



Board Guidance on AI Standards and Institutional Resilience

A Practical Guide to How Boards can Lead on AI

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Abstract: *AI is transformative, both for the global economy and the institutional asset managers. In this paper we discuss the AI standards being established and review peer practice at major SWFs. We showcase how the board can lead the transformation process and ask the right questions, both internally and to the external stewards of the assets entrusted under their oversight. The Institute of Sovereign Investors offers its third paper with an AI focus and will continue to monitor developments of the emerging practice and peer application of AI amongst sovereign institutions. We stand ready to add further analysis and insights on how the board best addresses the AI transformation and ensures institutional resilience in the process.*

Leading and Augmenting Global Institutions

Artificial Intelligence (AI) - or super intelligence - is changing the global economy and making a significant impact within the investment profession. Boards are leading institutional change and adapting emerging standards for AI governance. The purpose is to build resilience, while benefiting from the productivity boom expected from AI. The evidence is yet to be proven, but AI is clearly a global theme:

- **Economy-wide**, 88% of organizations report using AI in at least one business function, yet only 10% of firms with annual revenues exceeding \$5 billion report having fully scaled their AI deployment according to Stanford Institute for Human-Centered Artificial Intelligence, *AI Index Report 2026*. This survey of 6,000 executives found high adoption rates but still minimal gains in productivity.

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- **Among asset managers**, Marsh (formerly Mercer) surveyed 131 firms in March 2026 and found 55% already had AI embedded in their investment process with 91% planning to expand further. When asked what AI delivers, 69% cited operational efficiency and 55% faster insight, while just 28% had developed models internally and only 8% reported improved returns (Mercer, *Moving Beyond the AI Pitch: Asset Managers' Use of AI*, 2026).

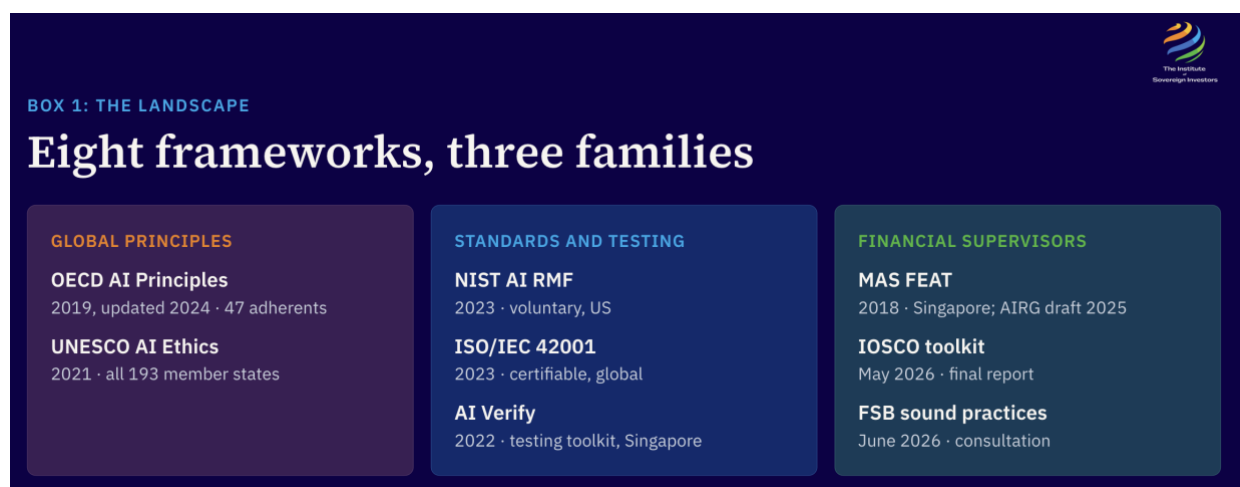
Taken together, these reports find that AI has clearly become a global topic, but organizations remain at an early stage of adoption and have yet to demonstrate substantial productivity gains or measurable improvement in financial performance. At this stage, the most tangible benefit is what the Institute of Sovereign Investors (the Institute or ISI) calls “operational alpha” or institutional cost savings by a different name. This will change. The key question is how boards take the lead in such AI transition and change initiatives, while contributing to establishing global standards and drawing on the practices of their peers.

