - Regulatory compliance variations across jurisdictions

Funds that master this interface scale smoothly: they can unify reporting and strategy without constraining how each business operates day to day.

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Principle 2: Absolute mandate with distributed execution

The governance architecture

The world's most effective asset managers resolve the tension between accountability to sovereign principals and investment team autonomy through structural clarity, not procedural compromise.

Temasek's 1974 innovation

- Ministers freed to focus on policy and regulation
- Temasek empowered as commercial owner with independent board
- Explicit codification: Government does not direct individual investment decisions; sets only high-level mandate and risk appetite
- This was constitutional design: legal protections, board independence standards and professional compensation frameworks that survived multiple political transitions

Norway's GPFG evolution

- Pre-1990 lessons shaped GPFG as the 1967 insurance fund (later GPFN) was used to serve policy objectives and periods of excessive oil-income spending in the 1970s-80s
- Clear governance split with Parliament setting the framework, Ministry of Finance setting the mandate and Norges Bank managing fund operations
- 3% fiscal rule limits transfers over time to the fund's expected real return
- Delegated investment autonomy where Norges Bank retains operational independence with parliamentary oversight of mandate

Canada Pension Plan investments

- Explicit "arm's length" governance from government:
- Professional board with a majority of independent members
- Management compensation benchmarked to private sector asset managers
- Total cost framework providing strategic direction without micromanagement

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The NTT DATA methodology

Nivedita Dhingra, NTT DATA's Head of Operations for Asia Pacific, puts it simply:

> "I saw many frameworks in consulting, but to deliver at scale here, we had to build our own and refine it with each country rollout."

This methodology — based on real operations rather than borrowed theory — creates speed with consistency. When the global template is clear, country teams can move quickly. When risk appetite is defined, investment committees can decide without escalation. When the playbook exists, integration teams can execute without reinventing each step.

NTT DATA insight

Dhingra puts it plainly:

> "We have a playbook now because after the first integration, we knew it would happen again... We built detailed guidelines for our countries to follow on data migration. My favourite analogy is that we're always building the bridge while crossing it — but now we have the architectural drawings."

The playbook makes the mandate real. Country-level execution spreads the mandate across the system. Together, they form an institutional capability that gets stronger every time it's used.

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How this applies to sovereign wealth funds

For funds establishing or transforming governance:

1 Absolute mandate (constitutional, surviving political cycles):

- Investment mandate: sectors, geographies, asset classes, risk limits
- Performance measurement: TSR, return on invested capital or equivalent long-term metrics
- Dividend policy: mechanics for distributions to owners, capital retention rules
- Board standards: independence requirements, professional qualifications, term limits

2 Distributed execution (operational, enabling professional management):

- Within the mandate, investment teams make independent decisions
- Portfolio company boards manage operations without ministerial interference
- Management executes with delegated authority, escalating only threshold breaches

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The critical design choice is interface clarity: where the mandate ends, and execution begins. When funds define this cleanly, professional management works. When they don't, they get either unchecked risk taking or stalled decision-making.

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Principle 3: Transparent control with structural protection

The legitimacy–autonomy balance

The drive for perfect transparency — real-time visibility of every decision and full political oversight — ends up stripping away the autonomy needed to create long-term value.

Yet, opacity creates its own problems: corruption, strategic drift and loss of public trust. The answer is structural separation: transparency that holds leaders accountable without pulling day-to-day management into politics.

The Temasek model

- **Transparency:** Detailed annual reports, top scores on Linaburg-Maduell Transparency Index, public TSR performance
- **Protection:** No government direction of individual investments; independent board with majority private sector leaders; professional, market-compensated management

The New Zealand Super Fund model

- **Transparency:** Quarterly performance reporting, passive benchmark comparison, total cost disclosure
- **Protection:** Guardians operate independently of government on investment decisions; board appointed through independent process

The Norway GPFG model

- **Transparency:** Full portfolio disclosure, ethical council public reporting, Norges Bank's parliamentary testimony
- **Protection:** Operational independence for Norges Bank Investment Management; ethical guidelines set by independent council, not politicians; spending rule prevents fiscal raiding

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The NTT DATA experience

Our consolidation required visibility of more than 500 legal entities. We learned that real **transparency** works only when data has clear owners, standard processes and reliable audit trails. Organizations that build this true gain strategic oversight. Those that don't find that fragmented data leads to fragmented judgement.



