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Assessing Smart Nation Singapore as an International Model for AI Responsibility

Philip L. Frana

Abstract

While AI and other smart technologies greatly contribute to material aspects of well-being, there are concerns that they threaten quality of life in Singapore. Smart technologies and digital governance have freed up labor for activities where human empathy and understanding are unique and indispensable, but also threaten to undermine human dignity and accountability. This paper undertakes a comprehensive assessment of Singapore as an international model for AI responsibility from the perspective of the history and philosophy of technological governance. It examines the evolution of regulatory frameworks, ethical considerations, and key legal documents and social initiatives shaping the nation’s approach to responsible, transparent, and just AI development. It also compares Singapore’s actions, principles, and guidelines for AI responsibility to international activities and frameworks. This paper emphasizes the need for responsible and trustworthy AI development that considers causal links between AI technologies and their consequences, and encourages more conscientious collaboration to bridge the responsibility gap caused by AI’s centralized and distributed sociotechnical systems.

Keywords: artificial intelligence, ethics, governance, public policy, regulation, Singapore

Introduction

Singapore today is an ultra-modern city-state in Southeast Asia, with a population of approximately 5.7 million people. The nation is in the top echelon of world rankings in education, healthcare, personal safety, wealth, and life expectancy (World Bank, 2023; Yulisman, 2018). Singaporeans as a group are highly educated and technologically literate (Chua, 2011; Romero, 2023). Singapore is perfectly situated for global trade on the Strait of Malacca, but has almost no natural resources. Instead, the country’s most valuable resource is its highly-educated workforce.

The nation is a test bed for advanced social, economic, and environmental implementations of artificial intelligence. AI is being utilized in transportation, healthcare, education, urban planning, cybersecurity, finance, manufacturing, shipping, environmental protection, and more (Laurent et al., 2021). Under its National Artificial Intelligence Strategic Plan, Singapore aims to become the world’s powerhouse in deploying AI for economic growth, human services, and sustainability (Government of the Republic of Singapore, 2023). The island nation is often cited as the kind of place other countries should want to emulate. Indeed, Singapore won a top international award for its AI governance and ethics initiatives at the UN World Summit on the Information Society (Sagar, 2019). According to the Center for Security & Emerging Technology, Singapore in 2023 is ranked 12th globally in number of artificial intelligence patent applications, 14th in AI patents granted, and 15th in number of AI research articles cited (Goode et al., 2023). In the Global Cities AI Disruption Index, Singapore secures the top spot among cities for its readiness in artificial intelligence (Wyman, 2019).
Prior to national independence in 1965, only half of Singapore’s citizens could read and write (Kuo, 1974). In the early years following independence, Singapore’s government took a direct role in encouraging what first Prime Minister Lee Kuan Yew described as “Asian values,” such as stability, pragmatism, collaboration, harmony, discipline, cleanliness, and order (Barr, 2000). He also promoted centralized authority and scientific planning—what has sometimes been described as enlightened authoritarianism (Ho, 2017; Li, Yaw, 2020). The public largely attributes the country’s success and high standard of living to government leadership, anti-corruption efforts, and embrace of multiculturalism as a fundamental aspect of “New Asian” national identity (Ang, Stratton, 1995; Ortmann, 2009; Singh, 2017; Tan, 2016). Some critics allege that Lee Kuan Yew’s still-dominant People’s Action Party distracts the nation’s citizens by encouraging overtly competitive behavior and kiasu (fear of losing out) (Harris, 2014; Lim, 2002; Low, 2007).

A review and assessment of areas of AI responsibility permits the drawing of several conclusions about AI responsibility in Singapore. Singapore values interdisciplinary research, incentives for curricular innovations and training, and technical leadership in the field of AI responsibility. The nation also places an emphasis on AI awareness and multi-stakeholder collaborations to promote responsible AI practices. Singapore also values ethical design and trust in artificial intelligence systems. The government recognizes attributes such as trustworthiness, explanation, and accountability, as well as the notion of data agency, while not always living up to their full potential or implementation.

The weaknesses of Singapore’s approach to AI responsibility, as detailed below, revolve around the centralized and top-down approach to integration of AI, fairness and inclusivity, and the potential impact of deeply ingrained cultural values—such as efficiency and productivity—on human rights and societal well-being (Guest, 2021). In Singapore there are criticisms regarding the centralized approach to public-private partnerships, the country’s top-down approach to AI ethics and technology regulation, which may not align with the decentralized, federalist, or private AI landscape in other countries (Chua, 2016; Liow, 2011). Furthermore, there are concerns about data privacy and job security, as well as the potential spread of disinformation through social media algorithms in Singapore. These weaknesses indicate areas where the country’s approach to AI responsibility may need improvement (Buyl, De Bie, 2024; Mittelstadt, 2019).

This paper evaluates Singapore as a global leader in AI responsibility by examining the country from the point of view of the history and philosophy of technological governance. These days, technological governance refers to the use of administrative, political, and economic power in the creation, application, and spread of computational thinking in society. Specifically, this case study examines how the government’s embrace of ethical issues, important legal precedents, and various social programs are shaping Singapore’s approach to ethical, open, and just AI research. Additionally, it compares the nation’s AI policies, practices, and recommendations with global AI responsibility frameworks devised by researchers, industry professionals, policymakers, and ethicists.

**Singapore’s Approach to Artificial Intelligence**

Information and communication technologies (ICT) have long been crucial to the nation’s plans for future economic diversification and global competitiveness. Government and industry invested heavily in computerization in coordinated national plans for intelligent infrastructure development (GIC, 2024; Temasek, 2023). Since 1980, the Singapore government has released seven national ICT plans (Government Technology Agency, 2015; Koh, Phan, 2010). E-government—the application of computers, the internet, and AI to enhance public services—has been a hallmark of Singapore’s national development strategy.
Systematic planned improvements to public administration using digital technologies began with the Civil Service Computerisation Programme in the 1980s and 1990s. Among its accomplishments was the establishment of multiple “data hubs” in the national Government Data Centre, including People Hub (citizen data) maintained by the Ministry for Home Affairs, Land Hub (geospatial land data) maintained by the Ministry of Law, and Establishment Hub (corporate and business data) maintained by the Ministry of Finance (Lee, 1988; Chua, 2012). Singapore has adopted long-term plans for mature digital governance beginning with computerization and process automation, the reengineering of procedures in order to achieve various efficiencies, and cross-agency collaborations and integrated governance.