However, the body of knowledge and research on effective board-level AI governance remains limited. In this paper, we aim to highlight the global AI standards, examine how leading sovereign wealth funds (SWFs) are approaching AI adoption and introduce six pillars through which boards can assess AI-related progress, both internally and in regard to external asset managers. We will explore how boards can ask the right questions, adopt best practices and draw on the insights of their peers.

Global Standards

A global discussion on AI regulation and governance is underway, with several leading standard-setting bodies having developed frameworks (box below) since 2018 that could eventually form the basis of a globally recognized set of standards. Such standards can provide the blueprint for best practice when widely adopted. A precedent was established in 2008/09, when policy makers and SWFs agreed on the Santiago Principles. Nearly two decades later, these remain internationally recognized as a voluntary set of generally accepted principles and practices for SWFs to follow.

The landscape of AI standards and regulatory frameworks relevant to financial institutions as of October 2026 is summarized in Box 1.



Global Principles: The AI governance landscape emerged from the *OECD AI Principles* (2019) and *UNESCO's AI Ethics* (2021). The OECD established five principles, rooted in: (1) inclusive and sustainable growth; (2) human rights and democratic values; (3) transparency and explainability; (4)

robustness and safety; and (5) accountability. In 2021, UNESCO, backed by 193 countries, adopted ten principles focusing on harm avoidance, privacy and data protection, responsibility, human oversight, adaptability, transparency and accountability with emphasis on AI ethics, sustainability and fairness.

Standards and Testing: The next phase of AI governance unfolded between 2021 and 2023, as AI emerged as a key global theme and the emphasis shifted towards standards and testing. Major standard setters advanced this agenda further in 2023 with the introduction of *ISO/IEC 42001* (2023) which established a certification framework that emphasized action words like: Plan, Do, Check and Act. Standards are increasingly shifting towards organizational governance; particularly how established organizations can manage AI responsibly and strengthen institutional resilience.

In 2023, the National Institute of Standards and Technology (NIST) introduced a *Risk Management Framework*, identifying 12 AI specific risks and developed a framework emphasizing a risk management vocabulary: Govern, Map, Measure and Manage. The NIST framework spans four functions, 19 categories and 72 sub-categories. The emphasis is on risk management and mitigation. AI Verify (Singapore) in 2023 introduced a voluntary self-assessment framework to observe that the institutional AI framework meets 11 governance principles nested with the existing standards.

Financial supervision: The Monetary Authority of Singapore (MAS) is a front-runner in setting the standards for AI with a supervisory lens. As early as 2018, MAS introduced its *FEAT framework* (Fairness, Ethics, Accountability and Transparency), followed by its *Veritas framework* in 2019. More recently, MAS proposed its *AI Risk Management Guidelines* in 2025, published the *MindForge AI Risk Management Toolkit* in March 2026, and formally issued its *AI Risk Management Guidelines* in October 2026. All frameworks are found in the list of references for further study.

In 2026, IOSCO placed greater emphasis on the role of humans in the AI framework; noting that AI (like humans) makes mistakes, but humans are always responsible (as has always been the case). IOSCO also highlighted AI concentration risk (with a few major companies providing the benchmark AI models) and the need to ensure that strong governance and record-keeping principles are observed. IOSCO offers a tool for supervising the use of AI in capital markets.

Finally, the Financial Stability Board (FSB) is finalizing its report on twelve principles for the responsible adoption of AI. These principles – now in consultation – are summarized in Box 2.