NTT DATA insight

Dhingra explains:

"We implemented central finance as a consolidation layer — but the real lesson was that data governance needs clear ownership. Who owns the data? Who is accountable for reconciliation? Without this, transparency produces noise instead of signals."

We resolved this through:

- **Data ownership assignment:** Clear accountability for master data quality by entity and domain
- **Reconciliation governance:** Standardized processes with explicit accountability
- **Audit trail integrity:** System-enforced controls for data lineage

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Sommerin adds:

“Mandate, spending rules and board independence belong in the constitutional layer; reporting cadence and operating KPIs belong in the operating layer. Blend them, and you get politicization or paralysis.”

How this applies to sovereign wealth funds

1. **Transparent control (Creating legitimacy):**
   - Published annual reports with portfolio performance, risk metrics, ESG outcomes
   - Independent external audit with public reporting
   - Parliamentary oversight of mandate and performance, not transactions
   - Membership in international frameworks (Santiago Principles, International Forum of Sovereign Wealth Funds)
2. **Structural protection (Enabling autonomy):**
   - Board majority independent professionals (international members preferred)
   - Business judgment rule protecting good-faith commercial decisions
   - Explicit prohibition on ministerial or political official board membership
   - Market-competitive compensation enabling global talent recruitment

The interface design is critical: transparency that enables oversight without creating vulnerability.

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Principle 4: Perpetual transformation with continuous operation

The velocity fallacy

The velocity fallacy is simple: pushing “transformation” faster than the organization can absorb ends up breaking the very capabilities leaders are trying to strengthen.

Clayton Christensen captures the root cause of this:

> “The reason why it is so difficult for existing firms to capitalize on disruptive innovations is that their organizational structures are designed to execute on a specific value proposition, not to discover new ones.”

The workable alternative is architected parallelism: running new and old systems, entities and governance models side by side, and migrating in controlled steps rather than in a single leap.



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NTT DATA insight

Dhingra describes our operational innovation:

“We created new legal entities in the target ERP from day one. All new business — new contracts, new clients — ran in the new system immediately. Legacy entities stayed in their existing systems. We migrated data one entity at a time as legal and operational constraints allowed. No big bang. No cutover crisis. Continuous operation throughout.”

The NTT DATA methodology

This phase demands accepting some temporary inefficiency: parallel systems, duplicate processes, extra coordination. The alternative is far worse: a single-track cutover that fails at the moment the organization is most exposed.

The parallel approach creates a learning engine. Each entity migration sharpens the playbook. The “build the bridge while crossing it” method, once guided by accumulated experience, becomes an institutional capability that strengthens with every cycle.

Stavens notes:

“Parallel runs look expensive until you compare them to the cost of a failed cutover. We treat them as risk insurance — and a way to start capturing value immediately.”

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How this applies to sovereign wealth funds

For funds consolidating portfolios or transforming operating models:

Phase 0: Strategy and blueprint (months 0–6)

- Define the strategic objective for consolidation, including control, transparency and scalability goals
- Set the target operating model outlining core data, governance and platform standards
- Segment entities by readiness: mature entities with strong governance and fragmented entities requiring remediation
- Establish group-level decision rights, design authority and minimum control requirements
- Produce a clear migration blueprint covering data standards, onboarding steps and technology principles



Stavens adds:

> “We assess four readiness dimensions: governance, data integrity, legal separability and operational criticality. If two are weak, the sequence is clear: stabilize, standardize, then migrate.”

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Phase 1: Foundation (months 6–18)

- Establish fund-level systems, governance frameworks and investment platforms
- Onboard an initial set of entities with clean data and legal structures
- Use this wave to test, refine and formalize the onboarding methodology and playbook

Phase 2: Parallel expansion (years 2–5)

- Require all new investments and subsidiaries to operate exclusively in new systems
- Mature entities integrate through common data standards and shared controls
- Fragmented entities stabilize first, then standardize, then migrate
- Legacy portfolio continues existing operations while systematic migration proceeds with clear cutover milestones
- Entity consolidation, system migration and governance transformation proceed as constraints resolve

Phase 3: Consolidation completion (years 5–10)

- Legacy entity counts reduced through mergers, closures or full integration
- Single operating platform for remaining portfolio
- Retire redundant platforms and manual processes
- Institutional memory enables ongoing optimization

Architected patience early on is what makes real speed possible later.

Funds that chase rapid consolidation through big bang implementations usually spend years planning, stumble in execution and end up back where they started — with fragmented systems and no momentum. The parallel-architecture approach takes the opposite path: It accepts visible deliberateness at the start so the transformation is durable, stable and scalable in the end.



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The NTT DATA difference: Authority through execution

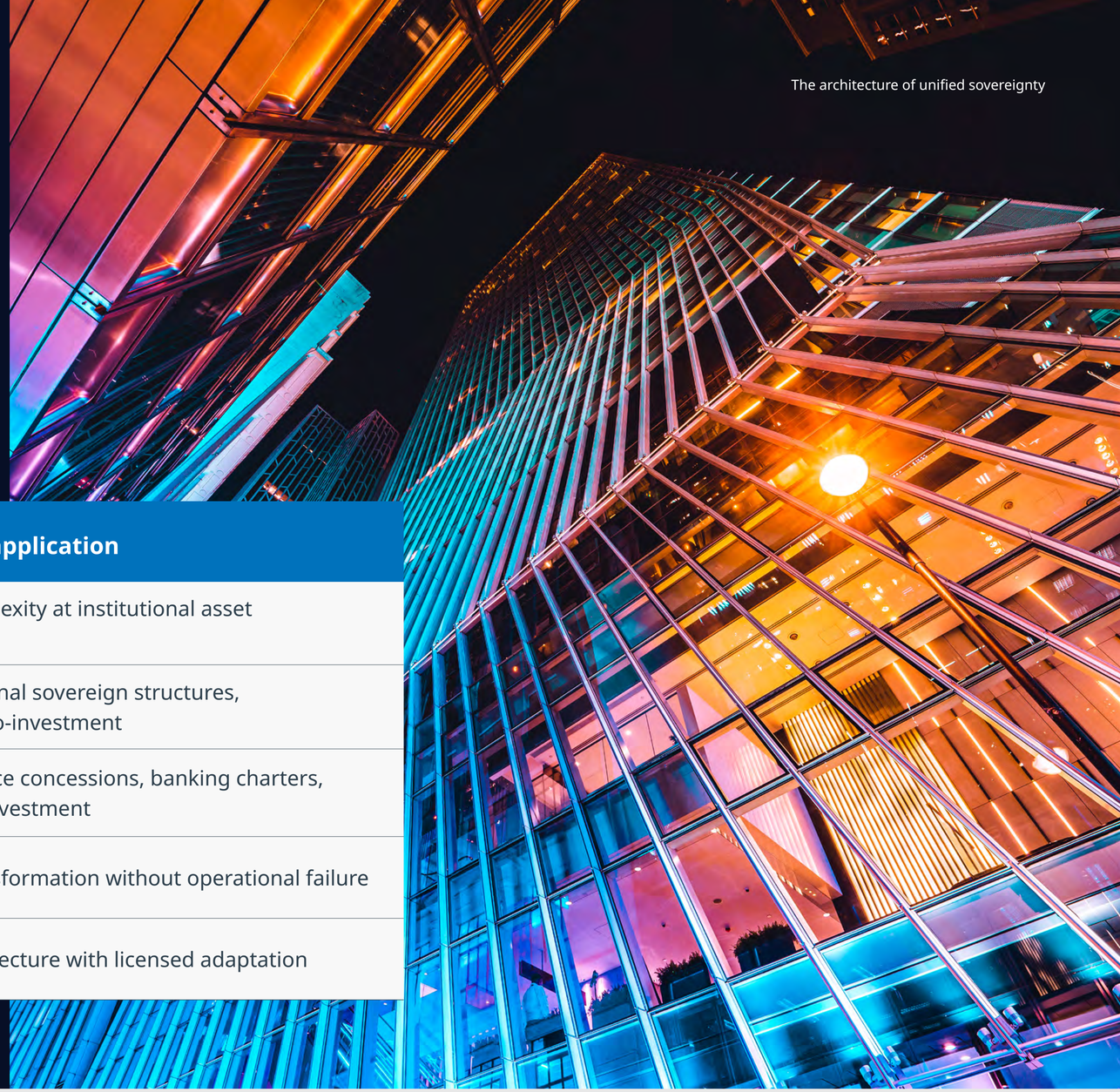
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The NTT DATA difference: Authority through execution

NTT DATA's edge is authority through execution—first-hand delivery experience earned through our own transformation and directly applicable to institutional asset manager environments. The table below maps where that experience translates into concrete framework application for asset managers.

Dimension	NTT DATA experience	Framework application
Scale	500+ legal entities, 42 ERP systems, multiwave consolidation	Portfolio complexity at institutional asset manager scale
Ownership complexity	Multicontinental headquarters, transfer pricing optimization	Multijurisdictional sovereign structures, international co-investment
Regulatory constraints	Telco licenses, data centre regulations, sector-specific compliance	Natural resource concessions, banking charters, cross-border investment
Methodology	Parallel run approach, playbook documentation, continuous operation	Perpetual transformation without operational failure
Governance	Structured demand funnel, architectural review, 80/20 standardization	Strategic architecture with licensed adaptation

Table 2: NTT DATA's execution edge: Our experience mapped to asset manager realities



The architecture of unified sovereignty

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From framework to institutional capability

Most advisory firms offer frameworks. NTT DATA brings **executed capability** — operational experience that proves what works in practice. Our credentials are not conceptual:

The triple perspective

Lim captures our positioning clearly:

> “We’re an SAP customer, an SAP implementer through NTT DATA Business Solutions and an operator living with the consequences of architectural decisions. This triple perspective is rare.”

We understand implementation from three vantage points:



As a customer
The operational friction, governance necessity and integration challenges



As an implementer
Enterprise system expertise at a global scale



As an operator
Living with architectural decisions, refining methodology through execution

This broad perspective allows us to link technical implementation with strategic governance — the very gap that causes many transformation programs to fail.

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A blueprint for lasting sovereignty

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A blueprint for lasting sovereignty

Institutional resilience will continue to be tested by climate transition, geopolitical strain, demographic shifts and AI. The winners will build unified sovereignty — a clear strategy, operational freedom, transparency without politics and the ability to transform without breaking operations.

NTT DATA brings executed capability, not theory. We design and run the systems and governance models that make transformation durable.

Sommerin concludes:

> “Sovereignty is not a slogan; it’s an operating system. The organizations that win are the ones that get the interfaces right — between mandate and execution, transparency and autonomy, transformation and continuity.”

Institutional architecture is undergoing a profound transformation, and those that get it right will have a strong foundation for strategic clarity and operational freedom.

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Contact us

The Unified Sovereignty Framework applies organizational architecture theory to asset management practice, validated against NTT DATA's operational experience and global institutional investor research.

To learn more about this framework and how we can assist your business, contact our FSI Business Consulting team:



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