Singapore

National AI Strategy

Singapore's national AI strategy[808] is part of its Smart Nation[809] policy and nation-building exercise. Smart Nation agenda aims to digitalize health, transport, urban solutions, finance, and education domains and make use of AI to the maximum. The vision is to make Singapore "global hub for developing, test-bedding, deploying, and scaling AI solutions."[810] Government supports a "dare to try" mind-set, experimentation with new ideas and manageable risks.[811] The strategy also envisions "human-centric approach towards AI governance that builds and sustains public trust."[812]

An industry-led initiative, Advisory Council on the Ethical Use of AI and Data, has been established to assess the ethical and legal use of AI and data as well as recommend policies and governance to encourage industry to develop and adopt AI technologies in an accountable and responsible manner. Advisory Council is also tasked to assist the Government develop voluntary codes of practice to guide corporate decision makers, monitor consumers' acceptance of such data use, and make recommendations on ethical and legal issues that may require policy or regulatory changes.[813] The scope of work addresses all five principles of the G20 AI Principles.

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[808] Singapore, *National Artificial Intelligence Strategy* (2019):
https://www.smartnation.gov.sg/why-Smart-Nation/NationalAIStrategy
[809] Singapore, *Smart Nation: The Way Forward Executive Summary* (2018):
https://www.smartnation.gov.sg/docs/default-source/default-document-library/smart-nation-strategy_nov2018.pdf?sfvrsn=3f5c2af8_2
[810] Singapore, *National Artificial Intelligence Strategy* (2019):
https://www.smartnation.gov.sg/why-Smart-Nation/NationalAIStrategy
[811] Smart Nation: The Way Forward Executive Summary (2018)
[812] Infocomm Media Development Authority (IMDA) and Personal Data Protection Commission (PDPC), *Model AI Governance Framework, 2nd Edition* (2020)
https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf
[813] IMDA, *The full composition of Singapore's Advisory Council on the Ethical Use of AI and Data (Advisory Council) was announced by Minister for Communications and Information Mr S Iswaran at AI Singapore's first year anniversary* (Aug. 30, 2018)
https://www.imda.gov.sg/news-and-events/Media-Room/Media-Releases/2018/composition-of-the-advisory-council-on-the-ethical-use-of-ai-and-data

In 2019, Singapore published Asia's first Model AI Governance Framework[814] (updated in 2020) that provides implementable guidance to private sector to address key ethical and governance issues when deploying AI solutions. Feedback from participation in European Commission's High-Level Expert Group and the OECD Expert Group on AI is reflected in the framework. The framework is accompanied by an Implementation and Self-Assessment Guide for Organizations. The AI Governance Framework is intended to help organizations "demonstrate reasonable efforts to align internal policies, structures and processes with relevant accountability-based practices (e.g., the Personal Data Protection Act 2012 (PDPA) and the OECD Privacy Principles)" and hence build stakeholder confidence in AI. These documents focus on implementation instead of high-level discussions which is reflective of Singapore's mindset of test and deploy.

All of Singapore's strategy and action towards AI is based on voluntary governance, requiring organizations using AI in decision-making ensure that process is explainable, transparent, fair with clear roles and responsibilities. Solutions are also expected to have protection of interest of human beings as primary consideration, including their well-being and safety.

The Centre for AI & Data Governance (CAIDG), funded by government, is established to develop international thought leadership and advance scholarship and discourse in legal, ethical, regulatory and policy issues arising from the use of AI and data and inform implementation of G20 AI Principles.

In October 2020, Singapore Computer Society (SCS), supported by the regulator Infocomm Media Development Authority (IMDA), launched the AI Ethics and Governance Body of Knowledge (BoK). BoK is expected to "guide the development of curricula on AI ethics and governance and form the basis of future training and certification for professionals." The document underlines that "accountability, transparency, explainability, and auditability must become the hallmark of all AI solutions" and that "ethical guidelines should not be an afterthought but integrated as part of standards and expectations from the onset of any AI-related effort."[815]

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[814] IMDA and PDPC, *Model AI Governance Framework, 2nd Edition* (2020)
[815] The Singapore Computer Society, *Artificial Intelligence Ethics & Governance Body of Knowledge* (2020) https://ai-ethics-bok.scs.org.sg/document/15

AI System for Online Surveillance

Maintaining racial and religious harmony has been the Government's stated top priority.[816] Right to privacy is not a right protected by the Singapore constitution.[817] Protection from Online Falsehoods and Manipulation Act 2019[818] was introduced to regulate "fake news" by malicious actors. However, the law does not clearly define what is meant by falsehood and gives power to any government minister to declare that information posted online is "false" and instruct the correction or removal of such content if he/she thinks it is in the public interest to remove.[11] The law applies to digital content that is accessible in Singapore, whether it is an online post, text or chat message by a person or a bot. A person found guilty of the offense can be fined monetarily or be imprisoned.

