Ministry of Foreign Affairs

TAI Governance in Singapore
ESF Research Brief No.3

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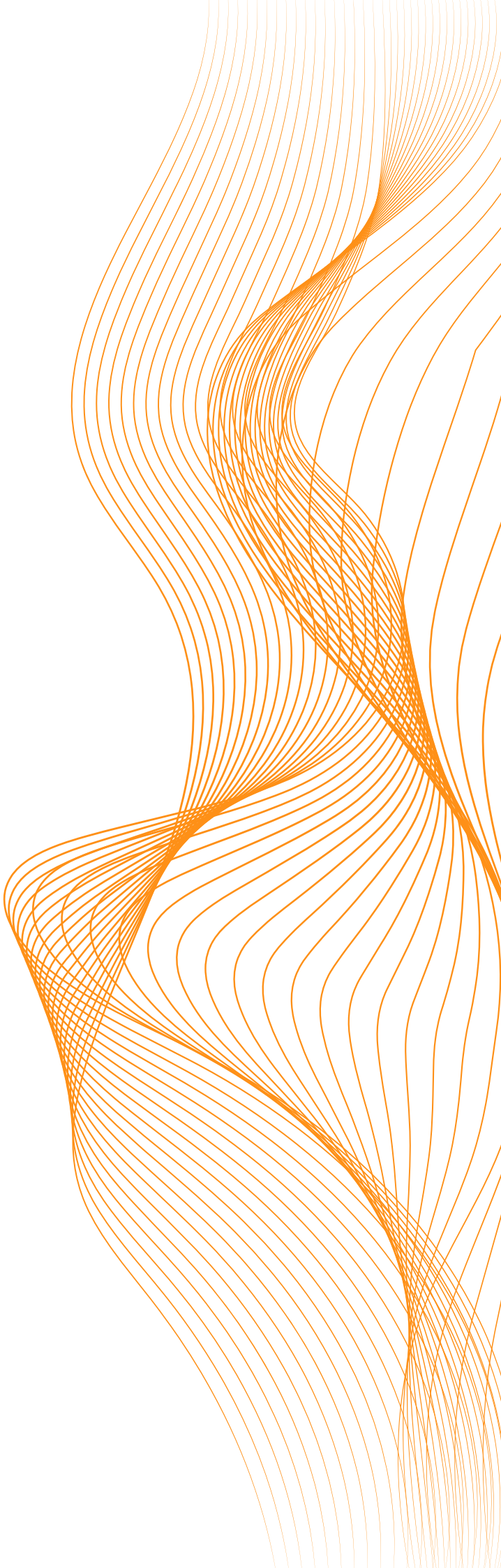

AI GOVERNANCE IN SINGAPORE

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Content

1 Introduction

Singapore leverages AI technology to transform its economy and overcome labour and productivity constraints caused by its small geographic size and lack of natural resources. To this end, the city-state released its first National AI Strategy in 2019, charting a course to becoming a global hub for developing and deploying AI technologies. Currently, Singapore is broadly recognised as an AI leader and considered one of the most AI-ready countries in the world. This makes Singapore's industry, research institutions, and administrative bodies potentially valuable partners for collaboration. Moreover, Singapore has developed a thriving AI ecosystem that engages the national research community, the private sector, and the public sector. This experience in building a national AI ecosystem offers valuable learning opportunities.

This research project has therefore examined the priorities and strengths of Singapore's AI ecosystem by:

- examining the work done by Singapore's AI research community;
- exploring the types of AI applications being developed and deployed; and
- analysing Singapore's approach to AI governance.

2 Structure and method

This third Research Brief presents an overview of the findings on Singapore's approach to AI governance compared to the European approach. The analysis is informed by semi-structured expert interviews and a review of the relevant literature. It first outlines Singapore's AI governance model, followed by an outline of the European model, and concludes with a comparative analysis.

3 Governing AI risks

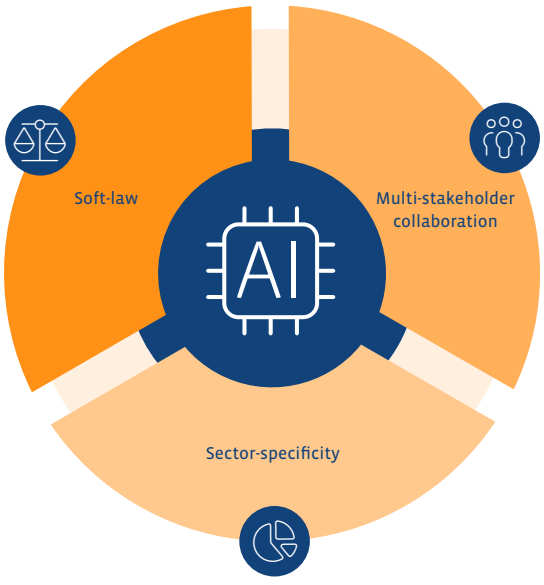
AI technologies are expected to be deployed across a wide range of sectors and industries, continually improving as scientific advances are made and driving further innovation in the contexts where they are applied. As a result, AI is often recognised for its general-purpose nature. While this allows AI to generate broad positive impact, it also makes AI-related risks difficult to predict. The wide variety of AI-powered applications across sectors introduces diverse and often unrelated risks. Its rapid and ongoing evolution adds uncertainty, and complementary innovations may compound risks further downstream.

Many states and international organisations - including Singapore and the European Union - provide guidance and/or regulation on identifying, assessing, and mitigating AI risks through their AI governance frameworks. The overarching goals of Singapore's and the EU's AI initiatives are very similar. Singapore's National AI Strategy seeks to leverage the technology for the public good, driving economic growth and creating new opportunities. By contrast, the EU AI Act aims to ensure that AI development and deployment align with Union values and support innovation.

However, given that Singapore is a centrally governed city-state and the EU a regional supranational political and economic union, their respective starting points are considerably different. This is reflected in their approaches to AI governance.

4 Singapore's approach to AI governance

The National AI Strategy charts Singapore's course towards leverage AI for the public good. However, given the rapid evolution of AI technology and its broad application across different domains, it also presents new and hard-to-anticipate risks - particularly due to its limited ability to generalise to novel contexts. Singapore's governance efforts aim to strike a balance between managing these risks and maintaining a pro-innovation and business-friendly environment. In practice, this means that Singapore's AI governance frameworks emphasise human-



centricity and require AI systems to be transparent, explainable and fair. These fundamental principles align with the underlying goal: to leverage AI for the public good while maintaining a pro-innovation, business-friendly environment. Together, these efforts have resulted in a strategy based on three core components, constituting a collaborative, soft-law, and sector-specific approach to AI governance.

Soft law

Unlike 'hard law' regulatory interventions, soft law instruments do not impose binding obligations on companies or individuals but rather offer guidelines, voluntary codes, or recommended practices. The first core component of Singapore's approach to AI governance therefore relates to the non-binding character of its AI governance instruments. Such instruments allow Singapore to adapt its AI governance environment more rapidly, thereby keeping pace with technological developments. Additionally, Singapore's soft law regulatory approach provides space for businesses to experiment, supporting the country's pro-innovation environment.

Multi-stakeholder collaboration

Industry stakeholders are actively involved in the development, deployment, and monitoring of AI governance frameworks. In addition to supporting Singapore's business-friendly environment, this collaborative multi-stakeholder approach to AI governance establishes a model for knowledge-sharing and consensus-building. Through this model, public authorities gain a better understanding of the capabilities and limitations of the technology, while industry stakeholders obtain early and in-depth insights into regulatory priorities and policy considerations. Such collaborations may go beyond knowledge-sharing and consensus-building, placing particular emphasis on community-building to facilitate a collective, participatory, and responsible approach to AI governance. These communities may be leveraged to promote the soft-law instruments and responsible AI practices that emerge from these multi-stakeholder efforts.

Tiered sector-specificity

Through the broad implementation of AI technologies, Singapore envisions overcoming some of the challenges posed by its limited geographic size, particularly as they relate to continued economic growth. As such, the city-state recognises the general-purpose nature of AI and views it as a technology that will be applied across a wide range of industries and sectors, continually evolving over time. This general nature is reflected in the governance approach advocated by Singapore's National AI Strategy, which explains that 'interventions should be risk-based, tiered, and adapted for specific vertical sectors and horizontal applications.' This illustrates the third core component of Singapore's AI governance approach: it differentiates between broad cross-sectoral (i.e., horizontal) AI risks and sector-specific (i.e., vertical) AI risks.

Cross-sectoral risks

Singapore currently has no AI-specific regulations and is holding off on legal interventions related to AI. While it recognises that AI may generate broad cross-sectoral risks, there is no indication that Singapore is considering horizontal, comprehensive regulation as a legislative response. Instead, it relies on existing multi-stakeholder collaborations to identify and monitor such risks. In this context, institutions like the IMDA and the PDPC employ a consultative process to develop soft law instruments, such as the Model AI Framework for Generative AI and the Model AI Governance Framework. These instruments are designed to assist organisations in the responsible use of AI technologies and to align policies and processes with relevant practices and legal provisions, including those derived from the Personal Data Protection Act.

Sector-specific risks

The general-purpose nature of AI generates a broad and diverse range of risks. For a considerable portion of these risks, their manifestation and impact are highly dependent on the context in which the technology is applied. Such risks are therefore vertical in nature and are commonly referred to as sector-specific risks. For example, in the healthcare sector, using AI in diagnostic tools may lead to inaccurate diagnoses if training data lacks demographic diversity, posing serious safety and ethical concerns. Singapore has designated sector-specific regulators to monitor such vertical risks. For instance, the Monetary Authority of Singapore is the sector-specific regulator for the financial sector, whilst the Ministry of Health performs this role for the healthcare sector. These sector-specific regulators monitor, identify, and assess vertical risks insofar as they are relevant to their sectors. The process through which they operate mirrors the process that Singapore employs to monitor cross-sectoral risks, albeit with a more focused scope. Multi-stakeholder consultations led by Singapore's sectoral regulators have resulted in multiple sector-specific soft-law initiatives.

5 European Union's approach to AI governance

The European Union AI Act provides a comprehensive framework to ensure safe, trustworthy, and human-centric AI development and deployment. While such objectives align closely with Singapore's aim to leverage AI for the public good, the EU's approach to AI governance is notably different.

Top-down hard law

The AI Act creates a single uniform European AI governance framework. While national institutions, industry stakeholders, and civil society are involved in its implementation, the creation of the Act is the result of centralized European rulemaking. This top-down approach to AI governance aligns with the purpose of the AI Act: creating a single comprehensive framework requires a uniform system. In Europe's multi-level and highly diverse context, such a uniform system can only be established through a top-down approach. Additionally, the EU's approach to AI governance is often characterised as hard-law governance, as it creates binding rules and regulations with a mandatory character that can be enforced through legal systems. This approach supports the underlying goal of creating a uniform, comprehensive AI governance framework.

Rights-focused and value-oriented

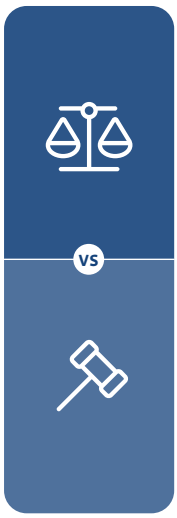
The rights and values of the European Union are central to the AI Act. Its foremost purpose is to create a framework that promotes human-centric and trustworthy AI. Additionally, it aims to ensure a high level of protection of health, safety, and fundamental rights. This emphasis on European fundamental rights and core values ensures a coherent and comprehensive framework that is consistent with the broader body of European laws.

A tiered risk-based model

At the heart of the AI Act is a four-tiered model that classifies AI systems according to the level of risk they pose to health, safety, and fundamental rights. This model distinguishes between unacceptable risk, high risk, limited risk, and minimal risk. The AI Act combines this risk-based model with a tiered system of requirements and obligations, providing a proportionate set of legal obligations at each risk level. Through this tiered, risk-based system, the EU seeks to strike a balance between promoting innovation and protecting fundamental rights. Such a model supports the EU's rights-focused, value-oriented approach: the scope of legal requirements depends on their potential impact on health, safety, and fundamental rights.

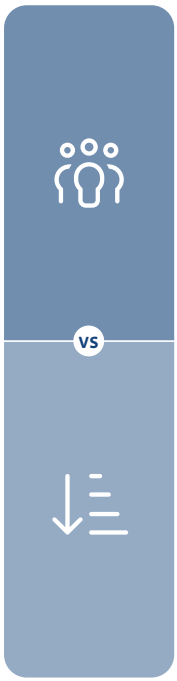
6 Reflection

Significant differences exist between Singapore's and the European Union's approaches to AI governance. These stem from differing priorities and contexts, resulting in distinct strengths and challenges.



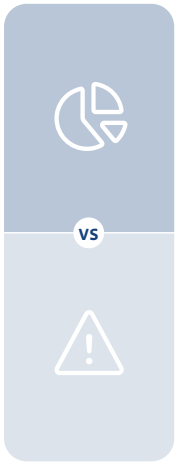
Soft law vs hard law

The soft-law approach adopted by Singapore creates a highly responsive governance context in which guidelines can be updated rapidly and tested in sector-specific regulatory sandboxes. This method, especially when supported by consistent and sustained multi-stakeholder consultations, creates a highly adaptable regulatory environment that can evolve alongside technological advancements. However, because of the soft-law nature of Singapore's AI governance, it lacks the enforceability of the European approach. The AI Act's clear rules provide a uniform regulatory framework that prevents the most serious risks from materialising. However, the comprehensive nature of this framework - particularly in the EU's diverse context - can lead to inflexibility, potentially causing the regulatory environment to lag behind technological advancements.



Collaborative governance vs top-down rights-focused regulation

The collaborative approach adopted by Singapore enables it to leverage the expertise of industry stakeholders active in developing and deploying AI technologies. Moreover, the frameworks produced through collaborative exercises are more likely to be context-specific, as industry stakeholders can express sector- or context-specific concerns. This is further enhanced by the sector-specific character of Singapore's approach to AI governance. However, such collaborative governance models are often criticised for providing industry stakeholders with the greatest ability to shape the regulatory context, whilst they have the least interest in regulation. Such risk does not arise in top-down regulatory models, in which industry stakeholders have limited influence over the process that creates governance frameworks. This allows public institutions to ground governance frameworks in public values, which helps build public trust. However, imposing regulations through a top-down model provides no guarantees that organisations internalise those regulations. These models require bottom-up elements in their implementation, as well as strong enforcement mechanisms.



Sector-specific approach vs risk-based approach

Singapore's sector-specific approach to AI governance enables the creation of standards that are context-sensitive and highly detailed. Moreover, the multi-stakeholder consultative processes supporting this approach enable it to tap into industry expertise and create tailored frameworks that address serious risks without affecting other sectors. The EU AI Act, by contrast, prioritizes regulatory uniformity rather than sector specificity. Instead of differentiating between vertical AI risks, it seeks to establish a common standard of protection through a risk-based model. This aligns with the EU's rights-focused, value-driven approach. However, the goal of a uniform, EU-wide AI governance framework has resulted in broad risk categories that make it difficult to account for sectoral differences.

Key insights

- Contrary to the European Union, Singapore does not provide legally binding AI-specific regulation, enabling a more agile approach to AI governance and providing opportunities for businesses to experiment.
- Compared to the European Union, Singapore offers more opportunities for stakeholders to participate in developing and monitoring AI governance frameworks, with a strong emphasis on knowledge-sharing and consensus-building.
- The Singapore model of AI governance, in contrast to the European Union's broad four-tiered risk model, differentiates between horizontal cross-sectoral AI risks and vertical sector-specific AI risks, which enables the creation of context-sensitive AI standards.

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