BOX 2 · FSB SOUND PRACTICES

Twelve practices for responsible adoption

ORGANISATION-WIDE · 1–4

- 1 Strategic direction and oversight
- 2 Governance and accountability
- 3 AI in the risk framework
- 4 Organisational adaptability

AI LIFECYCLE · 5–10

- 5 Materiality and risk assessment
- 6 Selection of models and systems
- 7 Data governance
- 8 Explainability and transparency
- 9 Performance management
- 10 Human oversight

CROSS-CUTTING · 11–12

- 11 Cyber and ICT risk
- 12 Third-party risk, including concentration

Consultation 10 June 2026 · comments closed 22 July · **final report due October 2026**. A non-binding menu, applied in proportion to size and materiality.

How Sovereign Investors are Adopting AI

The International Forum of Sovereign Wealth Funds (IFSWF) serves as the global voice for SWFs. The IFSWF is developing its workstream on AI and is expected to announce the progress of its AI working group at its annual meeting in November 2026.

In September 2025, IFSWF surveyed a group of compliance managers at SWFs that found:

- 1) **Compliance perspective:** Three-quarters of the 21 funds surveyed used some form of compliance technology, while only 15% (in 2025) used AI-enhanced tools in their compliance work. The risks that worried respondents most were regulatory change (57%), data and cyber security (52%) and sanctions compliance (48%). The report recommended wider use of regulatory change management and AI-driven compliance tools, and integrating data analytics platforms to improve monitoring, reporting and risk assessment.
- 2) **Investment perspective:** In IFSWF's Annual Report (July 2026), AI is also looked upon as an asset, and not just as a tool. This is an important perspective, given that sovereign investors collectively manage more than \$61 trillion and are significant investors in the AI ecosystem. The report's main argument is that AI's rapid growth depends on heavy investment in physical infrastructure, including data centers, semiconductors, power generation and energy networks. The report noted that its findings will feed into IFSWF's *Resilience Playbook* and its *AI Flagship Initiative*.
- 3) **Progress on AI at SWFs:** Generally, SWFs are moving forward at a gradual pace, and a comprehensive report is not yet available at this stage. Here are some examples of the front-runners:
 - a. **Norway:** Norway's \$2.1 trillion Government Pension Fund Global has embedded AI into its portfolio risk management and uses large language models to screen all portfolio companies, and about half of Norges Bank Investment Management's (NBIM) 700 staff build their own AI tools on Claude, mainly to gather information for decisions, with limited autonomous agent decisions planned for later. The CEO describes the fund as "all-in" on AI: the goal is to halve manual back-office processes, and to make its data platform more user- and AI-friendly. The key thinking is that technology will augment judgment, not replace it. AI screens portfolio companies for reputational and ethical red flags. AI tools are embedded into the trading workflow and used to minimize trading costs (to the tune of more than \$100 million a year, according to the CEO). On governance, NBIM has published an AI policy, built on board accountability, transparency and risk management with 71 internal "AI ambassadors" to drive adoption.
 - b. **Singapore:** The city state is a role model for AI adoption, standardization and verification, while the Singaporean SWFs are also significant investors in AI. GIC Private Limited (GIC), formerly the Government of Singapore Investment Corporation, has built a "Virtual Investment Committee" with AI agents trained on more than 40 years of GIC's own proprietary deal data that argue against a proposed investment before the real committee sees it. A practice well-supported in the literature. The AI framework will prepare questions and contrarian objections

to the benefit of the traditional human-led Investment Committee. Background material on a deal is uploaded and analyzed to generate a summary of the key issues for discussion. GIC runs “ChatGIC” in a secured environment, so staff queries never leave the firm’s own systems. This is an important aspect of applying the standards for AI.

Temasek (another large sovereign investor in Singapore) sees opportunities in AI and a strong investment case for its portfolio companies. Temasek is scaling AI across businesses, sectors and ecosystems. AI is considered as part of its “digitalization” investment theme (one of four major themes that are part of Temasek’s investment strategy since 2016). Since 2019, Temasek have been running a multidisciplinary team (the AI Pod) to build expertise and define long-term value from AI.