Public Order Act's definition of assembly and its requirements for permit for such assembly has recently extended to online conferences. This is compounded by the fact that Singapore has not ratified the International Covenant on Civil and Political Rights[819] which protects against arbitrary or unlawful interference with privacy, family, home or correspondence. No court warrant is required to monitor personal phone, messaging or other electronic communication.[820] Government's use of online surveillance tools and power to act without need for legal authorization is concerning on the citizen's ability to exercise their rights of freedom of speech, expression and assembly.

Singapore also utilizes ABBSS (Automated Biometrics & Behavioral Screening Suite) at immigration and border checkpoints. The system is a network of cameras with facial recognition capabilities that can

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[816] UN Human Rights Council, *Universal Periodic Review – Singapore, National Report, Second Cycle* (2015) https://www.ohchr.org/EN/HRBodies/UPR/Pages/SGIndex.aspx

[817] Privacy International, *Universal Periodic Review, Stakeholder Report: 24th Session, Singapore, The Right to Privacy in Singapore (2015)* https://privacyinternational.org/sites/default/files/2017-12/Singapore_UPR_PI_submission_FINAL.pdf

[818] Singapore Statutes Online, *Protection from Online Falsehoods and Manipulation Act 2019* https://sso.agc.gov.sg/Acts-Supp/18-2019/Published/20190625?DocDate=20190625

[819] UN Human Rights Council, *Universal Periodic Review – Singapore, Outcome of the Review, Second Cycle* (2015) https://www.ohchr.org/EN/HRBodies/UPR/Pages/SGIndex.aspx

[820] Privacy International, *Universal Periodic Review, Stakeholder Report: 24th Session, Singapore*

also be deployed as a body-worn-camera for officers. It is used both to build a biometrics database of travelers and detect travelers wanted for various offenses.[821]

Smart Cities

Singapore is leading the efforts to develop an ASEAN Framework on Digital Data Governance to facilitate harmonization of data regulations.[822] It is also one of the 26 within the ASEAN Smart Cities Network (ASCN) named by member states to pilot smart city project.

SingPass Mobile

SingPass Mobile[823] is an application launched by the government where citizens can use to prove their identity or approve transactions with digital signature. It is a move to digitalize all transactions on public and private space and share data. The app does provide the users with option to use a 6-digit passcode if users do not want to utilize biometrics such as fingerprint or face recognition.

Public Participation

A National AI Office is created under the Smart Nation and Digital Government Office. Ministry of Communications and Information provides public consultation access to legislation under its control[824]

OECD/G20 AI Principles

Singapore is not a member of the OECD or the G20. However, the country is well aware of the OECD/G20 AI Principles. The OECD noted several significant examples of positive AI practices in Singapore.[825] There is, for example, the Advisory Council on the Ethical Use of AI and Data, described above. The OECD also notes that the AI Governance Framework

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[821] Wong, K. *Facial recognition, biometrics tech at more checkpoints: ICA*. The Strait Times (Nov. 13, 2018) https://www.straitstimes.com/singapore/facial-recognition-biometrics-tech-at-more-checkpoints-ica
[822] Smart Nation Singapore: *The Way Forward* (June 2, 2020) https://smartnation-strategy.opendoc.sg/08-strengthen-collaboration.html
[823] SingPass Mobile: https://singpassmobile.sg/#authoriseTransaction
[824] Ministry of Communications and Information, P*ublic Consultations* https://www.mci.gov.sg/public-consultations/archived?pagesize=24
[825] OECD G20 Digital Economy Task Force, *Examples of AI National Policies* (2020), https://www.mcit.gov.sa/sites/default/files/examples-of-ai-national-policies.pdf

incorporates all of the OECD AI Principles. Singapore is a founding member of The Global Partnership on AI (GPAI).[826]

Data Protection and Algorithmic Transparency

The Personal Data Protection Act (PDPA) was enacted in 2012. The PDP Commission expects AI systems to be human-centric, and decisions made by or with the assistance of AI to be explainable, transparent and fair.[827] PDPA, however, does not provide protection against police or any public agency use of personal data.