An important aspect of AI government responsibility in Singapore can be credited to a long history of promoting ICT literacy. Singapore’s education system has consistently earned some of the highest rankings globally (Teng, 2023). The country recognizes that ICT literacy is fundamental to its Smart Nation vision and to the ongoing transformation of the economy. The government is also aware of estimates that upwards of 44 percent of jobs in Singapore are automatable. SkillsFuture is a government agency tasked with promoting and coordinating the acquisition of digital literacy and employment skills, while also encouraging adaptability and lifelong learning. Singapore is currently engaged in several international higher education research and academic collaborations in the field of artificial intelligence (Gleason, 2018; SkillsFuture, 2024).

Young Singaporeans are exposed to STEM education and hackathons from an early age, and seek technological solutions and conveniences to address Singapore’s many and complex problems. The Institute of Technical Education is collaborating with Intel in its AI For Youth program in Singapore. AI For Youth supports hands-on learning and certifications in computer vision, data science, and natural language programming for post-secondary students (Institute for Technical Education, 2020). AI Singapore and the Ministry of Education have established an AI Student Outreach Programme to promote AI literacy and skills among primary, secondary, and post-secondary students (AI Singapore, 2024).

Singapore’s economic security depends on global business. Singapore’s government agencies pool their resources to lure technology companies and woo multinational corporations to invest in the country (Chua, 2012). The Smart Nation Initiative was announced by Prime Minister Lee Hsien Loong and launched by Singapore’s government in 2014. The motto of Smart Nation Singapore is “Everyone, Everything, Everywhere, All the Time.” Today, many services are available through apps on smartphones or by using Singpass, a universal digital ID, and through e-payment systems backed by the government (Lee, 2014).

With the launch of AI Singapore (AISG) in 2017, the government invested in a five-year research and development program to advance its domestic AI incubation capabilities and attract top-tier talent. The country’s leaders realized that they could cultivate domestic economic development as a powerfully attractive lure to international investment. AI Singapore knitted together research institutions and a growing ecosystem of AI startups in order to project leadership in the global marketplace. AI Singapore funds are earmarked for research into fundamental AI innovations, governance, ethics, national competitions, makerspaces, open-source code repositories and datasets, and workforce development. AISG develops open-source AI products through consortium partnerships, and creates AI learning platforms for students and working professionals (AI Singapore, 2024a; Trueman, Lago, 2019).

AI Singapore hopes to fund 100 Experiments for Research (100E4R) and 100 Experiments for Industry (100E4I) (AI Singapore, 2024c). It is useful to establish context by highlighting some of AISG’s initial grand challenges and use cases. These examples provide valuable insight into the scope and potential impact of AI efforts in Singapore. AI in Health, for example, began in 2018 with the ambitious goal to use artificial intelligence to reduce diabetes, hypertension, and high cholesterol by 20 percent in

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only five years. The first product of this effort is KroniKare, an AI wound scanner for diabetic and elderly patients. A second effort, launched in partnership with Expedia, aims to use AI to find patterns in travel search queries by Asian visitors to Singapore (Teddy-Ang, Toh, 2020). AISG has also assisted in the development of stakeholders, key preconditions, tasks, requirements, and goals for AI applications across broad segments of Singaporean society (Miller, 2023; Phillips, 2022; Yip, 2019).

Building a talent pipeline is key to Singapore’s national artificial intelligence strategy. Public engagement and outreach initiatives are designed to encourage discussions about smart technologies, the future of Singapore’s economy, and the importance of AI literacy. The strategic plan also fosters the development of collaboration platforms. These platforms are designed to bring together members of the government, industry, higher education, and the public to collaborate, gather knowledge, drive innovation, and develop AI solutions to social and economic problems (SG Digital et al., 2020a; SG Digital et al., 2020b). Smart Nation Singapore is leading in what it calls AI4E—AI for Everyone. There are universal AI education and training programs for toddlers, teens, college students, mothers, fathers, workers, executives, entrepreneurs, ICT professionals, the elderly, the infirm, and the disabled (Waring et al., 2020).

Many of the collaborations involve partnerships between the government and private companies. Singapore today has a thriving AI startup ecosystem that is supported by AISG and AI4E. TradeXchange, for example, is a startup that connects businesses, suppliers, and customers. The startup’s digital platform uses AI to facilitate transactions, reduce paperwork, and improve supply chain efficiencies (Zhu, 2019). AI Singapore’s partner government agencies support startup enterprises and existing businesses that want to invest in transforming their operations, processes, and services using artificial intelligence technologies. SGIInnovate invests in deep tech startups in Singapore. The organization also sponsors activities supportive of mentorship, professional networking, and partnering. The InfoComm Media Development Authority (IMDA) and Enterprise Singapore’s Grow Digital program facilitates the “digitalization” of existing businesses by identifying or providing access to AI platforms, tools, and resources (IMDA, 2023c).

Singapore’s Model AI Governance Framework guides current efforts to establish standards, manage risks, ensure compliance and accountability, and engage and foster trust among businesses and ordinary citizens. It includes projects in transportation and logistics, smart cities and homes, healthcare, education, and public safety (SG Digital et al., 2020c). The Model AI Framework is not law, but it is intended to inspire confidence that AI technologies can be developed, deployed, and used in a responsible manner. The government has partnered with Nanyang Technological University to develop an AI ethics and governance certification program (Nanyang Technological University, 2024). The government has also initiated an AI Verify program, which includes an AI testing, framework, toolkit, and benchmarking protocol for measuring the safety of AI products (PDPC, 2023a; PDPC, 2023b).

Because of top-down policy structures and management strategies, data governance and information integrity in Singapore are effectively fused. Regulatory frameworks, capacity building, public awareness, and international collaboration are dictated by the government’s directives and initiatives. The national Personal Data Protection Commission (PDPC) dominates in discussions of data privacy (Schmitt, 2022; Zhang et al., 2024).

Artificial intelligence systems are seen as reliable when their design, engineering, and operation produces advantageous results while mitigating potential harms (Abeywickrama et al., 2024; PDPC, 2018). The government in coordination with industry has published AI ethical guidelines, passed data privacy laws, and created algorithmic oversight and compliance mechanisms. For instance, the Personal Data Protection Commission and Singapore Digital have released an accountability-based Trusted Data Sharing Framework. This framework is voluntary, not compulsory.
Government agencies in Singapore—like much of the rest of the world—have taken few direct steps to govern or regulate artificial intelligence technologies. Singapore’s Copyright Act does not have specific provisions that directly address generative AI content; current law protects only human authors. In the context of AI creations that involve no direct input by a human author, a case for protection under current legal frameworks would likely fail—it can be challenging to determine rightful attribution and ownership when generative AI is involved in content creation (Government of the Republic of Singapore, 2004; Oh, 2022). Instead, Singapore has taken steps to create so-called “regulatory sandboxes” that relax regulatory requirements for inventive companies. While entrepreneurs remain under the watchful eye of government agencies, these sandboxes permit companies the freedom to test emerging artificial intelligence solutions and speed them to market (IMDA, 2023a; IMDA, 2023b; IMDA, 2024a, Laurent et al., 2021; Monetary Authority of Singapore, 2023).

Defining AI Responsibility and Pillars

It is evident that Singapore is interested in applying and regulating artificial intelligence in ways that benefit its economy and society while upholding standards of responsible governance. To assess the nation’s potential as an exemplar in this respect, it is important to compare Singapore’s efforts and initiatives against the broader international discourse on AI ethics. AI responsibility refers to a complex set of ethical guidelines, principles, and other considerations for thinking about artificial intelligence along social, political, legal, and economic dimensions. Guidelines for AI have emerged from a variety of historical circumstances, specific cases, academic research efforts, policymaking initiatives, collaborations among individuals and organizations, as well as through industry engagement. AI responsibility considers moral behavior, human interactions with machines, and related questions about human agency and dignity in a world of AI. Because contemporary AI can muddle whether a human or machine is doing the planning, decision-making, and work, it can be challenging to determine who or what is responsible or at fault. Concerns about the management and uncertainty of rapid growth of artificial intelligence have prompted researchers, policymakers, and industry ethicists to take up the study of AI responsibility (Cavalcante Siebert et al., 2023; Davidovic, 2023; Dignum, 2017; Osman, d’Inverno, 2024).

The combined efforts of the public and private sectors have precipitated the emergence of interdisciplinary clusters of principles and practices under the banners of “Beneficial AI,” “Friendly AI,” “AI for Social Good,” “AI Safety,” and “Trustworthy AI.” These terms are deployed to positively characterize AI regulatory efforts. That is to say, the characteristics, qualities, or terms used to describe good AI are intentionally crafted to counter common associations of AI with vulnerability or danger. It is the ethical duty of computer professionals and policymakers to prevent or minimize harm, as there are tangible repercussions when AI tools are used to exploit or injure people. Matthias (2004), Sparrow (2007), and Roff (2013) all describe a growing responsibility gap between human beings and artificial agents that raises concerns about the behavior, accountability, and ethics of artificial intelligence in practice.

The present paper is informed by a close reading of a number of national and international declarations on AI responsibility that seek to close the gap: the IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems (Institute of Electrical and Electronics Engineers, 2016), the Asilomar AI Principles (Future of Life Institute, 2017), the Montréal Declaration for a Responsible Development of Artificial Intelligence (2018), the Tenets of the Partnership on AI (Hern, 2016; Partnership on AI, 2018), the AI Principles of the Organization for Economic Cooperation and Development (Organization for Economic Cooperation and Development, 2019), the European Commission Ethics Guidelines for Trustworthy AI (European Commission, 2019), the Chinese Ministry
of Science and Technology’s Governance Principles for a New Generation of Artificial Intelligence (Chinese Ministry of Science and Technology, 2019), AI4People’s 7 AI Global Frameworks (AI4People, 2020), the UNESCO Recommendation on the Ethics of AI (UNESCO, 2021), and the Bletchley Declaration on AI Safety (Bletchley Park, 2023). Together, these policy documents represent dozens of specific values, principles, and objectives for responsible AI development and governance. Some approaches to classification of concepts and key terms in ethical AI frameworks are helpfully described in Jobin et al. (2019), Prem (2023), and Cunha and Estima (2023). Jobin et al. (2019), for instance, suggest that desirable AI values converge around common ethical principles such as transparency, justice and fairness, non-maleficence, responsibility, and privacy.

Taking into account this body of scholarship, a careful reading and analysis of primary documents reveal they can also be reduced to approximately eight common pillars of AI responsibility. These eight pillars, which are based on broad categories developed from a humanist or liberal arts perspective, emphasize themes and overarching concepts that facilitate practical exploration of AI responsibility in this paper:

**Education and Research**

Artificial intelligence education, literacy, and research are valued by promoters and practitioners of AI responsibility. Especially prized are interdisciplinary research, incentives for curricular innovation, training and technical leadership, and efforts at continuous learning.

**Collaboration and Public Awareness**

Multi-stakeholder collaboration and AI awareness are also valued by advocates of responsible AI. AI awareness encompasses technical, social, and ethical dimensions. It includes knowledge of AI’s specific capabilities and applications, and also something of its implications in the form of benefits, risks, and impacts.

**Adaptive Data Governance and Regulation**

Adaptive governance recognizes that artificial intelligence continues to grow and evolve in ways that can be unexpected. Also, the data that generative AI uses to train models plays a pivotal role in shaping the model’s capabilities. The ethical management of these data sets is essential to responsible AI practices.

**Information Integrity and Transparency**

Information integrity and transparency are technical and societal imperatives in responsible AI. Information integrity in the context of artificial intelligence refers to the quality, reliability, and consistency of data and information used by AI systems. Algorithmic transparency involves implementing existing and proposed sets of practices for making AI systems comprehensible to humans (Government of Canada et al., 2023; Larsson, Heintz, 2020).

**Human Rights and Well-Being**

A separate but related area of AI responsibility is human rights and well-being, which emphasizes
the importance of democratic values and the fundamental freedoms of individuals and communities. This value is sometimes framed in terms of human dignity and flourishing in documents expressing concerns about the threats posed by smart technologies (Mittelstadt, 2019; Prem, 2023).

**Ethical Design and Trust**

Ethical design is another foundational pillar guiding the actions and decisions of individuals, groups, or institutions interested in AI responsibility. This principle is described in a variety of ways in recent international declarations. Most often it captures the notion that AI should remain human-focused or people-centered. Ethical AI also embodies the notion of data agency, that individuals will retain ownership and control over personal information collected for use in AI products and services.

**Fairness and Inclusivity**

Another mainstay of these declarations is fairness and inclusivity. This concept is expressed in a wide variety of ways, from mitigation of bias and error to cultural sensitivity. The motivation for digital fairness and inclusion stems, in many respects, from a historical record filled with instances of bias and discrimination. Universal design of systems that are broadly accessible eludes the AI industry. As ethicist Thilo Hagendorff (2020: 105) explains, “[A] relatively small group of predominantly white men determines how AI systems are designed, for what purposes they are optimized, what is attempted to realize technically, etc.” An AI development team that lacks diverse voices and experiences may not recognize biases in designs and models and outputs that reinforce stereotypes and perpetuate existing inequalities (Frana, 2021; Leavy, 2018).

**Sustainability and Prosperity**

A somewhat more diffuse but no less noteworthy principle found in AI responsibility declarations can be characterized as sustainability and prosperity. In this context, social, environmental, economic, and cultural values are interwoven. Some of the declarations emphasize the mutual importance of environmental sustainability and economic health for a resilient and responsible AI industry (Han et al., 2022).

**Singapore’s Emerging AI Social Contract**

With the foundational pillars of AI responsibility in hand, it becomes possible to examine how these global standards translate into and compare with practical national policies and agreements in Singapore. Understanding Singapore’s unique approach to artificial intelligence sheds light on how nations might also adapt and innovate within their own frameworks of ethical governance. Singaporeans exhibit a culture of collective respect towards authorities, supervisors, teachers, and their elders. This ethos underpins Singapore’s efforts to establish an AI social contract that favors technological leapfrogging. Singaporeans historically are actively supportive of national goals and known for their professionalism, efficiency, hard work, punctuality, and dedication (Hairon, 2020). The country’s social contract leaves less room for smart technologies that prioritize individual human rights and well-being. Rather, adherence to the rule of law, hierarchy, order, and stability—values that form part of the legacy of the nation’s colonial and post-colonial history—has produced artificial intelligence developments that prioritize social harmony and economic development over all else (Tan, 2023).
All of the key documents undergirding Singapore’s emerging AI social contract originate from the government: the Personal Data Protection Act and its advisory guidelines for government agencies and corporations, the compulsory National Registration Identity Card issued to citizens and permanent residents, the National Digital Identity platform for accessing social and business services, the Model AI Governance Framework on responsible use of artificial intelligence, the strategic Digital Governance Blueprint, and the Trusted Data Sharing Framework for maintaining compliance in responsible information exchanges between data brokers (Everest-Phillips, 2018).

The nation also takes an unusually top-down and protective stance over the collection and use of personal information, which is a hallmark of rights and well-being in AI responsibility guidelines. To cite one example, the Personal Data Protection Commission (PDPC) was created under the Personal Data Protection Act of 2012 (Chik, 2013). But the primary motive of the PDPC is not individual rights to privacy; rather, it is to build confidence and self-restraint in governance structures, with a specific focus on demonstrating competency in international affairs. One of the most important purposes of the law is to “increase consumer trust and strengthen Singapore’s position as a trusted global data hub” (Lanois, 2014).

Smart AI applications have become an indispensable part of Singaporeans’ daily routines. Singpass looms large as a government-issued universal digital identification and password tool that allows users to access over 1,700 government and private sector services online (Bhunia, 2017; Singpass, 2024). The Municipal Services Office launched the OneService smart phone app in 2014. The app was designed to improve the coordination and delivery of municipal services across 11 partner agencies and 16 town councils. Registered users can access the app to report common neighborhood problems. The app can also be used to pay for parking, request medical assistance, or report violations of noise ordinances (Smart Nation Singapore, 2024a). Each complaint includes identification of location and any photos submitted by the person reporting. Citizen reports are then routed to the appropriate municipal agencies. About 90 percent of cases are directed to a specific agency or multiple agencies by an artificial intelligence algorithm. All cases submitted to the app can be accessed on a shared map. The cases are categorized as “Acknowledged,” “Working on It,” and “Closed” within seven days. In 2020, the app added an AI-powered OneService chatbot. In 2023, the Municipal Services Office announced that the app was receiving 1.7 million reports from citizens each year (Ng, 2023).

Singapore’s government takes its commitment to verify the truthfulness of information on social media and other digital platforms seriously. It shoulders almost all responsibility for improving digital literacy among citizens, moderating content, checking facts, combatting misinformation, and countering cybersecurity threats (Soon, 2018). While dialogue about smart technologies is not entirely one-sided, it is important to acknowledge that the messaging is deeply molded by the government. The Smart Nation Singapore initiative has been shaped by parliamentary debates, citizen focus groups, talks by industry representatives, and consultations with experts. The government has launched a program called Smart Nation Ambassadors to promote awareness and adoption of AI technologies among citizens and businesses (Smart Nation Singapore, 2024b). One memorable Smart Nation promotional video follows local TikTok influencer Myra explaining to her grandmother how to access AI-enabled social service apps on her smart phone (Smart Nation Singapore, 2023).

During the darkest days of the COVID-19 pandemic, the OneService app was nicknamed the *pao toh* (tattletale) app. Singaporeans could submit photos of maskless individuals, crowds in parks, and unauthorized gatherings. Singapore’s government officials actively encouraged citizens to report neighbors violating social distancing rules. In the pandemic efforts to design human systems to protect human well-being and protect public safety, people-centered approaches became surrealistically distorted.
The OneService app served a public health purpose, but put individual liberties and privacy in jeopardy (Ng, 2023).

Singapore liberally employs defamation laws against individuals and media outlets online, resulting in a chilling effect on free speech. The country uses internal security laws to detain individuals without trial under certain circumstances, raising concerns about due process (Human Rights Watch, 2018). The Protection from Online Falsehoods and Manipulation (POFMA) Act (“Fake News Act”) has been invoked by Singaporean ministries almost 100 times since 2019. The majority of POFMA notices and letters are directed at individuals or publications that criticize the government or its policies (Awang, 2020; Human Rights Watch, 2021; Siyuan, 2023; Teo, 2021). Critics have voiced concerns about possible abuse of legislation to curtail freedom of speech and expression. Currently, there is no all-encompassing regulatory framework for AI-enabled digital media platforms, though they may be subject to regulation under the Fake News Act. The POFMA Office has repeatedly issued correction notices to social media companies when it becomes aware of users who post misleading statements or falsehoods (Han, 2019).

While it is crucial for any government to play a role in data governance and information integrity through campaigns, regulation, and enforcement mechanisms, when it has near-universal control over information they open themselves up to accusations of censorship and misuse of power through data monopolization. This can lead to a lack of transparency, the stifling of dissent, and/or suppression of individual rights and freedoms. In other words, AI can be applied unilaterally, superficially, or unfairly even within a governance framework.

**Scaling AI for Social Good**

Singapore’s government consolidates its power through data governance initiatives. Authorities collect and manipulate information to clamp down on dissent, erode individual freedoms, and further expand its data surveillance. Despite this overbearing cyber-regulatory landscape, the city-state has pledged to become a leader for “human-centricity” in artificial intelligence. The government defines its Human-Centric AI Programme as an approach that places a high priority on the protection of human beings, including their well-being and safety.

The goal of human-centricity is to improve generative AI’s comprehension of Asian culture and norms while also promoting creative human-machine collaborations. Ideally, human-centric artificial intelligences will learn and develop like humans, understand human needs and norms, and make common sense decisions that are significant and socially relevant (Goode et al., 2023; Singapore Computer Society, 2020). Still, the daunting task of reconciling the government’s grip on data repositories and AI systems with the ideals of human-centricity appears insurmountable. Despite noble intentions, AI systems risk becoming tools of coercion and oppression.

The Singaporean government has been a strong supporter of various large-scale AI for Good initiatives. Because the island nation is resource poor and heavily reliant on essential raw materials, subassemblies, and semi-finished goods imports, the efficient and effective monitoring of resources remains an important job of government. An alphabet soup of government agencies and boards in Singapore oversee a multitude of smart technological initiatives aimed at natural resources, sustainable development, and environmental conservation. The efforts of the various government agencies involved is coordinated under Singapore’s Green Plan (SG Green Plan, 2024).

Singapore is leaning heavily into AI for urban planning and smart utilities to enhance efficiency, sustainability, and quality of life. Singapore’s Smart Nation initiative integrates various artificial intelligence and Internet-of-Things (IoT) technologies to create resilient and human-centric Smart Towns for its citizens (Cavada et al., 2019). Singapore’s first smart district is the Punggol Digital District,
which features a smart transportation network, delivery and cleaning robots, smart buildings, and a smart energy grid. Punggol will be an incubator for new digital computing and cybersecurity industries, while Jurong Innovation District on the other side of the island will become a launchpad for advanced manufacturing and robotics (JTC Corporation, 2022; Smart Nation Singapore, 2020). The government wants its industrial partners working on these projects to develop explainable, transparent, and fair AI systems that “better understand [Asian] culture and social norms” (Government of the Republic of Singapore, 2019: 19).

At an even larger scale, smart public utilities are revolutionizing the way essential services are managed and delivered. The Public Utilities Board (PUB) is the national water agency for Singapore. The mission of PUB is to manage the collection of fresh water in the country’s catchment basins, reservoirs, and canals; treat the water for drinking and other industrial and agricultural purposes; and reclaim used water for new purposes. Singapore has created an elaborate AI-controlled system of seventeen surface rainwater reservoirs and constructed a water reclamation plant and three desalination plants as a path to greater water self-sufficiency (Public Utilities Board, 2019). The PUB roadmap depends on several smart technologies, including the connectivity of sensors and devices provided by the Internet of Things (IoT), autonomous robotic systems, big data analytics, artificial intelligence, and the modeling of process simulations and scenarios using virtual representations (Public Utilities Board, 2020).

The goal of the Energy Market Authority’s (2023) Intelligent Energy System is to smarten the last mile between the nation’s grid and the distribution systems that deliver energy directly to consumers. Managers of the project have invested heavily in research and development and test-bedding of new clean technologies: advanced metering infrastructure and smart meters, zero-carbon or zero-energy houses, smart home energy management systems, optimization strategies for off-peak demand charging of electric vehicles, and co-generation plants combining conventional and alternative energy sources (Chan et al., 2012).

The Deep Tech for Good Initiative supports the use of deep learning and data analytics to protect wildlife and maintain biodiversity—unique challenges in urbanized Singapore (Kelliher, 2022; SGInnovate, 2024). A citizen-science AI project called the Cyber Spotters Program, developed out of a collaboration between AI Singapore and the World Wildlife Fund, assists e-commerce sites in identifying questionable images, online posts, or listings suggestive of illegal wildlife trafficking (World Wide Fund for Nature, 2023). The National Parks Board recently unveiled a new system to detect wildlife crossing roads and provide real-time warning messages to approaching vehicles (Tan, 2019).

**Discussion**

Despite its prowess as a technologically advanced nation, trust in artificial intelligence among Singaporean citizens is tentative and incomplete. It is easy to observe from mainstream media reporting in *Channel NewsAsia, Singapore Today*, and *The Straits Times*, as well as in popular professional periodicals such as *The IT Society* and *The Business Times*, that AI is regarded as both an innovative and disruptive force in Singapore.

Neyazi et al.’s (2023) study of user interactions and perceptions of artificial intelligence risks in Singapore revealed significant worries about data privacy and job security. Participants expressed concerns about how AI algorithms integrated into recommendation systems in smartphone apps are producing problematic and additive behaviors and are also targeting consumers in unwanted ways. The participants also expressed anxieties about the spread of misinformation through social media, corporate eavesdropping on private conversations, and the exploitive use of machine learning techniques for profit. Young people in particular shared observations about how unsophisticated elderly citizens were getting
caught in AI-made “filter bubbles” on social media, falling prey to untruths and deception due to inadequate understanding of AI-managed content recommendation systems. They foresaw job losses, threats to security and privacy, escalating manipulation on social media, and erosion of interpersonal relationships due to artificial intelligence (Ebbeck et al., 2016; Kash, 2024; Microsoft, 2017; Romero, 2024; YiHeng, Laiyi, 2023).

These concerns are already manifesting. One in five workers in Singapore are at risk of losing their current jobs due to adoption of AI technologies (Tan, 2018). The nation evinces a punishing work culture, and citizens are increasingly recognizing how existing and emerging digital technologies are adversely impacting work-life balance, mental health, human relationships, and collective harmony. Among wealthy nations, Singapore has one of the highest rates of income disparity. Social and family expectations and, for students, academic pressures, are high. Suicide and social isolation are significant public health problems in Singapore, and mental health professionals are in very short supply (Cigna, 2020). The constant connectivity enabled by smartphones and digital networks of sensors and IoT devices revolutionizes access to information, entertainment, and social media, but can also contribute to adverse effects: loneliness and unhappiness, unhealthy comparisons with others, online harassment, and bias and discrimination.

The country’s strict laws and regulations, coupled with a demanding culture of work, contribute to high levels of stress, burnout, and dissatisfaction among workers. Singaporeans self-report that they are the unhappiest workforce in the world. Almost half of working Singaporeans say they are unhappy in their job and would not recommend it to a friend (Wong, 2021). The country also boasts the longest working hours in the world: almost 47 hours per week (Leu et al., 2023). Perhaps it is no surprise that Singapore’s employees rank third in the world for pretending to be busy at work—fully one-third of each day (Goh, 2023). There is even a term for the feigning of busyness; Singaporeans call it *wayang-ing*, which is a Malay word for a kind of puppet theatre (Koh, 2023). Singaporeans also complain in self-reports that their quality of life is in decline, and express the highest levels of personal concern for their own mental health (Clifton, 2012; Lau, 2024; Loh, 2023). In Singapore, smart automation and digital governance have freed up labor for activities where empathy and understanding are unique and indispensable, but also threaten to undermine human dignity.

Singapore’s government acknowledges that there is a need to mitigate the destabilizing and disruptive effects of artificial intelligence. It emphasizes that AI is a challenge and an opportunity for its digital-first strategy and its national narrative of a journey from economic and social precarity to smart nation status. Ownership and copyright are threatened by AI technologies capable of uncovering astounding patterns in collections of data, which are in turn used to generate remarkable insights and unleash machine-aided forms of creativity. Increasingly, confidential information on citizens is collected into large datasets and entrusted to civil servants in government (GovTech Singapore, 2024; Poon, 2017). Privacy and confidentiality will continue to be balanced against the need for protection, often facilitated by AI-enabled surveillance technologies.

The government recognizes the need to motivate the application of AI for social good and human-centricity (Wong, 2023). It prioritizes investments in consumer literacy and personalized learning using generative AI, and in training an AI-ready workforce. The government touts and incentivizes the creation of trusted data repositories to ensure the reliability and integrity of data used in generative AI systems. It describes standardized evaluation metrics and tools that are necessary for comparing and assessing the safety, transparency, and performance of AI models (Avadainayagam, Liao, 2020; Maniam, 2020; Singapore Ministry of Communications and Information, Smart Nation Group, 2023). The government is also a decade into its initiative to deploy AI smart sensors and ubiquitous computing in buildings to

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encourage energy efficiency, utilities management, resource conservation, and environmentally sustainable forms of smart living (Yu, 2014).

Civil service officials need to be viewed as being in control in times of innovation and disruption, making them prone to issuing assertive guidance and regulatory directives and micromanaging state projects. Incorporating AI into the managerial state to reduce threats is achieved through predictive analytics, 24/7 automated monitoring and response, and modeling and simulation to make real-time decisions. The Singaporean government speaks of the labor crunch and urgency of investments in education, training, and upskilling to meet the growing demands of the new AI-driven economy (Smart Nation Singapore, 2024c; Tobin, Lacina, 2023). The government employs subtle coercion, overt fear, and tight control of discourse to maintain power and influence (Tham, 2020). It expresses concern, for example, when SkillsFuture uptake and other technology initiatives are lagging, as they are taken as indicative of direct threats to the nation’s human resources development and geopolitical security (Seow, 2024; SkillsFuture, 2023).

The government also argues that vigilance and proactive measures are essential to protecting the population against AI-facilitated cyber-physical attacks, online falsehoods and misinformation, deepfakes and kidnapping scams, data breaches, electronic payment system fraud and money laundering, and other forms of criminal activity. In many cases, the AI technologies that facilitate illicit activities are turned against the criminals as cyberguardians, in a high-stakes electronics arms race for information and communications safety. The government expresses its effectiveness and vigilance against domestic risks and threats by utilizing AI verification and surveillance technologies (IMDA, 2023d). International threats are countered by armed forces that harness artificial intelligence, data analytics, and weapon-to-target matching algorithms to make accurate split-second decisions on the battlefield and in territorial waters (Shah, Ng, 2023; Yong, 2021). Injecting AI into the security state reinforces citizens’ views of effective governance, but also contributes to negative international perceptions.

Despite autocratic moves, the nation can often seem responsible and trustworthy when prioritizing stability, security, and collective well-being. Somewhat counterintuitively, Singapore’s risk-averse characteristics, collectivist social structures, and conservative government contribute to the nation’s outsized reputation in AI responsibility and other measures of success. The Singaporean government expends significant amounts of time and resources on anticipating and preparing for the future economic, social, and environmental challenges of its citizens. Its investments in smart technologies can appear as thoughtful, long-term, and defensive moves to anticipate this imagined future, propel forward momentum, and protect against backsliding. This sort of forward-thinking is integral to their strategies for sustainable development and struggles with social progress. Thus, Singapore can be perceived as the city-state most ready for AI disruption, and it can lead the majority of citizens to believe that AI will enable them to secure a better and more enriching job in the future (Salesforce, 2018).

Of course, careful management and regulation are essential to reducing potential negative impacts of AI technology. Ultimately, Singapore must balance threats to national sovereignty and personal security against its multilateral and business-friendly participation in the global economy. However, the public is increasingly being manipulated by smart nudges into training and re-skilling and a hubristic culture of digital trust. Reviewing the eight pillars of AI responsibility we can now assess how Singapore upholds and violates the pillars of AI responsibility.

**Education and Research**

Education and research are preconditions for success in AI responsibility. Singaporeans are highly educated, trained from an early age for careers in information and communications technologies, including
AI, and given opportunities and credits for re-training and upskilling through schemes such as SkillsFuture and other government career conversion programs (SkillsFuture, 2024b). Research in AI is active and ongoing at the National University of Singapore, Nanyang Technological University, Singapore University of Social Sciences, and in partnerships with AI Singapore and artificial intelligence programs at prestigious international universities (Varakantham et al., 2017; Government of the Republic of Singapore, 2019).

When it comes to tech career training, reskilling, and upskilling, there are several accessibility barriers that individuals may face in Singapore. AI careers may be more difficult to access for Singaporean women in particular (Nur, 2023; Rastogi et al., 2020). With some exceptions, the record is more favorable for the disabled, seniors, and young people with exposure to STEM education and training (Ang, 2022; SG Enable, 2024b; Tan, 2024c). Strikingly, young people are concerned about the future of work in a smart society powered by artificial intelligence. And there is general concern about the impacts of AI on mental health and workplace satisfaction (Neyazi et al., 2023; Microsoft, 2017; Romero, 2024; YiHeng, Laiyi, 2023).

**Collaboration and Public Awareness**

Beyond collaborations facilitated by AI Singapore and between university programs in artificial intelligence, many government agencies and organizations have launched initiatives to cultivate AI ecosystems and responsible use of AI. The Government of Singapore supports collaboration through the Infocomm Media Development Authority, Enterprise Singapore, the Government Technology Agency (GovTech), the Personal Data Protection Commission, and several other public agencies, programs, and utilities. Public-private collaboration is nurtured by the Smart Nation group, SGInnovate, and the Singapore Computer Society (Smart Nation Singapore, 2024c; Thong, 2021). Bottom-up approaches are rare—in part because of the need for costly high-performance hardware and specialized training. Additionally, grassroots participation in AI initiatives remains limited.

The record on public awareness and citizen consultation is mixed. The government has an enviable track record in providing digital social services. It mounts public awareness and consumer literacy campaigns, and hosts educational programs to inform citizens about the potential benefits and risks of AI on society. However, public perceptions about keeping pace with technological change have produced anxiety, if not exhaustion. AI for Everyone caters to a wide range of age groups, but facilitates training that prepares citizens mainly for jobs in industry. Citizens are uneasy about automation and job displacement and invasions of privacy by businesses and government (Carmichael, 2023).

**Adaptive Data Governance and Regulation**

Singapore’s government excels at AI governance through frameworks, regulations, and other protections. The nation’s Model AI Governance Framework provides guidance for ongoing efforts to set standards, manage risks, ensure compliance, and foster AI accountability in businesses and government agencies. The Personal Data Protection Commission and Singapore Digital have promulgated their own accountability-based Trusted Data Sharing Framework. Government codes and compliance monitoring are common. AI Verify helps organizations validate their AI systems against ethical principles (IMDA, 2024b).

Unfortunately, too much responsibility for AI is in the hands of the government. There is considerable ambiguity surrounding guidelines and requirements for data privacy and copyright law concerning generative AI models. Overregulation stifles private initiative and innovation, endangers data
privacy and confidentiality, and in general limits agility and adaptability in choosing future directions in AI development. In Singapore, technocratic governance becomes its own self-perpetuating political agenda. The future must be in the hands of the people if Singapore hopes to adapt to rapid global technological change.

**Information Integrity and Transparency**

The quality, reliability, and consistency of data are critical to the validation and verification of AI systems. But these systems must also be transparent and explainable to ensure ethical decision-making and establish trust with end-users. Privacy breaches, government surveillance, and lapses in transparency and accountability can erode public confidence. Singapore struggles with misinformation, overreaching policies, and government censorship, which hinder the free flow of information and basic freedoms (Jayakumar et al., 2020; Seah, Tham, 2021). Government could improve transparency by developing standardized information disclosure for data collection and usage practices in generative AI models, including model capabilities, limitations, training data, and safeguards. Developing labels or watermarks for AI-generated content—which may be difficult to achieve—could also improve transparency.

**Human Rights and Well-Being**

Singapore's government seldom directly addresses human rights and worker concerns regarding artificial intelligence technologies (Lung, 2024). Instead, it warns of the potential risks of AI, such as cybersecurity threats and the spread of misinformation and disinformation, which could negatively impact human well-being and Asian values. A flourishing AI-enabled society is one that does not infringe on individuals’ privacy, autonomy, or dignity. Striking a balance between public safety and individual rights is crucial. Policymakers need to establish guidelines, laws, and regulations that prevent misuse of AI while safeguarding citizens’ privacy and civil liberties (Singapore Academy of Law, 2020).

Arguably, AI responsibility measures should preserve the dignity of human beings and contribute to the growth, sustainability, and resilience of cultures and societies (Pietropaoli, 2022). Clearly, Singapore’s AI developers, corporate executives, and government regulators must exercise prudence when tuning their ambitions and prioritizing the bottom line. The repercussions may reverberate across society and upend the fine balance struck between the blessings of automation—such as time savings, material abundance, and release from menial labor—and the contentment and sense of purpose that is intrinsic to human fulfillment.

**Ethical Design and Trust**

Relatedly, it is important to build trust in AI by addressing design risks and ensuring safe and responsible use of smart technologies. A shared responsibility framework that clarifies accountability and safety within the development lifecycle of AI products is important to ethical design and trust. The not-for-profit AI Verify Foundation, developed under Singapore’s Infocomm Media Development Authority, aims to create a community that contributes to AI testing frameworks, standards, and best practices (Thong, 2023).

But Singapore’s current approach to public policy—embracing smart technologies or becoming displaced by those who do—is not in alignment with human-centric AI. In fact, building international partnerships and local confidence in emerging smart technologies is overtaking the efforts by prior generations of government workers to create safe, secure, and reliable digital systems for verifying
individuals’ identities and efficiently providing services online (Ganesan et al., 2019; Oxford Insights, 2022; Oxford Insights, 2023). Singapore’s leaders must constantly explain to citizens that the nation cannot become complacent, but continue to manage change in order to effectively compete in the global economy. Instead of solely prioritizing digital identity and authentication, there is now too much emphasis on inspiring public trust in emerging high-tech planning and AI adoption as a whole. Trust in artificial intelligence in Singapore has been shaky (Williams, 2024).

**Fairness and Inclusivity**

Singapore has made some strides in advancing fairness, inclusivity, and non-discrimination using AI. Yet only 28 percent of the AI talent pipeline in the country is currently female (Nair, 2022), and the proportion of woman startup entrepreneurs is only 13 percent (Eliasz et al., 2021). The nation is aware of the gender gap in AI, and is working to address the problem. AI for Everyone is an important program that democratized knowledge about smart technologies and makes it accessible to otherwise underrepresented populations. The Infocomm Media Development Authorities’ ICT Accessibility Centre for citizens with visual and hearing impairments, developmental disabilities, or physical challenges is a noble endeavor that promotes equal access and inclusivity, as is the Smart Nation initiative’s ongoing Silver Infocomm Initiative, promoting digital literacy and inclusion for the elderly (IMDA, 2016; IMDA, 2018; SG Enable, 2024a).

Still, there remains a recognized need to address embedded biases in the computer industry and AI models in Singapore. There is room for more open and fair decision-making and more diversity in stakeholder teams and data sets (Nair, 2022; Yu, 2024). Fairness and inclusivity must include access to all businesses, including small startups and those of medium size that cannot easily compete with multinational corporations. Like all advanced nations investing in AI, Singapore needs to make sure that it is not perpetuating or exacerbating existing inequalities or biases in society (Khoo, Chow, 2022).

**Sustainability and Prosperity**

Finally, Singapore is a pioneer and model of economic resilience and prosperity in an era of climate change. It leads in the global movement toward smarter cities and towns, and the public demonstrates heightened awareness of the intricate interdependencies and contradictions at play between social, environmental, economic, and cultural values. The island-nation’s new multi-agency Green Plan, smart utilities roadmaps, and Deep Tech for Good initiatives are important to the future of Singapore (Chang, 2023; SG Green Plan, 2024; SGInnovate, 2020; SGInnovate, 2024).

It is critical that the people of Singapore continue to carefully monitor the impact of data centers, digital networks, and high-tech trade on Singapore’s natural ecosystems. The nation has yet to reckon with the rapidly increasing energy costs and carbon emissions of generative AI. Responsible governments are placing moratoriums on the construction of data centers due to concerns about the escalating electrical demands of artificial intelligence and its negative impact on sustainable development goals.

**Conclusion**

Singapore has a long history of astonishing leaps, from a colonial trading port to a prosperous industrial powerhouse, digital innovator, and global financial hub. It also has amassed an enviable stockpile of achievements, awards, and partnership success stories. The Singapore government’s support
for economic transformation and some forms of citizen well-being—particularly housing, finances, and social services—have been instrumental to the country’s success in the face of long odds (Woo, 2017a).

Singapore’s Smart Nation and National AI Strategy are often cited as inspirational by authorities in other smart cities. Singapore is praised for its information technology infrastructure, global influence, and business-friendly environment. It is considered an innovation hub with a focus on research, development, and commercialization. The nation is home to several universities with advanced programs in computer science and engineering, and Singapore’s primary and secondary schools are consistently ranked among the best in the world. The nation also tops global rankings of quality of life, is committed to world-class technological innovation, and enjoys strong government support and supplies generous funding to artificial intelligence projects. Singapore has a startup ecosystem and skilled workforce that drives innovations in computing, artificial intelligence, digital communications, and other information technologies (Baharudin, 2021; Chia, 2023; Oxford Insights, 2023; Tortoise, 2023).

But is Singapore a model for AI responsibility? The nation is often cited as an innovator that other democracies with free market economies should copy. Some of the suggested areas for emulation involve public-private cooperative efforts to promote technology adoption, digital government initiatives, technological infrastructure, skill enhancements and AI talent development, entrepreneurial ecosystems, and cybersecurity. Singapore is unequivocally a leader in these areas. But claims of Singapore’s superiority sometimes overlook vast differences in size and complexity, political realities, existing public-private partnership models, cultural and legal differences, and funding and investment strategies. It would for example be impractical to implement Smart Nation initiatives in developing nations with resource constraints, limited funding for infrastructure, a poorly-educated workforce, or significant cultural/regulatory impediments. In Smart Nation Singapore, singularity is not always indicative of superiority (Enriquez, 2024; Goh, 2024; Woo, 2017b).

Parts of Singapore’s tech ecosystem afford valuable insights to other advanced economies wrestling with AI. One of the advantages is public-private collaboration focused on combining resources, expertise, and capabilities to achieve national goals. Singapore’s flexibility and resilience in the face of changing global market realities is another (Hirdaramani, 2024; Smart Nation Singapore, 2022). A final advantage that should motivate the rest of the world is the National University of Singapore’s AI for Social Good laboratory, which has grown alongside Singapore’s commitment to human-centricity in the design of artificial intelligence technologies, urban planning, and social services (AI4SG, 2024).

The Singapore model for responsible AI has disadvantages. One of the greatest disadvantages is that, in Singapore, AI technologies are built to solve problems for government rather than citizens (Guest, 2021). Democracies elsewhere are unlikely to copy its highly-centralized approach to public-private AI ecosystem building, top-down approach to ethics, and paternalistic approach to regulation. The goal of Singapore’s government-led supply push development model, which prioritizes increased production and technological advancements, is to create self-sustaining industries and promote long-term economic growth and job creation. But Singapore’s model also encourages bureaucratic compliance, public monopoly power, regulatory inflexibility, and risk aversion (Chua, 2016).

When assessing Singapore as an international model for AI responsibility, it is important to be critical. Singapore’s approach to computer and AI responsibility is inadequate along several of the dimensions of AI responsibility found in international frameworks. The nation’s propensity for centralized data collection and regulation, and omnipresent surveillance systems for the purposes of public safety, stability, and commerce, too often trespass upon individuals’ and consumers’ rights. Singaporeans are becoming aware that crossing bright white algorithmic lines can be difficult, eroding civil liberties and trust in both government and corporate institutions. Even smart cities initiatives, when combined with inescapable use of artificial intelligence technologies, may lead to increased surveillance, sousveillance
(informing on authorities or other citizens), and loss of autonomy (Halegoua, 2020). Finally, the inability to perform tasks on one’s own can lead to micromanaging, frustration, and a diminished sense of autonomy.

In Singapore, government decision-making and artificial intelligence threaten to take power and control out of ordinary citizens’ hands. Singapore’s leaders are proud of their AI leadership, catalytic role, global linkages, and investment activity. But the government’s strategic AI push also fosters too much dependence on the public sector. The World Bank estimates that while almost 20 percent of Singapore’s AI startups participated in government schemes in 2010, the level of involvement reached nearly 70 percent only seven years later (Eliasz et al., 2021). Singapore has globalized but is micromanaged; it has expanded its commercial connections and influence on a global scale but maintains tight control over the kind of collectively-held, institutionalized, AI-enabled society people should wish to live in (Lee, 2004; Naruse, Gui, 2016).

Rakova et al. (2021: 5) argue that one central insight emerging from developers and policymakers working in the global AI industry is that “all organizations are incomplete and depend on exchanges with other systems.” Where AI responsibility is concerned, the proper metaphor becomes that of an “ecology,” with “shifting coalitions of participants” solving problems using “open systems” and complex “meta-organizational structures.” This is not how Singapore works. In Singapore, the mechanisms for technocratic governance shape structures of knowledge and power to create an entrepreneurial citizenry and smart urban lifestyle. In this system, the intersection of power, politics, and digital innovation culture resembles a dream world of anticipatory governance (Chang, Das, 2020; Ho, 2017; Woo, 2018). Ministers tinker with the machinery of society, fine-tuning its mechanisms of AI responsibility to achieve desired outcomes: efficiency, safety, social harmony, and affluence.

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