There are four core parts of Temasek’s AI strategy: (i) AI-Enabling the company to augment decision-making and sharpen workflow; (ii) Scaling AI exposure across the value-chain (energy infrastructure, chips, cloud services, models and applications); (iii) AI-Proofing the portfolio by engaging portfolio companies; and (iv) Supporting AI Diffusion by building capabilities, expertise and encouraging responsible practices across the ecosystem. Notably, Temasek plans to increase by \$36+ billion its AI exposure from 6% of its \$400+ billion portfolio (2026) to 15% by 2031, spanning the full value chain — energy and data centers, semiconductors, cloud providers, foundation models, applications and software infrastructure. Separately, Temasek runs a firm-wide ChatGPT deployment internally and backs the AI Verify Foundation, Singapore’s AI testing and governance toolkit — a standards-and-adoption role alongside its investing.

- c. **United Arab Emirates (UAE):** The UAE’s major sovereign funds take complementary rather than identical approaches to AI. Abu Dhabi Investment Authority (ADIA) pairs internal depth — a Quantitative Research and Development unit (100+ staff) — with ADIA Lab, established in 2022, spanning AI, machine learning and quantum computing. Mubadala has gone furthest in integrating AI into the investment decision-making process: its MAIA (Mubadala AI & Analytics) system sits inside investment committee discussions, stress-testing proposals and running counterfactuals. ADQ runs a portfolio-wide “Sprint AI” adoption programme across holdings such as AD Ports and Agthia. ADQ and Mubadala jointly manage a \$10bn fund under the UAE’s National AI Strategy 2025–2031, while MGX – the dedicated AI investment vehicle that has become the UAE’s primary channel for AI as an asset class – is closing a \$49bn fund and has taken stakes in OpenAI, Anthropic and SpaceX. The mix between simply adopting AI and being a major owner of the AI economy is quite clear in the case of the UAE, and to some degree Singapore as well.
- d. **Kingdom of Saudi Arabia:** The Public Investment Fund says AI is embedded across every layer of its operation, including an AI valuation platform for private-market deals, a large language model for real-time investment reporting, and tools for portfolio optimization.

- e. **New Zealand:** The New Zealand Superannuation Fund is a leader in innovation and adaptation of global best practice. The emphasis is on *Keorangi*, a machine-learning portfolio of New Zealand shares that went live in 2022/23 with a small initial allocation, back-testing and an initial paper portfolio. It was built through a cross-organizational effort. The aim is to “be free of the human biases and narratives”, where the model estimates expected returns from historical relationships and financial variables.

We would like to highlight that considerable work on AI adoption is underway around the world and we will continue to monitor progress and add to innovations at the Institute of Sovereign Investors, although a comprehensive review is beyond the scope of this paper.

How Boards Lead on AI

The Board sits at the top of the governance structure and should take the lead on transforming the organization and strengthening its institutional resilience.

Four steps are apparent for the Board to consider:

- Step 1: Apply the Global Standards
- Step 2: Study Peers and Learn from Experiences
- Step 3: Self-Assessment and Due Diligence (Gap Analysis)
- Step 4: Action Plans for AI Adoption

Step 1: Assess and Apply the Global Standards

The global standards converge around six common domains, drawn from NIST’s *AI Risk Management Framework*, ISO/IEC 42001, MAS’s *FEAT principles*, IOSCO’s May 2026 supervisory toolkit and the FSB’s June 2026 sound practices:

- (1) board-level strategy and risk appetite
- (2) inventory and lifecycle control
- (3) data governance
- (4) explainability
- (5) human oversight and incident management
- (6) third-party dependency

A clear AI Policy should be approved and designed in alignment with global standards and the six pillars outlined above. Policies should be supported by detailed internal procedures, with adequate controls on data, auditing and human oversight. This approach fits well within existing risk management structures and adds a new layer to operational risk management.

The standards aim to ensure that AI does not harm the organization or its reputation through cybersecurity threats, fraud, data privacy breaches and other operational risks. This is achieved by applying the organization’s three lines of defense, ensuring that AI processes are managed from within the organization and conform to established IT governance standards. Verification and certification, supported by using established AI assessment tools, form part of recommended best practice.

Step 2: Study Peers and Learn from Experiences

Peer experience is rooted in knowledge-sharing and a comprehensive study of case studies and public information. Global organizations like the IFSWF and the Institute of Sovereign Investors can be a relevant source of case studies, peer insights and innovative ideas from peers and experts working within the field of AI. The Institute provides independent, impartial advice, guided by its public purpose in this field. The Institute will also contribute to the standard-setting process and can provide guidance based on its in-depth insights into peer experience. In addition, the Institute conducts research in this area. Whatever is the preferable route, peer practice and networking being a rich source of practical insights.

Step 3: Self-Assessment and Due Diligence

Logically, internal managers and external investment managers should be subjected to the same standards of AI due diligence, although this is seldom the case in practice. We demonstrate below how the six analytical pillars (below) can be applied to ensure internal and external due diligence. This provides a framework for internal self-assessment and peer benchmarking against external managers, which boards can use to identify gaps and establish actionable initiatives, and work plans to address them.

In September 2025, the Institute published guidance on how to adopt AI within investment organizations to bring out operational alpha and support AI’s effective implementation. In March 2026, the Institute offered a six-pillar analytical framework:

- A. Strategy, Governance & Leadership
- B. Technology & Data
- C. Talent & Organizational Capability
- D. Integration in the Investment Process
- E. Accountability (Governance, Ethics and Risk)
- F. Competitive Positioning & Strategic Advantage

The Institute also highlights the work leading to the creation of the AI Maturity Index² (AIMI) for organizations that can be applied to the six pillars above. This allows the board to ensure that the right questions are asked both of internal and external managers, and that gaps or weaknesses are identified and subsequently addressed, both internally (via action plans) and externally (via requesting managers to adopt to higher standards or risk the external mandate).

To illustrate how the framework can be applied, each pillar is outlined below and framed as a question that a board can put to both its internal and external investment managers as part of the same annual review.

Pillar	The board’s question	A strong answer	A rehearsed answer
A – Strategy, governance and leadership	Who owns AI here, and what has it caused us to stop doing?	A named owner below the CIO; a maintained AI inventory; a pilot project was shelved, described without being defensive	A strategy deck with no decision attributable to it; no clear answer on the unapproved use of AI or ‘shadow AI’

² See: <https://spec-research.com/aimi>

Pillar	The board's question	A strong answer	A rehearsed answer
B - Technology and data architecture	What data do we hold that a peer cannot buy, and can our systems make use of it?	A named proprietary dataset, with the systems in place to keep it up to date and ensure it remains available, if something goes wrong	A cloud vendor's name; a data lake described without its contents
C - Talent and organizational capability	How many AI/ML engineers do we have per investment professional, and where are they located?	A ratio, a reporting line, engineers embedded in alpha-generating teams, named joint output	License counts, seat counts, training hours, active-user rates
D - Integration into the investment process	Where has AI changed an actual investment decision (or investment process), and what did it earn us?	A named decision or changed investment process, the counterfactual reconstructed, a measured result with conservative attribution	The platform: use-case counts and rollout size
E - Governance, ethics and risk	Who is accountable when the model is wrong?	A named owner per production model, a failure protocol, an incident log with recent entries, the date of the last override	"A human is always in the loop," without naming the human or the last override
F - Competitive positioning and proprietary advantage	What intellectual property (IP) do we have that a vendor cannot sell to our peers next quarter, and do we own it?	Proprietary models on firm-specific data, held in an entity the fund controls and that is ring-fenced	A moat claim that would describe any peer with the same vendor list

To make a due diligence assessment of governance, institutional considerations could include:

A. Strategy. Ask which pilot projects were shut down in the last twelve months, and why. A written responsible-AI policy is now the minimum requirement. Having a policy tells us little on its own, while not having one is a much stronger warning sign. For an internal investment office, the board is also part of the answer. If AI is not a standing agenda item and there is no clear trigger for reporting a serious issue outside a normal report cycle, that is a governance gap at board level.

B. Data. Here we deliberately pose two questions in one. Proprietary data has limited value if the organization cannot use it in its models; equally, models built only on purchased data are unlikely to create an advantage that competitors cannot reproduce. For external managers, the Institute also warns that legacy asset managers may use 'data sovereignty' or 'cybersecurity' constraints as excuses for slow progress. The real test is whether an asset manager can explain exactly what those constraints prevent (or enable), and what it has still managed to build within them.

C. Talent. Ask who has left in the past two years, where they went, and what the organization did in response. Knowledge and capability do not only build over time; they can also be lost. Staff departures are often the clearest early sign of decline, but such information is rarely shared

voluntarily. During a recent AIMI assessment period, three large funds outsourced quantitative capability, while the public record still reflected earlier, outdated announcements that it remained in-house. An assessment based only on those public announcements would therefore still have classified all three as building in-house capability, even though some of that capability had already shifted to external providers.

D. Investment process. How is AI used in the investment process, and what model risk does that use incur? When do we override a model's recommendation, and what happens when we decide not to follow it? If an investment office has never overridden a model, that raises the question: is the model really part of the investment process, or has human judgment stopped playing a meaningful role? Lastly, can we see the value of AI-informed decisions in the performance data? In other words, what AI alpha has been delivered?

Strong answers here are usually modest, because the more rigorously performance is attributed, the harder it is to make sweeping claims about AI's contribution. Boards should read modesty as a marker of quality. Ask the question annually and keep a record of the answers. If, by the third year, an investment office still cannot point to a specific decision that AI changed, then it is deploying technology rather than demonstrating a new investment capability.

E. Accountability. Ask to see the incident log, and when the last model override occurred. The Institute's 2025 paper states the underlying point clearly: AI "*is not a human that can rationalize and learn from mistakes*". Therefore, judgment, accountability and the consequences remain with people. IOSCO says the same for outsourcing: a regulated entity "*retains full responsibility, legal liability, and accountability to the regulator.*"

F. Advantage. Two aspects of assessment are particularly prone to misinterpretation. First, buying and then mistaking exposure for capability. Ownership of an AI company is very different from being able to use AI effectively within your own investment process. Second, counting someone else's capability as your own. A fund may sit alongside a national or group AI program without controlling it; even so, that capability would not count as the fund's own. This leads to a standing question: is this AI capability ours, and is any realized or potential benefit genuinely ours to claim? Not simply ours to access and use, but also ours to control and retain if the relationship with an external provider or partner changes.

Step 4: Action Plans for AI Adoption

Having studied global standards and peer practice, and subjected both internal and external managers to due diligence, boards should be left with a solid gap analysis and to-do-list of what actions are needed to bring the organization towards AI leadership.

Obviously, this is an ongoing process and may require time and resources, but the reward should be higher productivity, innovation and streamlining the organization and its human and agentic staff around a shared purpose of best practice adoption of AI.

Conclusion

There are many opportunities and risks that come with the innovation of AI and its adoption within a best-practice and institutionally resilient sovereign investment organization (or any other organization).

What good looks like will always depend on the specific organization, but we would advocate that adoption of best practices starts and ends with:

- 1) **Understanding global standards and how to apply these.** Seek expertise and verification where this serves the organization, and empower staff to excel and learn, as AI is a tool to augment processes and make decision-making better and backed by data.
- 2) **Study peer practices and case studies from around the globe.** Much comes from learning from others and sharing innovative ideas and knowledge with peers. Seek out global institutions that are built for this purpose.
- 3) **Subject the organization to due diligence and learn how to ask the right questions** – both internally and externally. Use a framework and keep track by scoring responses, identifying gaps and ensuring progress by bringing this exercise to the top of the organization.
- 4) Finally, find and address the gaps in annual work programs and continued learning to strive for best practice and leadership amongst peers.

The Institute of Sovereign Investors draws on the global experience of more than 90 high-level experts and leaders, who have led SWFs and central banks around the world. We partner with the industry's most respected and experienced practitioners and academics, including in AI, and stand ready to help organizations adopt and implement best practices around the world.

To enhance transparency, the Institute will also make the AIMI research on sovereign investors and pension funds available on its website as well.

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