Monetary Authority of Singapore (MAS) and financial industry co-created a set of principles in 2018 to guide the responsible use of AI, focusing on Fairness, Ethics, Accountability and Transparency (FEAT)[828]. The principles have established a standard across the financial sector in Singapore. The regulator is now working to create a standardized modular implementation framework of the FEAT principles, called Veritas which will provide tools for institutions to validate their models against the FEAT principles.

Singapore shares publicly available datasets[829] from 70 public agencies, API library and resources for application developers using these data sets. Public Sector (Governance) Act 2018[830] provides a governance framework for data sharing among government agencies. It is a step in the right direction for data quality and improved services. However, respect for data security and privacy in practice is yet to be proven. On the commercial side, the regulator, IMDA, introduced a "Trusted Data Sharing Framework"

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[826] Government of France, *Launch of the Global Partnership on Artificial Intelligence* (June 17, 2020), https://www.gouvernement.fr/en/launch-of-the-global-partnership-on-artificial-intelligence

[827] PDPC Singapore, *Discussion Paper on Artificial Intelligence (AI) and Personal Data— Fostering Responsible Development and Adoption of AI* (June 5, 2018) https://www.pdpc.gov.sg/-/media/Files/PDPC/PDF-Files/Resource-for-Organisation/AI/Discussion-Paper-on-AI-and-PD---050618.pdf

[828] Monetary Authority of Singapore, *Principles to Promote Fairness, Ethics, Accountability and Transparency (FEAT) in the Use of Artificial Intelligence and Data Analytics in Singapore's Financial Sector* (2018) https://www.mas.gov.sg/~/media/MAS/News%20and%20Publications/Monographs%20and%20Information%20Papers/FEAT%20Principles%20Final.pdf

[829] Smart Nation Singapore: *Open Data Resources* https://www.smartnation.gov.sg/resources/open-data-resources

[830] Public Sector (Governance) Act 2018: https://sso.agc.gov.sg/Act/PSGA2018

[831] as a guide to establish safeguards and baseline "common data sharing language" and systematic approach to understanding the broad considerations for establishing trusted data sharing partnerships. A Data Regulatory Sandbox[832] is also offered to businesses to pilot innovative use of data in a safe "environment", in consultation with IMDA and PDPC. The regulator also provides a Data Protection Trustmark (DPTM), a voluntary enterprise-wide certification for organizations to demonstrate accountable data protection practices.[833]

Singapore has not openly stated its position on a ban of fully autonomous weapons yet.[834] However, Road Traffic (Autonomous Motor Vehicles) Rules 2017 regulates liability trials and use of autonomous motor vehicles[835] Singapore has not endorsed Social Contract for AI [836] Universal Guidelines for AI,[837] or GPA Resolution on AI Accountability.[838] However, Singapore's second edition Model AI Governance Framework provides clear practical guidance that essentially aligns with the GPA Resolution on AI Accountability.[839]

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[831] IMDA and PDPC, *Trusted Data Sharing Framework* (2019) https://www.imda.gov.sg/-/media/Imda/Files/Programme/AI-Data-Innovation/Trusted-Data-Sharing-Framework.pdf
[832] IMDA, *Data Collaboratives Programme (DCP),* https://www.imda.gov.sg/programme-listing/data-collaborative-programme
[833] IMDA, *Data Protection Trustmark Certification,* https://www.imda.gov.sg/programme-listing/data-protection-trustmark-certification
[834] https://www.stopkillerrobots.org/wp-content/uploads/2020/03/KRC_CountryViews_11Mar2020.pdf
[835] Campaign to Stop Killer Robots, *Country Views on Killer Robots* (March 11, 2020) https://sso.agc.gov.sg/Act/RTA1961
[836] AIWS.Net, *Social Contract for the AI Age*, https://aiws.net/practicing-principles/aiws-social-contract-2020-and-united-nations-2045/social-contract-for-the-ai-age/
[837] The Public Voice, *Universal Guidelines for AI Endorsement,* https://thepublicvoice.org/AI-universal-guidelines/endorsement/
[838] Global Privacy Assembly, *Adopted Resolution on Accountability in the Development and Use of Artificial Intelligence* (October 2020) https://globalprivacyassembly.org/wp-content/uploads/2020/10/FINAL-GPA-Resolution-on-Accountability-in-the-Development-and-Use-of-AI-EN-1.pdf
[839] IMDA, PDPC, *Model: Artificial Intelligence Governance Framework, Second Edition,* https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf