

Enabling an Efficient Regulatory Environment for AI

JUNE 2021

Appendix 1

Appendix 1 - Regulatory Matrix

Part 1 – APAC jurisdiction review

This Part 1 provides an overall assessment of the coverage of the Core Principles (“At a glance” section) in a sample set of APAC jurisdictions. It then summarises in Section A thematic guidance on specific applications of AI in financial services and in Section B other key requirements that are directly relevant to AI development. We then provide an

overview of key standards and guidelines specifically relating to AI issued by financial regulators (Section C) and privacy regulators and ministries/government (Section D), which have general application to the finance industry, in those jurisdictions.

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
At a glance – coverage of Core Principles								
Key								
✗ Not covered explicitly	□ Mentioned, without detail	▣ Covered, with some detail	■ Covered in depth					
Fairness	■ (Banking regulator and privacy regulator)	■ (Financial regulator and privacy regulator)	□ (General AI principles)	▣ (Privacy Regulator & Banking Regulator)	□ (Privacy and financial regulators) ▣ (Securities regulator, re algorithmic trading)	■ (The Integrated Innovation Strategy Promotion Council ¹ ["IISPC"] and the Ministry of Internal Affairs and Communications ["MIC"], both on cross-industry basis, not financial services focused)	▣ (Financial regulator only, privacy regulation to come into effect in 2022 – PDPA)	▣ (Privacy regulator, also covered in the Department of Industry, Science, Energy and Resources' voluntary AI Ethics Principles ("Department of Industry")).
Governance and Accountability	▣ (Banking regulator, also mentioned by privacy regulator)	■ (Financial regulator and privacy regulator)	□ (Financial regulator and general AI principles)	▣ (Privacy Regulator & Banking Regulator)	□ (Privacy and financial regulators) ▣ (Securities regulator, re algorithmic trading)	■ (IISPC and MIC, both on cross-industry basis, not financial services focused)	▣ (Financial regulator only, privacy regulation to come into effect in 2022 – PDPA)	▣ (Privacy regulator, also covered by the Department of Industry.)
Transparency	■ (Banking regulator and privacy regulator, mentioned by securities regulator but only in robo-advice context)	■ (Financial regulator and privacy regulator)	□ (General AI principles)	▣ (Privacy Regulator & Banking Regulator)	□ (Privacy and financial regulators) ▣ (Securities regulator, re algorithmic trading)	■ (IISPC and MIC, both on cross-industry basis, not financial services focused)	▣ (Financial regulator only, privacy regulation to come into effect in 2022 – PDPA)	■ (Privacy regulator, also covered by the Department of Industry.)
Data quality	■ (Banking regulator, covered by securities regulator but only in robo-advice context)	■ (Privacy regulator only)	□ (Financial regulator and general AI principles)	▣ (Privacy Regulator)	□ (Privacy and financial regulators)	■ (IISPC and MIC, both on cross-industry basis, not financial services focused)	▣ (Financial regulator only, privacy regulation to come into effect in 2022 – PDPA)	■ (Privacy regulator, also mentioned by the securities regulator but only in the context of digital advice)

¹ Chaired by the Chief Cabinet Secretary, deputy-chaired by the Minister of State for Science and Technology Policy, vice-chaired by the Minister in charge of Information Technology Policy and other four Ministers of State, and joined by the other Ministers as members.

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Data protection	■ (Banking regulator and privacy regulator)	■ (Privacy regulator)	□ (Financial regulator, privacy regulator and general AI principles)	☒ (Privacy Regulator & Banking Regulator)	■ (Privacy and financial regulators)	■ (IISPC and MIC, both on cross-industry basis, not financial services focused; Personal Information Protection Commission (PPC) also on cross-industry basis; FSA as a unified financial service regulator)	☒ (Financial regulator only, privacy regulation to come into effect in 2022 – PDPA)	■ (Privacy regulator, also covered by the Department of Industry and mentioned by the securities regulator but only in the context of digital advice).
Model	■ (Banking regulator, also securities regulator but only in robo-advice context)	■ (Financial regulator, also securities regulator but only in robo-advice context)	□ (Financial regulator and general AI principles)	☒ (Privacy Regulator & Banking Regulator)	□ (Privacy regulators) ☒ (Financial regulators, re “transformative” (innovative, ground-breaking) financial services and algorithmic trading)	■ (MIC, on cross-industry basis, not financial services focused)	×	□ (Securities regulator but only in the context of digital advice) ■ Privacy regulator
Resilience	☒ (Covered by the banking regulator but only in terms of risk mitigation and contingency planning)	□ (Financial regulator but only in robo-advice context)	×	×	□ (Privacy, financial regulators (including securities regulator))	×	☒ (Financial regulator only, privacy regulation to come into effect in 2022 – PDPA)	(Department of Industry only.)
Cybersecurity	☒ (Banking regulator, also securities regulator but only in robo-advice context)	■ (Privacy regulator, also financial regulator but only in robo-advice context)	□ (Financial regulator, CAC and general AI principles)	☒ (MEITY & Banking Regulator)	■ (Privacy and financial regulators)	■ (IISPC and MIC, both on cross-industry basis, not financial services focused; PPC also on cross-industry basis; FSA as a unified financial service regulator)	☒ (Financial regulator only, privacy regulation to come into effect in 2022 – PDPA)	■ (Privacy regulator, also covered by the Department of Industry and mentioned by the securities regulator but only in the context of digital advice.)
Expertise	☒ (Banking regulator)	■ (Privacy regulator, also financial regulator but only in robo-advice context)	□ (Financial regulator and general AI principles)	×	■ (Financial regulators, re transformative financial services and algorithmic trading)	×	×	■ (Securities regulator but only in the context of digital advice.)

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
TPRM	<input checked="" type="checkbox"/> (Banking regulator, also mentioned by securities regulator but only in robo-advice context)	<input type="checkbox"/> (Financial regulator but only in robo-advice context)	<input type="checkbox"/> (Financial regulator)	×	<input checked="" type="checkbox"/> (Financial regulators, re transformative financial services and algorithmic trading)	<input checked="" type="checkbox"/> (IISPC and MIC, both on cross-industry basis, not financial services focused; PPC also on cross-industry basis; FSA as a unified financial service regulator)	×	<input checked="" type="checkbox"/> (Privacy regulator only)
Other principles	×	Human-centric design (Privacy regulator)	×	×	×	"Human-Centric"	×	Human, social and environmental wellbeing <input checked="" type="checkbox"/> (Department of Industry only.) Contestability <input checked="" type="checkbox"/> (Department of Industry only.)

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Further detail								
Section A – Thematic guidance on specific applications of AI in financial services								
Samples of requirements applicable to specific AI applications	Robo-advisory SFC <ul style="list-style-type: none"> Initiative: “Guidelines on Online Distribution and Advisory Platforms.”² Scope: Principles and requirements applicable to the provision of financial advice in an online environment using algorithms and other technology tools (“robo-advice”). Application: All licensed or registered persons as defined under the SFO. 	Robo-advisory MAS <ul style="list-style-type: none"> Initiative: “Guidelines on Provision of Digital Advisory Services.”⁶ Scope: Principles and guidance applicable to offering of digital advisory services (“robo-advice”). Application: All financial institutions offering or seeking to offer digital advisory services in Singapore. 	Robo-advisory PBOC, CBIRC, CSRC, SAFE <ul style="list-style-type: none"> Initiative: “Guiding Opinions on Regulating the Asset Management Business of Financial Institutions.”¹⁰ Scope: Consolidated regulations of the asset management industry. Application: All financial institutions regulated under PBOC, CBIRC, CSRC and/or SAFE in mainland China Status: Effective on 27 April 2018. 	Regulatory Sandbox RBI <ul style="list-style-type: none"> Initiative: Guiding Principles: Enabling Framework for Regulatory Sandbox.¹³ Scope: The objective of the Regulatory Sandbox (RS) is to foster responsible innovation in financial services, promote efficiency and bring benefit to consumers 	Algorithmic trading¹⁴ Trading system must be validated, tested and approved in writing prior to launch and for ongoing oversight. Immediate measures must be taken when trading goes beyond established parameters. Front-end processor must be managed directly. Robo-advisory Professional advisor requirement is exempted when using robo-advisory to manage collective investment scheme, engaging in investment advisory business, and discretionary investment business. ¹⁵	Robo-advisory FSA Enforcement Action In December 2019 FSA issued a business suspension/ improvement order against a registered Investment Advisory Firm for the reason that the Firm lent its name to 7 non-registered firms, which developed IT programs for investment advisory and provided them to investors for their use.	There is no specific requirement with respect to AI in financial services	Digital advice ASIC <ul style="list-style-type: none"> Initiative: ASIC Regulatory Guide 255 (RG 255) provides “guidance that aims to assist industry to understand ASIC’s approach to regulating digital advice”.²⁰ Scope: Guidance applicable to offering “digital advice” which is the provision of automated financial product advice using algorithms and technology and without the direct involvement of a human adviser.

² Available at <https://www.sfc.hk/web/EN/assets/components/codes/files-current/web/guidelines/guidelines-on-online-distribution-and-advisory-platforms/guidelines-on-online-distribution-and-advisory-platforms.pdf>

⁶ Available at <https://www.mas.gov.sg/-/media/MAS/Regulations-and-Financial-Stability/Regulations-Guidance-and-Licensing/Securities-Futures-and-Fund-Management/Guidelines-on-Provision-of-Digital-Advisory-Services--CMGG02.pdf>

¹⁰ Available at <http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/3529600/index.html>

¹³ Available at <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=938>

¹⁴ Available at http://www.smallake.kr/wp-content/uploads/2016/01/20160124_111425.pdf (in Korean)

¹⁵ Available at http://elaw.klri.re.kr/kor_service/lawView.do?hseq=48033&lang=ENG

²⁰ Available at <https://asic.gov.au/regulatory-resources/find-a-document/regulatory-guides/rg-255-providing-digital-financial-product-advice-to-retail-clients/>

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Samples of requirements applicable to specific AI applications	<ul style="list-style-type: none"> - Status: Not legally binding, but the guidelines are admissible in evidence and may cause SFC to consider whether failure to follow the guidelines adversely reflects on the person's fitness and properness. - Transparency and disclosure Provide sufficient and clear information regarding robo-advice algorithms, including limitations and risks - Client profiling Profiling tools and risk-scoring questionnaires should be designed to obtain sufficient and consistent information to provide robo-advice based on clients' personal circumstances 	<ul style="list-style-type: none"> - Status: Not legally binding, but MAS expects financial institutions to observe these Guidelines as they will be taken into account in MAS' risk assessment of the financial institutions. - Governance and supervision of algorithms Board and Senior management must maintain effective oversight and governance of robo- advisors - Appropriately qualified staff need to be retained, and training provided to relevant staff - Particular attention needs to be given to how the robo-advisor is developed, and how it is monitored and tested 	<ul style="list-style-type: none"> - Authorization Artificial intelligence technology applied by financial institutions required to be approved by the regulatory authorities. - Technology risk management Setup of risk management on the use of robo-advisors is necessary. - Advertisements and marketing Financial institutions are prohibited from extensively publicizing the use of robo-advisors. <p>Algorithmic trading CSRC</p> <ul style="list-style-type: none"> - Initiative: Consultation on the Administration of Securities Brokers' Electronic Connections with Clients' External Trading Systems¹¹ in 2019. 	<ul style="list-style-type: none"> - Application: applicable to FinTech companies including start-ups, banks, financial institutions and any other company partnering with or providing support to financial services businesses - Status: Effective on 13 August 2019. - Testing: live testing of new products or services in a controlled/ test regulatory environment. An indicative list of innovative products/services/ technology which could be considered for testing include Artificial Intelligence and Machine Learning applications. 	<p>Automated decisions based on individual credit data¹⁶ Give individuals the right to demand explanation of automated decision-making (including results, criteria and bases).</p> <p>Give individuals the right to provide supplementary information, or demand deletion or amendment of underlying data, or revision/correction of automated decision (effective from August 2020).</p> <p>Duty to Explain when Telemarketing Products¹⁷ Seller may not fulfil duty of explanation by using chatbots, when telemarketing investment and insurance products, unless exempted per sandbox approval.</p>	<p>Algorithmic trading The revised Financial Instruments and Exchange Act came into effect in April 2018 to introduce the registration requirement and other regulatory framework over persons engaging in High Speed Trading with some extra-territorial effect.¹⁸</p> <p>Automated decisions based on individual credit data Tokyo Metropolitan Government (TMG)</p> <ul style="list-style-type: none"> - Enforcement Action: In January 2020 TMG issued a business improvement order against LINE Credit Co., Ltd., which was a Money Lending Business Firm adopting a scoring methodology based on SNS activities on LINE talking application, 		<ul style="list-style-type: none"> - Application: Persons providing digital advice to retail clients in Australia. - Status: Not legally binding. RG 255 gives guidance to regulated entities by: <ul style="list-style-type: none"> - explaining when and how ASIC will exercise specific powers under legislation; - explaining how ASIC interprets the law; - describing the principles underlying ASIC's approach; and - giving practical guidance

¹¹ Available in http://www.csrc.gov.cn/pub/zjhpublish/zjh/201902/t20190201_350657.htm

¹⁶ Available at <http://www.law.go.kr/lsSc.do?tabMenuId=tab18§ion=&eventGubun=060101&query=%EC%8B%A0%EC%9A%A9%EC%A0%95%EB%B3%B4%EB%B2%95#undefined> (in Korean)

¹⁷ Available at http://elaw.klri.re.kr/kor_service/lawView.do?hseq=48033&lang=ENG (in Korean).

¹⁸ Available at <https://www.fsa.go.jp/en/regulated/hst/index.html>

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Samples of requirements applicable to specific AI applications	<ul style="list-style-type: none"> - System design and development - Effectively document, manage and adequately supervise the design, development, deployment and operations of algorithms used - Comply with requirements of paragraph 18 of the Guidelines (which relate to electronic trading) of and Schedule 7 to the SFC Code of Conduct - Take into account all information obtained through the know-your-client process, and operate in an unbiased manner - Supervision and testing of algorithms - Implement security to prevent and detect unauthorised access to the algorithms 	<ul style="list-style-type: none"> - Technology risk management - Existing technology risk management obligations are heightened with respect to robo-advisors, given cyber vulnerabilities - Money-laundering / terrorist financing - Money laundering and terrorism financing controls will need to be strictly enforced - Relevant information - Written disclosures required to at least address assumptions, limitations, risks, controls and adjustments with respect to algorithms 	<ul style="list-style-type: none"> - Scope: Regulation on securities brokers to offer connection with external trading system - Application: Securities Brokers' Electronic Connections with Clients' External Trading Systems. - Status: Proposed new draft rules - Rules and Regulation - Securities brokers seeking to offer Direct Market Access (DMA) must have an A-class rating or higher for at least two years within the past three years 	<ul style="list-style-type: none"> - Transparency: Ensuring transparency and outreach with stakeholders by notifying test customers of potential risks and the available compensation and obtaining their explicit consent in this regard. There is also an appropriate arrangement for customers to withdraw from the test. - Consumer Protection: The entities will ensure to take liability/ indemnity of an adequate amount and period to safeguard the interest of the customers. 		<p>for the reason that it violated the prohibition of over-lending, though the reason was presumably a traditional IT system failure, not any problem in the scoring methodology.</p> <p>AI models in the area of Anti-Money Laundering and Countering Financing of Terrorism</p> <p>After one-month public consultation from December 11, 2020 to January 22, 2021, FSA finalized the revision of its AML/CFT Guidelines on February 19, 2021 with immediate effect. In its response to a public comment around transparency and accountability over outputs of AI models used in AML/CFT¹⁹, FSA provided its supervisory considerations:</p>		<ul style="list-style-type: none"> - Organisational competence - At least one responsible manager who meets the training and competence standards for financial advisers. - At least one person with a general understanding of the technology and algorithms used to provide the digital advice. - Adequate resources - There must be people within the business who have an understanding of the technology and algorithms; and are able to review the digital advice generated. - There must be sufficient technological resources to: maintain client records and data integrity; protect confidential information; meet operational needs; and comply with all requirements

¹⁹ Available at https://www.fsa.go.jp/news/r2/202102_amlcft/01.pdf (in Japanese)

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Samples of requirements applicable to specific AI applications	<ul style="list-style-type: none"> - Implement procedures to test the reasonableness of the advice provided - Exercise due skill, care and diligence when selecting and monitoring any outsourced service provider - Have controls in place to rectify errors when detected and to suspend provision of advice - Adequate resources - Adequate and trained staff with sufficient experience and understanding of technology and algorithms - Sufficient technology resources and up-to-date infrastructure 	<ul style="list-style-type: none"> - Conflicts of interest need to continue to be disclosed, and relevant risk warning statement must be included - Suitability of advice - Suitability requirements⁷ continue to apply subject to certain exemptions available due to the relatively low risk of undue influence / active solicitation - Balanced scorecard framework - If the robo-advisor provides recommendations or advice directly to customers, the balanced scorecard framework applies⁸ 	<ul style="list-style-type: none"> - Risk management system and information system should be developed for real-time monitoring of trading behaviour and risk events - Companies should not provide any services for illegal access to transaction information systems - Securities brokers must conduct extensive due diligence on investors in accordance with "Know Your Clients" principles - Securities brokers must conduct at least one on-site client visit every 6 months and that the records of such on-site visits must be reported in a written form 			<ul style="list-style-type: none"> - financial institutions should have capability to obtain in reasonable timeframe information around to what extent and how the adopted parameters would have contributed to the outputs respectively; and 		<ul style="list-style-type: none"> - Monitoring and testing algorithms. - Appropriate system design documentation describing algorithms - A documented test strategy, change management processes, security, and control over algorithm changes - The ability to suspend advice if an error is identified - Adequate human and technical resources to monitor and supervise algorithms through an adequate and timely review of the advice provided.

⁷ Section 27 of the Financial Advisers Act (Cap. 110) ("FAA"), and Paragraph 11 of the FAA Notice on Recommendations on Investment Products

⁸ Available at <https://www.mas.gov.sg/regulation/guidelines/guidelines-on-the-remuneration-framework-for-representatives-and-supervisors-balanced-scorecard-framework-reference-checks-and-pretransaction-checks-faag14>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Samples of requirements applicable to specific AI applications	<ul style="list-style-type: none"> - Rebalancing - Ensure effective practices for automatic rebalancing, including adequate disclosure to clients of procedures - Inform clients and ensure their acknowledgement of the risks and consequences regarding automatic rebalancing - Establish policies and procedures for handling a major market event <p>Algorithmic trading SFC</p> <ul style="list-style-type: none"> - Initiative: “Circular to all Licensed Corporations on Algorithmic Trading”³ 	<ul style="list-style-type: none"> - Advertisements and marketing - Existing advertisement requirements continue to apply⁹ - Given the suitability requirements, robo-advisors need to be careful when advertising specific models or algorithms that they may implement 	<ul style="list-style-type: none"> - Securities brokers must take necessary measures to understand the key elements of trading to assess the impact to the security market and information system security - Securities brokers must provide sign agreements with investors, and clarify the rights, obligations and responsibilities of both parties - Internal review with audit report must be conducted prior providing connection services - Simulation testing environment, consistent as production environment must be established to ensure the stability of investor's trading system 			<ul style="list-style-type: none"> - such specific contribution of each parameter should be “interpretable” in the context of applicable cases of detection of financial crime and suspicious transactions. 		

³ Available at <https://www.sfc.hk/edistributionWeb/gateway/EN/circular/intermediaries/supervision/doc?refNo=16EC67>

⁹ Regulations 46 to 46AD of the Securities and Futures (Licensing and Conduct of Business) Regulations, and regulations 22 to 22D of the Financial Advisers Regulations

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Samples of requirements applicable to specific AI applications	<ul style="list-style-type: none"> - Scope: Identifies key areas for improvement based on a thematic review of selected licensed corporations to ensure that their algorithmic trading activities will not pose undue risks to the market. - Application: SFC-licensed corporations who use algorithmic trading. - Status: Not legally binding. SFC provides further guidance in the form of FAQs to elaborate on the relevant requirements of the SFC Code of Conduct and to share effective controls adopted by some licensed corporations.⁴ 		<ul style="list-style-type: none"> - Company must set up a transaction monitoring system and set up real-time monitoring indicators and reasonable thresholds - Abnormal transaction handler system must be established - Information related to access activities of the transaction system should be properly stored and a log retention mechanism for process management should be established to support compliance inspection and auditing - Contingency handling mechanism and conduct regular drill 					

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Samples of requirements applicable to specific AI applications	<p>Identified areas for improvement</p> <ul style="list-style-type: none"> - Insufficient input from management with respect to algorithmic governance - Insufficient pre-trade controls to prevent adversely affecting market integrity - Inadequate due diligence on algorithmic trading systems provided by third party service providers - Lack of written contingency plans to cope with potential emergencies specific to algorithmic trading systems - Absence of policies and procedures concerning testing requirements for algorithmic trading systems 		<ul style="list-style-type: none"> - Investors violating laws and regulations or no longer meet connection conditions must be reported to CSRC and terminate its access to transaction information system - Initiative: Consultation paper on the Administrative Measures for Program Trading in the Securities And Futures Market¹² in 2015. - Scope: Regulation on program traders to stabilize the equity market. - Application: Program Trading in China. - Status: Proposed new draft rules. 					

¹² Available at <http://www.csrc.gov.cn/pub/zjhpublish/G00306201/201510/P020151009682799847022.pdf>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Samples of requirements applicable to specific AI applications	<p>HKMA</p> <ul style="list-style-type: none"> - Initiative: “Sound risk management practices for algorithmic trading”⁵ - Scope: Identifies key areas for improvement based on a thematic review of selected banks to ensure that their “algo-trading” activities do not pose undue market risk. - Application: Authorised institutions who use algorithmic trading for making investment decisions. - Status: Authorised institutions engaged in algo-trading activities are expected to give due consideration to the HKMA’s supervisory expectations and identified sound practices when developing their risk management framework. 		<ul style="list-style-type: none"> - Rules and Regulation - Traders have to provide information related to identity, program and strategy for review before execution - Securities and futures companies should assess the information provided by traders and ensure trading services are not provided to the third party - System for program trading should have risk control functions - Risk assessment and controls on program trading system before accessing information system of securities and futures companies 					

⁵ Available at <https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2020/20200306e1.pdf>

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Samples of requirements applicable to specific AI applications	<ul style="list-style-type: none"> - Selected identified sound practices - Properly documented and regularly reviewed governance and risk management frameworks for algo-trading development, testing, approval and risk management, including an independent control function - Comprehensive and prudent pre-trade controls, including risk limits - Real-time monitoring of algo-trading activities, including post-trade controls - Kill functionality to suspend trading and effective business continuity arrangements - Stringent access rights controls and robust incident-handling policy and procedures - Complete and up-to-date inventory of all implemented algorithms 		<ul style="list-style-type: none"> - Risk controls and re-assessment on the changes of program trading system connected to information system of securities and futures companies.e.g. upgrade of system - Separate the offering channels and flow controls of program trading from other trading - Auditing system should be established for program trading instruction to prevent abnormal order - Internal controls on purchase amount should be implemented and reported to the stock exchange - Transaction data and customer data should be retained not less than 20 years - Provide trading services in accordance with the principle of fairness 					

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Samples of requirements applicable to specific AI applications			<ul style="list-style-type: none"> - Order should not originate from offshore computers or domestic systems that are remotely controlled from overseas - Strengthen the real-time monitoring on trading 					

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Section B – Other key requirements directly relevant to AI								
Samples of key laws and other requirements	<p>Anti-discrimination The Hong Kong Bill of Rights Ordinance (Cap. 383 of the Laws of Hong Kong)²¹ prohibits discrimination in Hong Kong. This is reinforced by the following legislation:</p> <ul style="list-style-type: none"> – Sex Discrimination Ordinance (Cap. 480 of the Laws of Hong Kong)²² – Disability Discrimination Ordinance (Cap. 487 of the Laws of Hong Kong)²³ – Family Status Discrimination Ordinance (Cap. 527 of the Laws of Hong Kong)²⁴ – Race Discrimination Ordinance (Cap. 602 of the Laws of Hong Kong)²⁵ 	No other key requirements identified.	<p>Anti-discrimination The Antidiscrimination Law and Workplace discrimination Law prohibits the discrimination of the following:</p> <ul style="list-style-type: none"> – Racial discrimination – Sexism – Disability discrimination <p>China Cyber Security Law The PRC Cybersecurity Law (CSL), which lays down the respective rights and obligations of the PRC government and the vast base of network operators and users.</p>	<p>Report of the Working Group on Fintech and Digital Banking²⁶ This report of RBI was released in February 2018 and it aims at understanding the important innovation in fintech industry and how the various actors in the financial sectors are using new methods, products and technologies. It further categorizes the use of AI and Robotics in data analytics and risk management. It further mentions that digital transformation of the Banking and Financial sector will ride on the following three pillars: blockchain, AI and IOT.</p>	<p>Anti-discrimination Employers may not discriminate (absent just cause) based on gender, marital status, familial status, pregnancy/ childbirth,²⁸ age,²⁹ fixed-term employee status,³⁰ or “dispatched worker” (similar to outsourced) status.³¹</p> <p>Appraisers of individual credit may not discriminate (absent just cause) based on gender, origin or nationality (effective from August 2020)³²</p>		<p>Anti-discrimination According to AI Ethics Guidelines, design and development of AI should take into account diversity and avoid monopolies in order to benefit as many people as possible</p> <p>Personal Data Protection³³ Ensure personal data usage has legal grounds, and establish Personal Data Protection Committee to executive criminal penalties</p>	<p>Anti-discrimination Australia has a number of anti-discrimination laws at both state and federal levels. Federal laws include the Age Discrimination Act 2004, the Disability Discrimination Act 1992, the Racial Discrimination Act 1975 and the Sex Discrimination Act 1984.</p> <p>In ensuring that AI systems and programs are created in accordance with existing anti-discrimination laws, designers will need to consider the likely outcomes caused by their algorithms during the design phase.</p>

²¹ Available at <https://www.hkllii.org/eng/hk/legis/ord/383/>

²² Available at <https://www.hkllii.org/eng/hk/legis/ord/480/>

²³ Available at <https://www.hkllii.org/eng/hk/legis/ord/487/>

²⁴ Available at <https://www.hkllii.org/eng/hk/legis/ord/527/>

²⁵ Available at <https://www.hkllii.org/eng/hk/legis/ord/602/>

²⁶ Available at <https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/WGFR68AA1890D7334D8F8F72CC2399A27F4A.PDF>

²⁸ Available at http://elaw.klri.re.kr/kor_service/lawView.do?hseq=51205&lang=ENG

²⁹ Available at http://elaw.klri.re.kr/kor_service/lawView.do?hseq=37583&lang=ENG

³⁰ Available at http://elaw.klri.re.kr/kor_service/lawView.do?hseq=49084&lang=ENG

³¹ Available at http://elaw.klri.re.kr/kor_service/lawView.do?hseq=43291&lang=ENG

³² Available at <http://www.law.go.kr/lsSc.do?tabMenuId=tab18§ion=&eventGubun=060101&query=%EC%8B%A0%EC%9A%A9%EC%A0%95%EB%B3%B4%EB%B2%95#undefined> (in Korean)

³³ Available at https://www.eta.or.th/app/webroot/content_files/13/files/The%20Personal%20Data%20Protection%20Act.pdf

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Samples of key laws and other requirements	<p>Even if it is an AI program that discriminates, the person applying or operating that AI is engaged in a discriminatory practice and could be in contravention of the anti-discrimination laws, for example, section 42 of the Sex Discrimination Ordinance</p> <p>Data Protection Principles The reliance on data in AI, and the need for large datasets, gives rise to obligations under the PDPO, including in respect of the 6 data protection principles:</p> <ul style="list-style-type: none"> - Collection purpose and means - Accuracy and retention - Use - Security - Openness - Data access and correction 		<p>The law puts emphasis on personal information security, cybercrime, network product, service security, obligations of network operators and sovereignty rights in the cyberspace.</p>	<p>SEBI Consultation Paper on Robo-advisors and SEBI (Investment Advisors) Regulation 2013²⁷ Robo advisors are financial advisors or wealth management companies which officer automated investment advice based on pre-set algorithms. The algorithm takes inputs in the form of answers to pre-set questions from the investor and offers a recommended portfolio for the user of the service. There is minimal or no human intervention. SEBI has developed guidelines financial advisory services devoid of human intervention. In the consultation paper, the robo advisors have been regarded as 'tools'.</p>				<p>Data-sharing In response to the Productivity Commission's inquiry into 'Data Availability and Use',³⁴ the Australian Government:</p> <ul style="list-style-type: none"> - passed the Treasury Laws Amendment (Consumer Data Right) Act 2019 to give citizens greater transparency and control over their data; - established a National Data Commission to implement and oversee a simpler, more efficient data sharing and release framework; and - are planning to introduce a new 'Data Sharing and Release Act' to remove the roadblocks to the sharing of public data sets, whilst ensuring data is appropriately protected.

²⁷ Available at https://www.sebi.gov.in/sebi_data/attachdocs/1475839876350.pdf

³⁴ Available at <https://www.pc.gov.au/inquiries/completed/data-access#report>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Samples of key laws and other requirements								<p>Legislation that guides data-sharing affects the development of AI and is relevant to the data privacy of all Australians.</p> <p>Human Rights Australia is a signatory to seven core international human rights agreements.</p> <p>Under Australia's Human Rights (Parliamentary Scrutiny) Act 2011, new bills must be accompanied by a statement of compatibility that demonstrates how they align with the aforementioned human rights agreements.</p>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Samples of key laws and other requirements								<p>Misleading and Deceptive Conduct Under Australia's Competition and Consumer Act 2010 (Cth), Australian businesses are prohibited from engaging in misleading and deceptive conduct.</p> <p>There is jurisprudence that the incorrect use of AI algorithms can cause or contribute to such prohibited conduct: Australian Competition and Consumer Commission v Trivago N.V. [2020] FCA 16. Businesses will therefore need to ensure they are not in contravention of competition and consumer legislation.</p>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Section C – Key standards specifically relating to AI issued by financial regulators								
Key details of the initiative	<p>HKMA Guiding principles</p> <ul style="list-style-type: none"> - Initiative: Guiding Principles: “Consumer Protection in respect of Use of Big Data Analytics and Artificial Intelligence (“BDAI”) by Authorized Institutions”.³⁵ - Scope: Banking services adopting BDAI. - Application: All banks and other “authorized institutions” licensed by the HKMA. - Status: Not legally binding, but would be taken into account as part of ongoing licensing and prudential conduct standards. 	<p>MAS “FEAT” principles</p> <ul style="list-style-type: none"> - Initiative: “Principles to Promote Fairness, Ethics, Accountability and Transparency (“FEAT”) in the Use of Artificial Intelligence and Data Analytics in Singapore’s Financial Sector”.³⁷ - Scope: Financial services using artificial intelligence and data analytics (“AIDA”). - Application: All firms using AIDA to provide financial products and services in Singapore. 	No AI-specific standards	<p>SEBI SEBI Circular No: SEBI/HO/MRD/DOP1/CIR/P/2019/24</p> <ul style="list-style-type: none"> - Initiative: This circular requires the reporting of AI and ML applications/ systems to SEBI on a quarterly basis using the reporting Form specified in Annexure B, stating the following details: (i) the SEBI registration details of the company along with its name and PAN number; (ii) details of the application/ system including its name, date from which it is being used, area in which it is being used, how AI/ ML is being used <p>SEBI/HO/IMD/DFS/CIR/P/2019/63.</p>	<p>Financial Services Commission (FSC)³⁸</p> <ul style="list-style-type: none"> - Initiative: Sandboxes for transformative financial services. - Scope: Approved transformative financial services (including those involving AI). - Application: FIs - Status: Legally binding framework, but individual transformative financial services are subject to approval. 	<p>FSA (Financial Services Agency of Japan)</p> <ul style="list-style-type: none"> - Initiative: In “For Providing Better Financial Services in the Era of Transition Financial Services Policy: Assessments and Strategic Priorities 2018”³⁹, FSA adopted its “Finance Digitalization Strategy” which is composed of 11 elements, including “2. Customer protection in terms of privacy and anonymity, credibility of customer data, and others”, “9. Promotion of blockchain, AI, and big data technologies that serve as the infrastructure for digitalization” and “10. Response to the issues concerning cyber security and other challenges in the financial system” among others. 	No AI-specific standards	No AI-specific standards

³⁵ Available at <https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2019/20191105e1.pdf>

³⁷ Available at <https://www.mas.gov.sg/-/media/MAS/News-and-Publications/Monographs-and-Information-Papers/FEAT-Principles-Updated-7-Feb-19.pdf>

³⁸ Available at <http://www.law.go.kr/lsSc.do?tabMenuId=tab18§ion=&eventGubun=060101&query=%EA%B8%88%EC%9C%B5%ED%98%81%EC%8B%A0#undefined> (in Korean)

³⁹ Available at <https://www.fsa.go.jp/en/news/2018/20180926.html>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative	<p>High-level principles on artificial intelligence</p> <ul style="list-style-type: none"> - Initiative: High level principles providing guidance to the banking industry on the use of AI applications.³⁶ - Scope: Banks designing and adopting BDAI applications. - Application: All banks. - Status: Not legally binding, to be applied in a proportionate manner that reflects the nature of the BDAI applications and the levels of risks involved. 	<ul style="list-style-type: none"> - Status: Not legally binding, but MAS expects financial institutions to observe the FEAT Principles as they will be taken into account in MAS' risk assessment of the financial institutions. 		<p>by the system/ application; (iii) details of the controls, safeguards and audit requirements in place for the AI/ML system/ application.</p> <ul style="list-style-type: none"> - Scope: Market Infrastructure Institutions (MIIS) adopting reporting standards. - Application: MIIS, Stock Exchanges, Clearing Corporation and Depositories - Status: Legally binding <p>SEBI Circular No: SEBI/HO/IMD/DF5/CIR/P/2019/63.</p> <ul style="list-style-type: none"> - Initiative: This circular requires the reporting of AI and ML applications/ systems to SEBI on a quarterly basis using the reporting Form specified in Annexure A, stating the following details: 		<ul style="list-style-type: none"> - Scope: As FSA is a unified financial services regulator across BCM, Ins., AM, payment, FinTech, etc., all the financial service providers. - Application: As the Scope above. - Status: Just strategic direction or promotive measures, not regulating/ supervisory actions 		

³⁶ Available at <https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2019/20191101e1.pdf>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative				<ul style="list-style-type: none"> - (i) The SEBI registration details of the company along with its name and PAN number - (ii) details of the application/ system including its name, date from which it is being used, area in which it is being used, how AI/ ML is being used by the system/ application - (iii) details if the systems is involved in any form of routing, execution, order initiation, dissemination of investment or trading advice, discretionary investment or portfolio management - (iv) details of the controls, safeguards and audit requirements in place for the AI/MK system/ application. - (v) details of any adverse comments in the systems audit reporting regarding the AI/ ML system. 		<p>SESC (Securities and Exchange Surveillance Commission)</p> <ul style="list-style-type: none"> - Initiative: In “Strategy & Policy of the SESC 2020-2022”⁴⁰, SESC mentions “Response to Digitalization and Strategic HR Development” as a Mid-term Policy Priorities. Also, in “Monitoring Priorities for Securities Businesses (July 2019–June 2020)”⁴¹, SESC. does mention AI in the paragraph for current environment but does not explicitly adopt any supervisory measures. - Scope: Market (market intermediaries and sometimes investors). Securities inspection and other monitoring is conducted on registered Financial Instruments Firms. 		

⁴⁰ Available at https://www.fsa.go.jp/sesc/news/c_2020/2020/20200124-1/02_english.pdf [summary slides]

⁴¹ Available at https://www.fsa.go.jp/sesc/news/c_2019/2019/20190906-2/01-en.pdf

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative				<ul style="list-style-type: none"> - Scope: Mutual Funds adopting reporting standards - Application: Mutual Funds, Asset Management companies, Association of Mutual Funds in India, Trustee Companies/Board of Trustees of Mutual Funds. - Status: Legally binding. <p>SEBI Circular No: SEBI/HO/MIRSD/DOS2/CIR/P/2019/10.</p> <ul style="list-style-type: none"> - Initiative: This circular requires the reporting of AI and ML applications/ systems to the Stock Exchange/ Depositories on a quarterly basis using the reporting Form specified in Annexure A, stating the following details: (i) the SEBI registration details of the company along with its name and PAN number 		<ul style="list-style-type: none"> - Application: NA - Status: NA 		

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative				<p>(ii) details of the application/ system including its name, date from which it is being used, area in which it is being used, how AI/ ML is being used by the system/ application</p> <p>(iii) details if the systems is involved in any form of routing, execution, order initiation, dissemination of investment or trading advice, discretionary investment or portfolio management</p> <p>(iv) details of the controls, safeguards and audit requirements in place for the AI/MK system/ application.</p>				

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative				<p>The circular also requires Stock Exchanges and Depositories to make a consolidated reporting using a form in mentioned Annexure C to SEBI on the Ai/ ML systems and applications reported by registered intermediaries, Stock Brokers/ Depository Participants (mentioned above) on a quarterly basis.</p> <ul style="list-style-type: none"> - Scope: Market intermediaries adopting reporting standards. - Application: Market intermediaries, stock brokers, depository participants, recognised stock exchanges and depositories. - Status: Legally binding. 				

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative				<p>RBI RBI's Master Direction Know Your Customer (KYC) Direction, 2016 (RBI/DBR/2015-16/18) - Enabling e-KYC process through video/photo based Customer Identification Process (V-CIP)</p> <ul style="list-style-type: none"> - Initiative: Enabling of KYC and adherence to security measures - Scope: Know your customer (KYC) requirements - Application: Every entity regulated by RBI - Status: Legally binding. 				

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative				<p>Amendment to the Master Direction on KYC (RBI/2019-20/138)</p> <ul style="list-style-type: none"> - Initiative: Use of e-KYC for identity verification, geo-tagging and the use of AI and face matching techniques for the purpose of KYC. - Scope: Know your customer (KYC) requirements. - Application: Every entity regulated by RBI. - Status: Legally binding 				

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements	<p>HKMA</p> <ul style="list-style-type: none"> - Governance and accountability - Documented governance, oversight and accountability framework - Consumer protection principles - Accountability for all AI-driven decisions <p>- Fairness</p> <p>Compliance with laws including regarding anti-discrimination</p> <ul style="list-style-type: none"> - Financial inclusion; no unjustifiable denial of basic banking services - Needs and circumstances taken into account - Robust models for BDAI-driven decisions - Possibility of manual intervention where necessary 	<p>MAS</p> <ul style="list-style-type: none"> - Fairness Justifiability - No systemic disadvantage to any person from AIDA-driven decisions unless justified - Personal attributes can be used as inputs in AIDA-driven decisions <p>- Accuracy and bias</p> <ul style="list-style-type: none"> - Regular review and validation of underlying data / models and AIDA-driven decisions to minimise bias and ensure proper operation <p>- Ethics</p> <ul style="list-style-type: none"> - Use of AIDA must align with firm's ethical standards, values, codes of conduct - AIDA-driven decisions to be held to at least same standards as human decisions 			<p>FSC</p> <ul style="list-style-type: none"> - Regulatory Sandbox - Exempt approved "transformative" (innovative, groundbreaking) financial services (including those involving AI) from current regulations. <p>- TRPM of Core FI Functions</p> <ul style="list-style-type: none"> - Permit approved third parties to provide FI core functions, to enable the sandbox-approved transformative financial services. 	<p>FSA</p> <ul style="list-style-type: none"> - Customer protection in terms of privacy and anonymity, credibility of customer data, and others - Besides promoting digitalization in terms of customer identification, (1) ensure anonymity of customers in the use and application of their information; - (2) protect personal data including ensuring the credibility of customer data; and - (3) promote initiatives toward customer protection with new technologies such as blockchain technology.⁴³ 		

⁴³ Available at: https://www.fsa.go.jp/en/news/2018/20180926/Financial_Services_Policy2018.pdf

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements	<ul style="list-style-type: none"> - Transparency and disclosure - Increase consumer confidence by making clear when a service is powered by AI technology and the risks involved - Provide accessible and fair complaint handling and redress mechanisms for BDAI-based products and services Consumer education and data use disclosures - Ethics - Use of AI applications should comply with corporate values and ethical standards 	<ul style="list-style-type: none"> - Accountability Internal accountability - Appropriate internal authority must approve use of AIDA - Firms responsible for internally and externally-sourced AIDA models - Management and Board to be aware of AIDA use - External accountability - Data subjects to be provided with channels to enquire about, submit appeals for and request reviews of AIDA-driven decisions that affect them. - Verified and relevant supplementary data provided by data subject to be taken in account when reviewing AIDA-driven decisions 						

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements	<ul style="list-style-type: none"> - Data privacy and protection - Implement effective data protection measures - Comply with the Personal Data (Privacy) Ordinance (Cap. 486 of the Laws of Hong Kong) ("PDPO")⁴² - Pay regard to relevant good practices issued by the Privacy Commissioner for Personal Data - Privacy by design - Data minimisation - Ensuring informed consent - - Expertise - Developers to have requisite competence and experience - Supervision of developers - Recruit, train and retain suitable skill sets - - Explainability - No black-box excuses – decisions made by AI programs must be explainable by the person deploying them 	<ul style="list-style-type: none"> - Transparency - Proactive disclosure of AIDA use to data subjects as part of general communications so as to increase public confidence - Upon request, data subjects to be provided with clear explanations of what and how data was used as part of an AIDA-driven decision about the data subject - Upon request, data subjects to be provided with clear explanation of consequence that AIDA-driven processes may have on them 						

⁴² Available at <https://www.elegislation.gov.hk/hk/cap486/en-zh-Hant-HK.pdf?FROMCAPINDEX=Y>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements	<ul style="list-style-type: none"> - Data quality - Use data governance framework to ensure good quality data and relevance - Assessment of accuracy, completeness, timeliness and consistency of data - Rigorous validation and testing to confirm accuracy before system deployment - Auditability - Track outcome of AI applications on a continuous basis - Record evidence to support investigations into unfavourable outcomes - TPRM - Perform proper due diligence on third-party vendors - Periodic reviews of services provided 							

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements <ul style="list-style-type: none"> - Monitoring - Conduct periodic reviews and on-going monitoring to ensure AI applications perform as intended - Security - Ensure security controls can effectively deal with data poisoning and attacks - Remain vigilant to emerging security threats - Risk mitigation and contingency - Implement contingency measures that can suspend AI application and trigger fall back procedures <p>A risk-based approach should be adopted when applying these principles.</p>								

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Section D – Key standards specifically relating to AI issued by privacy regulators and Ministries/government								
Key details of the initiative	<p>PCPD Ethical accountability framework</p> <ul style="list-style-type: none"> - Initiative: A consultancy study and framework prepared by the Information Accountability Foundation on commission from the PCPD, to identify core values to guide advanced data processing activities that are ethical and fair to all stakeholders.⁴⁴ - Scope: Data stewardship values (respectful, beneficial, fair), enhanced data-stewardship accountability elements, model ethical data impact assessment ("EDIA") and a process oversight model⁴⁵ 	<p>PDPC Model governance framework</p> <ul style="list-style-type: none"> - Initiative: "Model Artificial Intelligence Governance Framework".⁴⁷ - Scope: Four key areas - Internal governance structures and measures; human involvement in AI-augmented decision-making; operations management; stakeholder communication and interaction. 	<p>China's Ministry of Science and Technology Governance Principles</p> <ul style="list-style-type: none"> - Initiative: Governance Principles for a new generation of Artificial Intelligence⁴⁸ - Scope: All stakeholders concerned with AI development. - Application: All AI development. - Status: Not legally binding, but would be taken into account as part of ongoing. 	<p>Niti Aayog National Strategy for Artificial Intelligence #AIFORALL⁵⁰</p> <p>The strategy focuses on Banking and Financial sector as one of the leading sectors for AI adoption. Potential use of AI in the financial sector include improved customer interaction through personalised engagement, virtual customer assistance, and chatbots; improved processes through deployment of intelligent automation in rule based back-office operations; development of credit scores through analysis of bank history or social media data; and fraud analytics for proactive monitoring and prevention of various instances of fraud, money laundering, etc.</p>	<p>Korea Communications Commission (KCC) Guiding Principles</p> <ul style="list-style-type: none"> - Initiative: Ethical development and use of AI.⁵² (Further aspects noted at "Principles / requirements" below.) - Scope: Provision of services using AI. - Application: All AI providers. - Status: Not legally binding. 	<p>Personal Information Protection Commission (PPC)</p> <ul style="list-style-type: none"> - Initiative: Revised Act on the Protection of Personal Information⁵⁴ was fully put into effect on May 30, 2017 and under the Act, PPC adopted its "Guidelines on the Act on the Protection of Personal Information (for Anonymously Processed Information)"⁵⁵, in view of increased value recognition of big data (background was explained in a PPC Secretariat's report "Towards Balanced Promotion of Personal Data Utilization and Consumer Trust"⁵⁶. 	<p>Ministry of Digital Economy and Society (MDES) Ethics Guideline</p> <ul style="list-style-type: none"> - Initiative: Raise Thailand's competitiveness and sustainable development by the application of AI under the 20-year national strategy plan.⁶⁴ - Scope: Diversified industries including financial services. - Application: Researchers, developers and service providers engaging in tech development. 	<p>OAIC Guide to data analytics and privacy</p> <ul style="list-style-type: none"> - Initiative: "Guide to data analytics and the Australian Privacy Principles".⁶⁵ - Scope: Part One provides an introduction to the relevant key concepts when considering data analytics and privacy. Part Two outlines how the Australian Privacy Principles apply to data analytics.

⁴⁴ Available at https://www.pcpd.org.hk/misc/files/Ethical_Accountability_Framework.pdf

⁴⁵ Available at https://www.pcpd.org.hk/misc/files/Ethical_Accountability_Framework_Detailed_Support.pdf

⁴⁷ Available at <https://www.pdpc.gov.sg/-/media/Files/PDPC/PDF-Files/Resource-for-Organisation/AI/SGModelAIGovFramework2.pdf>

⁴⁸ Available at http://www.most.gov.cn/kjbgz/201906/t20190617_147107.htm , <http://www.chinadaily.com.cn/a/201906/17/WS5d07486ba3103dbf14328ab7.html>

⁵⁰ Available at https://niti.gov.in/writereaddata/files/document_publication/NationalStrategy-for-AI-Discussion-Paper.pdf

⁵² Available at <https://kcc.go.kr/user.do?boardId=1113&page=A05030000&dc=K00000200&boardSeq=47874&mode=view> (in Korean)

⁵⁴ Available at https://www.ppc.go.jp/files/pdf/Act_on_the_Protection_of_Personal_Information.pdf

⁵⁵ Available at <https://www.ppc.go.jp/files/pdf/guidelines04.pdf> (in Japanese)

⁵⁶ Available at https://www.ppc.go.jp/files/pdf/The_PPC_Secretariat_Report_on_Anonymously_Processed_Information.pdf

⁶⁴ Available at <https://drive.google.com/file/d/1TDVLxNcmTcWw-qTiEDTw4cIr-Uw1f-qg/view>

⁶⁵ Available at <https://www.oaic.gov.au/privacy/guidance-and-advice/guide-to-data-analytics-and-the-australian-privacy-principles/>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative	<ul style="list-style-type: none"> - Application: All organisations in Hong Kong, with specific application to authorised institutions by means of HKMA endorsement.⁴⁶ - Status: Not legally binding, a tool to assist organisations implement data ethics in their daily operations. 	<ul style="list-style-type: none"> - Application: All organisations in Singapore. - Status: Not legally binding, a tool to assist organisations to implement governance frameworks for AI. 	<p>BAAI Beijing AI Principles</p> <ul style="list-style-type: none"> - Initiative: Guiding Principles for research, development, use, governance and long-term planning of AI.⁴⁹ - Scope: Research & Development, Use and governance of AI. - Application: All AI application developments. - Status: Not legally binding but would be taken into account as part of ongoing. 	<p>Ministry of Commerce and Industry AI Task Force Report⁵¹</p> <p>The report identifies ten key domains where AI could be an enabler for furthering India's development. The Fintech industry has been recognised as one of such industry. The Report states that the use of AI in Fintech will help and expand the existing efforts of India Stack, an enabler of digital payments and paperless transactions. The Report also found that leveraging AI in the banking and finance sector will help in providing assistance to small and medium enterprises as well as help in risk assessment. It will also pave a way for presence-less, paperless, cashless and consent-based financial transactions.</p>	<p>Korea State Council⁵³ High-Level Principles on AI (Further aspects noted at "Principles / requirements" below.)</p> <ul style="list-style-type: none"> - Initiative: National AI Strategy. - Scope: Diverse industries including financial services. - Application: Researchers, developers and service providers engaging in AI development. - Status: Not legally binding. 	<ul style="list-style-type: none"> - In March 2020 PPC submitted a Bill to Amend the Act on the Protection of Personal Information, etc. to the Diet, for 1) enhanced rights of data subjects, 2) enhanced obligations of business operators, 3) introducing new, data innovation-friendly concept of "Pseudonymously Processed Information", 4) severer criminal penalties and 5) enhanced requirements to transfer personal data to a third party in a foreign country, and the Diet passed the Bill in June 2020. 	<ul style="list-style-type: none"> - Status: Not legally binding, and this draft is not a final version 	<ul style="list-style-type: none"> - Application: Organisations required to comply with the Privacy Act 1988 and Australian Privacy Principles. - Status: Not legally binding. However, the OAIC will refer to the guide when undertakings its functions under the Privacy Act 1988. <p>AI Ethics Principles DOI</p> <p>The AI Ethics Principles were produced by the Australian Government Department of Industry, Science, Energy and Resources.⁶⁶</p> <p>The principles are voluntary. They are aspirational and intended to complement (not substitute) existing AI related regulations.</p>

⁴⁶ Available at <https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2019/20190503e1.pdf>

⁴⁹ Available at <https://www.baai.ac.cn/blog/beijing-ai-principles>

⁵¹ Available at https://dipp.gov.in/sites/default/files/Report_of_Task_Force_on_ArtificialIntelligence_20March2018_2.pdf

⁵³ Available at <http://www.korea.kr/news/pressReleaseView.do?newsId=156366736> (in Korean)

⁶⁶ Available at <https://www.industry.gov.au/data-and-publications/building-australias-artificial-intelligence-capability/ai-ethics-framework/ai-ethics-principles>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative				<p>Government of India Digital India, Make in India, Skill India Initiatives These initiatives have given a major boost to the use of AI and IoT in the banking and financial sector especially with the push towards digital payment. India has taken a huge step towards the adoption and development of Industry 4.0 which aims to completely digitise various sectors including banking with the use of IoT, AI and Big Data analytics.</p>		<p>The Act to Amend the Act on the Protection of Personal Information, etc. was promulgated on June 12, 2020⁵⁷ and will be effective by June 2022. (As a latest update, public consultation of draft Implementing Order and Regulations was closed on Jan. 25, 2021.)</p> <ul style="list-style-type: none"> - Scope: All the Personal Information Handling Business Operators, i.e. not limited to financial service providers - Application: Personal Information Handling Business Operators upon handling of Anonymously Processed Information - Status: Considered as closely linked with the Act and so, may practically be considered as enforceable 		<p>The principles are voluntary. They are aspirational and intended to complement (not substitute) existing AI related regulations.</p>

⁵⁷ Available at <https://www.ppc.go.jp/en/news/archives/2020/20200618/>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative						<p>METI, New Energy and Industrial Technology Development Organization (NEDO) and FSA</p> <p>NEDO, established by and under METI, publicly invited applicant vendors to conduct PoC around possible use of AI in AML/CFT practices. NEDO is proceeding the project with selected vendors and in coordination with FSA. The scope of the project includes pilot development of "mini" system for test purpose and related studies regarding:</p> <ol style="list-style-type: none"> 1) transaction filtering; 2) transaction monitoring; 3) industry-wide shared DB of transactions; and 4) audit applications to review functioning of 1)-3) above 		

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative						<p>The Integrated Innovation Strategy Promotion Council (“IISPC”)</p> <ul style="list-style-type: none"> - On the 29th March 2019, IISPC adopted “Social Principles of Human-Centric AI”⁵⁸, which includes e.g. the following principles: - Basic Philosophy: Dignity; Diversity & Inclusion; and Sustainability - Social Principles: (1) Human-Centric, (2) Education/ Literacy, (3) Privacy Protection, (4) Ensuring Security, (5) Fair Competition, (6) Fairness, Accountability & Transparency, (7) Innovation 		

⁵⁸ Available at <https://www.cas.go.jp/jp/seisaku/jinkouchinou/pdf/humancentricai.pdf>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative						<p>Ministry of Internal Affairs and Communications (MIC)</p> <ul style="list-style-type: none"> - In July 2017, the Conference toward AI Network Society, set up by the Ministry, adopted "Draft AI R&D GUIDELINES for International Discussions"⁵⁹ which contains nine "AI R&D Principles". - In July 2018, the Conference toward AI Network Society adopted "Draft AI Utilization Principles"⁶⁰ which contains ten "AI Utilization Principles". - Two of these MIC sets of principles were presented to OECD and contributed to OECD, Recommendation of the Council on Artificial Intelligence, OECD/LEGAL/0449, adopted on 22/05/2019.⁶¹ 		

⁵⁹ Available at https://www.soumu.go.jp/main_content/000507517.pdf

⁶⁰ Available at https://www.soumu.go.jp/main_content/000581310.pdf

⁶¹ Available at https://www.soumu.go.jp/main_content/000642218.pdf

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative						<ul style="list-style-type: none"> - Further to that, in August 2019, the Conference toward AI Network Society adopted “AI Utilization Principles” which contains ten principles.⁶² These 10 principles are: <ol style="list-style-type: none"> 1) Principle of proper utilization 2) Principle of data quality 3) Principle of collaboration 4) Principle of safety 5) Principle of security 6) Principle of privacy 7) Principle of human dignity and individual autonomy 8) Principle of fairness 9) Principle of transparency 10) Principle of accountability 		

⁶² Available at https://www.soumu.go.jp/main_content/000658284.pdf

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Key details of the initiative						<p>Ministry of Economy, Trade and Industry (METI)</p> <p>Following formal adoption of, and in order to implement, the aforementioned "Social Principles of Human-Centric AI" in March 2019, METI on January 15, 2021 put together an interim report, titled "AI Governance in Japan Ver. 1.0 (interim report)"⁶³, which scanned recent overseas and domestic movements around AI governance and discussed the to-be state of AI governance in Japan. The interim report was put under public consultation with the comment period from January 15 to February 13, 2021.</p>		

⁶³ Available at <https://www.meti.go.jp/press/2020/01/20210115003/20210115003-3.pdf>

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements	<ul style="list-style-type: none"> - Ethics - Implement data-stewardship values into organisational policies and processes for ethical data processing - Use an 'ethics by design' process in data-use design processes - Data-processing activities should be consistent with the ethical values of the organization - Governance and accountability - Internal review whether EDIAs are conducted with integrity and competency - Design individual accountability systems that provide opportunities for feedback and appeal options for impacted individuals - Stand ready to demonstrate the soundness of internal processes - Risks of data processing activities to be identified and mitigated 	<ul style="list-style-type: none"> - Two guiding principles - An AI-driven decision-making process should be explainable, transparent and fair - AI-solutions should be human-centric in their design, development and deployment - Internal governance - Clear roles and responsibilities for ethical AI deployment - Adopt risk management and internal control measures 	<p>China's Ministry of Science and Technology</p> <ul style="list-style-type: none"> - Governance and accountability - Conform to human values and ethical principles, promote human-machine harmony, and serve the progress of human civilization. - Meet the requirements of environmental friendliness and resource conservation. - Formation of an international AI governance framework, cross-disciplinary and cross-boundary exchanges and cooperation should be encouraged. - Establish and maintain AI accountability mechanisms, high sense of social responsibility and self-discipline, and should strictly abide by laws, regulations, ethical principles, technical standards and social norms. 		<p>KCC (non-binding ethical principles for AI development and services)</p> <ul style="list-style-type: none"> - General principles - Align AI to safeguard users' freedoms and rights - Strive to avoid aggravating socio-economic disparities - Transparency, disclosure - Explain to users the AI-enabled service's operation system and potential adverse-impacting factors used in AI enabled decisions - Accountability - Legal compliance in providing AI enabled service - Data privacy - Protect personal data and privacy in the course of providing AI-enabled service. 	<p>PPC's "Guidelines on the Act on the Protection of Personal Information (for Anonymously Processed Information)"</p> <ul style="list-style-type: none"> - Compliance with appropriate anonymously processing - Certain public disclosure on handling of Anonymously Processed Information - Certain security control measures - Prohibition of trying to identify individual data subjects 	<p>MDES</p> <ul style="list-style-type: none"> - Competitiveness and Sustainability - Bring sustainable benefits - Increase prosperity - Promote innovation - Laws ethics and international standards - Comply with laws, norms, ethics and international standards - Consider human principles - Not be used to determine human destiny - Transparency and Accountability - Explainability - Predictability - Traceability - Accountability rests with the designers 	<p>OAIC</p> <ul style="list-style-type: none"> - Use de-identified data where possible. - Successfully de-identified data is not personal information, meaning the Privacy Act 1988 will not apply. - Embed good privacy governance into your organisation by taking a privacy-by-design approach. - Conduct Privacy Impact Assessments for your data analytics projects. - Be open and transparent about your privacy practices. - Know what you're collecting. - Limit the collection of personal information where appropriate.

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements	<ul style="list-style-type: none"> - Transparency - Communicate the data stewardship values that govern the AI-driven data processing activities - Document and address all concerns as part of the EDIA process - Decisions made about an individual and the decision making process should be explainable and reasonable - Fairness - All parties that have interests in the data should be taken into consideration - Expectations of individuals to whom the data relates should be considered when conducting data processing activities - Individuals should be provided with appropriate control over data processing activities that impact them 	<ul style="list-style-type: none"> - Human involvement - Determine appropriate degree of human involvement in the decision-making process(human-in-the-loop, human-on-the-loop, or human-out-of-the-loop) by reference to risk assessments and harm minimisation principles - Operations management - Minimise bias across AI datasets / models - Risk-based approach to implementing explainability, repeatability, robustness / resilience, regular tuning, reproducibility, traceability and auditability measures in AI-systems 	<ul style="list-style-type: none"> - High vigilance should be maintained in order to detect and resolve possible problems. - Continuous research and foresight for the potential risks of higher level of AI in the future are required. - Fairness - Coordinated development by promoting the transformation and upgrading of all industries, and by narrowing regional disparities. - Inclusive development by strengthening the education and training of AI. - Shared development by encouraging open and orderly competition and avoiding monopolies for data and platform. 		<p>Korea State Council (non-binding principles)</p> <ul style="list-style-type: none"> - Ethics - Advance cybersecurity response measures using AI from 2020. - Establish inter-ministry cooperation system to respond to new types of adverse effects (e.g., deepfake) by 2020. - Resilience and Security - Create quality control standards to vet AI reliability and stability from 2020. - Regulation Reform - Establish foundational law applicable to AI to set principles, avoid reverse-discrimination by 2020. - Set forth roadmap for AI regulation by 2020. 		<ul style="list-style-type: none"> - Security and Privacy - AI should be used for the betterment of society. Should not be used to deceive or threaten humans - System should be able to detect and respond to threats - Human in the loop principle needs to be applied - Cooperate with the international community to ensure AI does not go rogue - Fairness - Consider diversity - Reduce discrimination and bias - Should be able to prove fairness - Reliability - Should be reliable for public use - Accuracy and reproducibility - Conduct quality control and data integrity check - Build a feedback mechanism to address concerns from users 	<ul style="list-style-type: none"> - Be careful with sensitive information. - Be aware that data analytics may lead to the creation of and, consequently, the collection of, additional personal information. - Make your notices as clear and effective as possible - Establish grounds for new uses of information - Organisations should carefully consider whether uses and disclosures of personal information are compatible with the original purpose of collection.

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements	<ul style="list-style-type: none"> - Individuals should always have the ability to make inquiries, to obtain relevant explanations and appeal decisions - Must avoid actions that seem inappropriate or might be considered offensive, causing distress or humiliation, or generating unequal treatment of illegal discrimination - Algorithms and models should be evaluated for inappropriate bias and illegal discrimination - Monitoring - Accuracy and relevancy of algorithms and models used in decision making should be regularly reviewed to reduce errors and uncertainty 	<ul style="list-style-type: none"> - Stakeholder interaction / engagement - Provide general disclosure on AI use and develop AI policies - Create feedback channels and decision review channels - Ensure that all communications are readily comprehensible 	<ul style="list-style-type: none"> - Transparency and disclosure - The transparency, interpretability, reliability, and controllability of AI systems should be improved continuously. - Robustness and security - AI robustness, anti-interference performance, AI safety assessment and control capacities should be improved. - Data Privacy - Full protection of individuals' right to be informed and choose with perfecting the revocation mechanism. - Setting up rules for the collection, storage, process and usage of individual's information. 		<ul style="list-style-type: none"> - AI Education - Propagate AI literacy population-wide by 2022. - Strategic Investment - Invest in development of processing-in-memory by 2029. 			<ul style="list-style-type: none"> - Provide options - Organisations should consider how they might allow individuals to choose which uses and disclosures they agree to and which they do not. - Ensure your marketing activities comply with Australian Privacy Principle 7 - Ensure your organisation provides clear 'opt-outs' when engaging in direct marketing. - Ensure the accuracy of information - In some circumstances, your organisation should take more rigorous steps to maintain the quality of information used for data analytics.

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements			<p>State Administration for Market Regulation & Standardization Administration</p> <ul style="list-style-type: none"> - Data privacy and protection - Classified information into various sensitivity level - Access should be controlled in network, web application and client application - Implement effective data protection measures - Data minimisation <p>- Security</p> <ul style="list-style-type: none"> - Ensure security controls can effectively deal with data poisoning and attacks - Remain vigilant to emerging security threats <p>BAAI</p> <ul style="list-style-type: none"> - Governance and accountability - Active cooperation to establish an interdisciplinary, cross-domain, cross-sectoral, cross-organizational, cross-regional, global and comprehensive AI governance ecosystem 					<ul style="list-style-type: none"> - Protect information in line with your risk assessments - Take reasonable steps to monitor and protect against the security risk posed by data analytics activities. <p>DOI The eight principles are:</p> <ul style="list-style-type: none"> - Human, social and environmental wellbeing; - Human-centred values; - Fairness; - Privacy protection and security; - Reliability and safety; - Transparency and explainability; - Contestability; and - Accountability.

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements			<ul style="list-style-type: none"> - Adaptive revisions of AI principles, policies, and regulations should be actively considered. - Take ethical design approaches to make the system trustworthy - Researchers and developers of AI should have sufficient considerations for the potential ethical, legal, and social impacts and risks - Education and training to help users adapt to the impact of AI development in psychological, emotional and technical aspects. - Fairness - Human privacy, dignity, freedom, autonomy, and rights should be sufficiently respected. - Transparency and disclosure - Open and Share - Encouraged to establish AI open platforms to avoid data/platform monopolies 					

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Principles / requirements			<ul style="list-style-type: none"> - Data privacy and protection - Control Risks - Continuous efforts should be made to improve the maturity, robustness, reliability, and controllability of AI systems 					

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Other useful resources								
Summary of other industry publications, consultations, sandboxes etc	<ul style="list-style-type: none"> - HKMA Fintech Supervisory Sandbox – most relevant to banks exploring AI and other regtech / fintech solutions - SFC Fintech Contact Point – a key contact point for businesses considering AI deployment in the Hong Kong financial services sector - PCPD Model EDIA and Process Oversight Model 	<ul style="list-style-type: none"> - MAS Regulatory Sandbox - Intellectual Property Office of Singapore - Accelerated Initiative for Artificial Intelligence Scheme - Government of Singapore - National Artificial Intelligence Strategy 			<ul style="list-style-type: none"> - Data de-identification guideline published by KCC - Research on FI response to security threats arising from AI technology's duplicity and weakness 	<ul style="list-style-type: none"> - “Comparison of AI guidelines” 	<ul style="list-style-type: none"> - Digital Government Development Agency - AI for Government Administration and Services⁶⁷ - Bank of Thailand - AI in Thailand Case Study in Financial Services⁶⁸ 	<ul style="list-style-type: none"> - Artificial Intelligence: Australia's Ethics Framework (CSIRO's Data61, April 2019). - Discussion Paper - Developing Standards for Artificial Intelligence: Hearing Australia's Voice (Standards Australia, June 2019) - Final Report - An Artificial Intelligence Standards Roadmap: Making Australia's Voice Head (Standards Australia, March 2019). - Discussion Paper - Human Rights and Technology (Australian Human Rights Commission, December 2019).

⁶⁷ Available at https://www.dga.or.th/wp-content/uploads/2019/02/file_310433b825a546dcfd59203b423ca175.pdf

⁶⁸ Available at https://www.bot.or.th/Thai/MonetaryPolicy/EconomicConditions/AAA/AI_Aug27.pdf

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Other useful resources								
Summary of other industry publications, consultations, sandboxes etc								<ul style="list-style-type: none"> - White Paper - Artificial Intelligence: governance and leadership (Australian Human Rights Commission and World Economic Forum, January 2019). - Australia's Artificial Intelligence Roadmap: Artificial Intelligence: Solving problems, growing the economy and improving our quality of life (CSIRO's Data 61 and the Department of Industry, Innovation and Science, November 2019). - Artificial Intelligence: A Starter Guide to the Future of Business (Australian Computer Society, December 2018).

	Hong Kong	Singapore	Mainland China	India	Korea	Japan	Thailand	Australia
Other useful resources								
Summary of other industry publications, consultations, sandboxes etc								<ul style="list-style-type: none"> - The Effective and Ethical Development of Artificial Intelligence (Australian Council of Learned Academies, July 2019). - Human Rights and Technology - (Australian Human Rights Commission, December 2019)

Part 2 – Comparative jurisdictions outside of APAC

This Part 2 summarises certain initiatives in a small number of other jurisdictions for discursive purposes.

European Union

United Kingdom

United States

At a glance – coverage of Core Principles

Key

✗ Not covered explicitly

□ Mentioned, without detail

▣ Covered, with some detail

■ Covered in depth

	European Union	United Kingdom	United States
Fairness	□ Financial regulators	▣ (Financial Regulator (FCA) and privacy regulator)	□ Financial regulators
Governance and Accountability	□ Financial regulators	■ Financial regulator (FCA and PRA) and privacy regulator	□ Financial regulators ■ Algorithm trading
Transparency	□ Financial regulators	■ Financial Regulator (FCA) and privacy regulator	□ Financial regulators ▣ Specific Applications
Data quality	✗	▣ (Privacy regulator only)	□ Financial regulators
Data protection	▣ Privacy Regulator	■ (Privacy Regulator only)	□ Financial regulators
Model	▣ Specific Applications □ Financial regulators	▣ (Privacy Regulator only)	▣ Specific Applications
Resilience	✗	□ (Financial Regulators (FCA and PRA))	▣ Specific Applications
Cybersecurity	□ Financial regulators	▣ (Financial Regulator and Privacy Regulator)	□ Financial regulators and Specific Applications
Expertise	✗	□ (Privacy regulator only)	✗
TPRM	▣ Privacy Regulator	▣ (Financial Regulators (FCA and PRA))	□ Specific Applications
Other principles	✗	Sustainability	✗

	European Union	United Kingdom	United States
Further detail			
Section A – Thematic guidance on specific applications of AI in financial services			
Samples of requirements applicable to specific AI applications	<p>Algorithmic trading ECB⁶⁹</p> <p>Governance and accountability</p> <ul style="list-style-type: none"> - governance (including an algorithm approval process commensurate with the board's risk appetite) - staffing (qualifications, skills and size of the workforce) - outsourcing of IT - business continuity arrangements to deal with disruptive incidents - resilience ("kill" functionality – shutting down the trading system in the event that the trading algorithm is running erroneously) - surveillance (automated surveillance to detect market manipulation) - pre-trade controls (order entry), real trade controls (market monitoring) and post-trade controls - security (physical and cyber security, limitations on staff with critical access rights to the systems) - reporting <p>Data privacy and protection</p> <ul style="list-style-type: none"> - testing of the algorithm's compatibility with the systems of the trading venue and market access provider, and stress-testing of the algorithm itself 	<p>Machine Learning⁷⁰ FCA</p> <p>The FCA published a survey on Machine Learning in Financial Services in October 2019, as part of a broader initiative to explore how safe deployment of machine learning can be supported through policy going forward.</p> <p>Automated / robo-advice⁷¹</p> <ul style="list-style-type: none"> - In the context of reviewing automated investment services (or robo-advice), the FCA has made it clear that firms should ensure clear oversight over the robo-advice proposition, as well as clear allocation of responsibilities. <p>Algorithmic trading⁷²</p> <p>The FCA has reported on algorithmic trading in wholesale markets. The FCA can require firms to produce a description of their algorithmic trading strategies within just 14 days and recommends keeping a detailed "algorithm inventory" setting out coding protocols, usages, responsibilities and risk controls. The PRA has similar requirements in the PRA Handbook, as detailed in Section C below.</p> <p>The FCA has stated that it will closely monitor how machine learning and AI are applied to trading activity to understand how markets function and to monitor the possibility of market manipulation arising therefrom.⁷³</p> <p>The UK Government Centre for Data Ethics and Innovation conducted a review into bias in algorithmic decision making in July 2019, including its use in financial services, and published its final findings and recommendations in November 2020.</p>	<p>Robo-advisory SEC⁷⁵</p> <p>Robo-advisers, like all registered investment advisers, are subject to the substantive and fiduciary obligations of the Advisers Act:</p> <p>Transparency and disclosure</p> <ul style="list-style-type: none"> - As a fiduciary, an investment adviser has a duty to make full and fair disclosure of all material facts to, and to employ reasonable care to avoid misleading clients - disclosure to clients of changes to the algorithmic code <p>Fairness</p> <ul style="list-style-type: none"> - Implement systems to automatically flag apparently inconsistent information provided by a client for review or follow-up by the robo-adviser - Design features with options to alert a client of potential inconsistencies between the client's stated objective and the selected portfolio <p>Governance and Accountability</p> <ul style="list-style-type: none"> - Rule 206(4)-7 under the Advisers Act requires to establish an internal compliance program - Should adopt, implement, and annually review written policies and procedures that are reasonably designed to prevent violations of the Advisers Act and the rules - Development, testing, and backtesting of the algorithmic code and the post implementation monitoring of its performance - Appropriate oversight of any third party - Prevention and detection of, and response to cybersecurity threats

⁶⁹ Available at https://www.bankingsupervision.europa.eu/press/publications/newsletter/2019/html/ssm.nl190213_5.en.html

⁷⁰ Available at <https://www.fca.org.uk/publication/research/research-note-on-machine-learning-in-uk-financial-services.pdf>

⁷¹ Available at <https://www.fca.org.uk/publications/multi-firm-reviews/automated-investment-services-our-expectations> ; <https://www.fca.org.uk/news/speeches/robo-advice-fca-perspectivedf>

⁷² Available at <https://www.fca.org.uk/publication/multi-firm-reviews/algorithmic-trading-compliance-wholesale-markets.pdf> ; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819168/Interim_report_-_review_into_algorithmic_bias.pdf

⁷³ Available at <https://www.fca.org.uk/news/speeches/market-abuse-requires-dynamic-response-changing-risk-profile>

⁷⁵ Available at <https://www.sec.gov/investment/im-guidance-2017-02.pdf>

	European Union	United Kingdom	United States
<p>Samples of requirements applicable to specific AI applications</p>		<p>Credit limits⁷⁴ In July 2018, Charles Randall, FCA and Payment Systems Regulator chair, highlighted examples of AI that risked exacerbating social exclusion, such as companies cutting credit limits when charges appeared for marriage guidance counselling (marriage breakdown is highly correlated with debt default).</p> <p>Capital and margin models Some institutions use internal models to calculate credit risk, market risk and counterparty credit risk, as well as initial margin requirements. These models may involve AI. UK firms subject to the Capital Requirements Regulation are required to seek prior permission to use internal models for credit risk, and may also have to seek prior permission from regulators in relation to initial margin models.</p>	<ul style="list-style-type: none"> - Protection of client accounts and key advisory system - Use of social and other forms of electronic media in connection with the marketing of advisory services - Should cover business model and the scope of the investment advisory services provided, presentation of material information to clients with description of the algorithmic functions used, description of the assumptions and limitations of the algorithm <p>Algorithmic trading FINRA</p> <p>The FINRA request information for development, use and controls of trading algorithms regarding to High Frequency Trading⁷⁶</p> <p>Governance and accountability</p> <ul style="list-style-type: none"> - List all job function and responsibilities of all personnel who develop, test, deploy, maintain, and/or modify algorithms - Describe the Firm's entitlement procedures (with flow chart) for groups/personnel roles and responsibility, access right, controls (segregation of duties and independence) to develop, test, deploy, maintain and/or modify algorithms in the software development cycle - Specify the roles and responsibilities of traders, oversight and supervision of the planning, implementation, testing, deployment, and maintenance of algorithms and related software - Specify the review conducted and corresponding personnel for algorithm deployment to ensure system processes function as intended - Specify the procedure of testing performed under non-normal market conditions, such as extreme market volatility before production deployment

⁷⁴ Available at <https://www.fca.org.uk/news/speeches/how-can-we-ensure-big-data-does-not-make-us-prisoners-technology>

⁷⁶ Available at <https://www.finra.org/rules-guidance/guidance/targeted-exam-letter/high-frequency-trading>

	European Union	United Kingdom	United States
<p>Samples of requirements applicable to specific AI applications</p>			<ul style="list-style-type: none"> - Explain the testing, approval, documentation, or review process for modifications, and provide any corresponding Written Supervisory Procedures (“WSPs”) for production deployment - Provide all WSPs, controls to monitoring automated trading malfunctions or system failure, automatic/manual shut offs, kill switches and types of built-in blocks/alerts/risk controls <p>Transparency and disclosure</p> <ul style="list-style-type: none"> - Provide copies of internal reviews of algorithms and/or related software governance and control during the period of January 2013 to present - Provide instance of malfunction with an algorithm or trading engine if caused a market disruption <p>CFTC</p> <p>A series of risk controls, transparency measures, and other safeguards to enhance the regulatory regime for automated trading on U.S. designated contract markets (“DCMs”) is proposed⁷⁷.</p> <p>Governance and accountability</p> <ul style="list-style-type: none"> - controls must keep pace with technological complexity and trading speeds - governance and management oversight can limit exposure to losses and improve transparency - testing needs to be conducted during all phases of a trading product’s lifespan, namely during development, rollout to production, and ongoing maintenance - management should ensure sufficient involvement of control functions (including compliance, technology, legal, and controllers), as well as business-unit management when assessing control depth and suitability <p>Transparency and disclosure</p> <ul style="list-style-type: none"> - DCMs to have procedures, arrangements, and resources for disclosing to the Commission, market participants, and the public accurate information on the rules and specifications of their electronic matching platforms or trade execution facilities

⁷⁷ Available at https://www.cftc.gov/sites/default/files/2019-04/ATS_2yr_Update_Final_2018_ada.pdf, <https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/federalregister112415.pdf>

	European Union	United Kingdom	United States
<p>Samples of requirements applicable to specific AI applications</p>			<p>Anti-money laundering FRS, FinCEN, FDIC, NCUA, OCC</p> <p>The Agencies discuss their approach to banks' incorporation of artificial intelligence into anti-money laundering ("AML") compliance programs.⁷⁸</p> <p>Experimentation and innovation encouraged</p> <ul style="list-style-type: none"> - Banks are encouraged to experiment with artificial intelligence and digital identity technologies applicable to their BSA/AML compliance programs, which have the potential to strengthen compliance, enhance transaction monitoring and maximize the use of available resources - Pilot programs are welcomed and will not subject banks to supervisory criticism even if the pilot programs ultimately prove unsuccessful - Where the pilot program detects money laundering activity that conventional approaches did not, the Agencies will not necessarily find that the conventional programs were deficient <p>Technology neutrality</p> <ul style="list-style-type: none"> - The implementation of innovative approaches in banks' BSA/AML compliance programs will not result in additional regulatory expectations - Banks must continue to meet their BSA/AML compliance obligations, as well as ensure the ongoing safety and soundness of the bank, when developing pilot programs and other innovative approaches, and should consider information security issues, third-party risk management, and compliance with other applicable laws and regulations, such as privacy

⁷⁸ Available at https://www.fincen.gov/sites/default/files/2018-12/Joint%20Statement%20on%20Innovation%20Statement%20%28Final%2011-30-18%29_508.pdf

	European Union	United Kingdom	United States
<p>Samples of requirements applicable to specific AI applications</p>			<p>Dialogue and engagement</p> <ul style="list-style-type: none"> - Bank management should also discuss their evaluations with the bank's respective regulators. The Agencies are open to engaging with bank management to discuss pilot programs for innovative BSA/AML approaches, and encourage banks to involve them early in the process. - <p>Model risk management</p> <p>FRS</p> <ul style="list-style-type: none"> - Initiative: Supervisory Guidance on Model Risk management (SR Letter 11-7) ⁷⁹ - Scope: Models refer to quantitative method, system, or approach that process input data into quantitative estimates. - Application: model for analysing business strategies, informing business decisions, identifying, and measuring risks, valuing exposures, instruments or positions, conducting stress testing, assessing adequacy of capital, managing client assets, measuring compliance with internal limits, maintaining the formal control apparatus of the bank, or meeting financial or regulatory reporting requirements and issuing public disclosures. - Status: Not legally binding.

⁷⁹ Available at <https://www.federalreserve.gov/supervisionreg/srletters/sr1107a1.pdf>

	European Union	United Kingdom	United States
Section B – Other key requirements directly relevant to AI			
Samples of key laws or other requirements	<p>Anti-discrimination⁸⁰ The European non-discrimination directives prohibit differential treatment that is based on certain 'protected grounds', containing a fixed and limited list of protected grounds, covering</p> <ul style="list-style-type: none"> - Sex - Sexual orientation - Disability - Age - Race, ethnicity, colour and membership of a national minority - Nationality or national origin - Religion or belief - Language - Social origin, birth and property - Political or other opinion - Other status <p>Data protection⁸¹ GDPR set the rules to regulate companies to process the personal data of data subjects in 10 areas:</p> <ul style="list-style-type: none"> - Lawful, fair and transparent - Limitation of purpose, data and storage - Data subject rights - Consent - Personal data breaches - Privacy - Data Protection Impact Assessment - Data transfers - Establishment of Data Protection Officer - Awareness and training 	<p>Equality Act 2010 Firms must ensure that decisions made using AI are not discriminatory.</p> <p>Human Rights Act 1998 Firms must consider and assess the risk of adverse impacts on human rights arising from the use of AI.</p> <p>Competition and Markets Authority (CMA)⁸² The CMA's Digital Markets Strategy sets out the CMA's intention to continue to monitor the development of machine learning and AI to ensure it does not lead to anti-competitive behaviour or consumer detriment. In April 2021, the CMA launched its Digital Markets Unit (DMU), to oversee a pro-competitive regulatory regime for digital activities. The DMU will introduce and enforce a code of conduct applicable to companies with substantial market power in digital activities.</p> <p>UK Government Data Ethics Framework⁸³ Sets out how data should be used in the public sector. The principles include the following:</p> <ul style="list-style-type: none"> - Start with clear user need and public benefit - Be aware of relevant legislation and codes of practice - Use data that is proportionate to the user need - Understand the limitations of the data - Ensure robust practices and work within your skill set - Make your work transparent and be accountable - Embed data use responsibly 	<p>Anti-discrimination⁸⁴ There are major federal laws that prohibit workplace discrimination:</p> <ul style="list-style-type: none"> - Title VII of the Civil Rights Act. 1964 (42 U.S.C. 2000e and following) - Title VII of Pregnancy Discrimination Act. (PDA) - Age Discrimination in Employment Act (ADEA) (29 U.S.C. 621-634) - Americans With Disabilities Act.(ADA) 42 U.S.C. 12101-12213 - Equal Pay Act (29 U.S.C. 206(d)) - Immigration Reform and Control Act. of 1986 (IRCA)(8 U.S.C. 1324) - Civil Rights Act of 1866 (Section 1981) - Genetic Information Non-discrimination Act. (GINA)(42 U.S.C. 2000ff and following) <p>Data protection⁸⁵ Federal Trade Commission Act had enforcement for customer protection in 5 areas:</p> <ul style="list-style-type: none"> - General Privacy Spam, social networking, behavioural advertising, pretexting, spyware, peer-to-peer file sharing, and mobile - Data Security - Credit Reporting & Financial Privacy - International Enforcement international privacy frameworks, including the EU-U.S. Privacy Shield Framework and the Asia-Pacific Economic Cooperation (APEC) Cross-Border Privacy Rules (CBPR) System - Children's Privacy - Do Not Call

⁸⁰ Available at https://fra.europa.eu/sites/default/files/fra_uploads/fra-2018-handbook-non-discrimination-law-2018_en.pdf

⁸¹ Available at <https://advisera.com/eugdpracademy/gdpr/>

⁸² Available at <https://www.gov.uk/government/publications/competition-and-markets-authoritys-digital-markets-strategy/the-cmas-digital-markets-strategy>

⁸³ Available at <https://www.gov.uk/government/publications/data-ethics-framework/data-ethics-framework>

⁸⁴ Available at <https://www.nolo.com/legal-encyclopedia/federal-antidiscrimination-laws-29451.html>

⁸⁵ Available at Privacy & Data Security Update (2016) | Federal Trade Commission ([ftc.gov](https://www.ftc.gov))

	European Union	United Kingdom	United States
Section C – Key standards specifically relating to AI issued by financial regulators			
Key details of the initiative		<p>FCA existing initiatives</p> <ul style="list-style-type: none"> - Initiative(s): FCA principles for business / Senior Management Arrangements, Systems Controls (SYSC) / European Banking Authority (EBA) guidelines on outsourcing arrangements / UK market abuse regime and Market Abuse Regulations (MAR).⁸⁶ - Scope: Laws, rules, regulations and guidance in relation to certain laws which, among other things, establish principles and rules on the conduct of relevant entities in relation to their customers and certain organisational requirements. - Application: Laws, rules, regulations and relevant guidance that applies to certain regulated entities separate to any AI-specific rules, but which may apply to use of AI by, or which is relevant to, certain regulated entities. - Status: FCA Principles for business and SYSC rules are set out in FCA Handbook (breach of which may involve FCA enforcement action)/ the legal basis of the EBA guidelines, Directive 2013/36/EU (which sets out requirements on certain institutions) is legally binding / MAR is legally binding, FCA can carry out enforcement for breaches of MAR. The 'FCA AI-specific initiatives' section contains AI-specific principles that expand upon some of the general rules and principles outlined in the existing FCA initiatives. 	<p>CFTC</p> <ul style="list-style-type: none"> - Initiative: LabCFTC Primer on Artificial Intelligence⁹⁰ - Scope: Use of artificial intelligence technology in derivatives markets - Application: General principles-based guidance for use and deployment of artificial intelligence by regulated entities. - Status: Statement of policy; not legally binding.

⁸⁶ Available at <https://www.handbook.fca.org.uk/handbook/PRIN/2/1.html> ; <https://www.handbook.fca.org.uk/handbook/SYSC/> ; <https://eba.europa.eu/regulation-and-policy/internal-governance/guidelines-on-outsourcing-arrangements> ; <https://www.fca.org.uk/markets/market-abuse>, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0596&from=EN>

⁹⁰ Available at [LabCFTC Fintech Primers | CFTC](#)

	European Union	United Kingdom	United States
Key details of the initiative		<p>PRA existing initiatives</p> <ul style="list-style-type: none"> - Initiative(s): PRA Rulebook Fundamental Rules; PRA Rulebook rules on algorithmic trading; PRA Rulebook rules on outsourcing.⁸⁷ - Scope: Existing PRA rules which establish principles and rules on the conduct and organisational affairs (among other things) of relevant PRA-regulated entities to promote the soundness and safety of those firms and the financial markets. - Application: Non-AI specific rules that apply to all PRA-authorized firms, which may apply to the use of AI by, or relevant to, PRA-authorized firms. - Status: Regulatory rules (breach of which can result in PRA disciplinary measures). <p>FCA AI-specific initiatives</p> <ul style="list-style-type: none"> - Initiative(s): Artificial Intelligence in the Boardroom / The future of AI regulation / AI Transparency and Explainability⁸⁸/ Machine learning in UK financial services / Financial Services AI Public Private Forum / Market abuse requires a dynamic response to a changing risk profile.⁸⁹ - Scope: Outlining some major issues emerging from AI – notably questions of ethics, accountability, transparency and liability. - Application: Guidance for financial services firms to align skill sets and areas of focus, and establishment of a forum for firms to engage with regulators on possible AI-related policy and/or guidance. 	

⁸⁷ Available at <http://www.prarulebook.co.uk/rulebook/Content/Part/211136/30-11-2015> / <http://www.prarulebook.co.uk/rulebook/Content/Chapter/341727/03-04-2020> / <http://www.prarulebook.co.uk/rulebook/Content/Part/214147/03-04-2020>

⁸⁸ Available at <https://www.fca.org.uk/insight/artificial-intelligence-boardroom>, <https://www.fca.org.uk/news/speeches/future-regulation-ai-consumer-good>, <https://www.fca.org.uk/insight/ai-transparency-financial-services-why-what-who-and-when>, <https://www.fca.org.uk/insight/explaining-why-computer-says-no>, <https://www.fca.org.uk/insight/computer-says-what>

⁸⁹ Available at <https://www.fca.org.uk/insight/artificial-intelligence-boardroom>, <https://www.fca.org.uk/news/speeches/future-regulation-ai-consumer-good>, <https://www.fca.org.uk/insight/ai-transparency-financial-services-why-what-who-and-when>, <https://www.fca.org.uk/insight/explaining-why-computer-says-no>, <https://www.fca.org.uk/insight/computer-says-what>, <https://www.fca.org.uk/publication/research/research-note-on-machine-learning-in-uk-financial-services.pdf>, <https://www.fca.org.uk/news/news-stories/financial-services-ai-public-private-forum> / <https://www.fca.org.uk/news/speeches/market-abuse-requires-dynamic-response-changing-risk-profile>

	European Union	United Kingdom	United States
Principles / requirements		<ul style="list-style-type: none"> - Status: Guidance / Insight articles and initiatives with other stakeholders; not legally binding. - FCA existing initiatives - Ethics – Customer Protection Firms regulated by the FCA must act in a way that is consistent with the FCA Principles (PRIN 2.1.1R), some of which relate directly to firms' treatment of customers. For example, FCA Principle 6 ("A firm must pay due regard to the interests of its customers and treat them fairly") would extend to any use of AI by an FCA-regulated firm. - Resilience - FCA Principle 3 requires FCA regulated firms to "take reasonable care to organise and control its affairs responsibly and effectively, with adequate risk management systems". - The FCA states that firms need to effectively manage third party providers to reduce the risk of operational disruption and harm to their consumers.⁹¹ - Under SYSC (SYSC 3.1) FCA regulated firms must take reasonable care to establish and maintain such systems and controls as are appropriate to its business. This would extend to any systems and controls relevant to the regulated firm that relate to the use of AI. - Third Parties SYSC 8 requires certain FCA regulated firms to take reasonable steps to avoid any undue operational risk and not to outsource important operational functions in a way that could impair materially the quality of its internal control and the FCA's ability to monitor the firm. The EBA Guidelines on outsourcing also state that outsourcing must not lead to a situation in which an institution becomes an empty shell that lacks the substance to remain authorised. At a high level, the requirements set out in SYSC and the EBA guidelines could in some circumstances apply to use of AI (particularly AI provided by a third party) that relates to the relevant firms or institutions. 	<p>CFTC</p> <ul style="list-style-type: none"> - AI systems depend on good design and ongoing monitoring. - To build effective AI systems, careful consideration must be given to the choice of algorithms, the sourcing of data, and the evolution of AI models. - Appropriate governance and controls are vital for AI to succeed. - AI systems assist and augment, but cannot replace, human judgment. - For long-term success, AI systems must be reliable, resilient, and trustworthy.

⁹¹ Available at: <https://www.fca.org.uk/firms/outsourcing-and-operational-resilience#operational>

	European Union	United Kingdom	United States
Principles / requirements		<ul style="list-style-type: none"> - Liability - Market Abuse - Market Abuse regime – Market Abuse Regulation (MAR). It may be possible that some AI used in the financial services industry, such as trading algorithms, may commit market manipulation, as a result of being exposed to certain markets and data and being programmed to achieve the objectives set to them, even if such manipulation is not intended by the users or governance. - ‘the FCA cannot prosecute a computer, but [it] can seek to prosecute the people who provided the governance over that computer’.⁹² <p>PRA existing initiatives</p> <ul style="list-style-type: none"> - Resilience / Ethics <p>The PRA’s primary objective is to promote the safety and soundness of the firms it regulates. Accordingly, in line with this objective, the PRA Fundamental Rules contained in the PRA Handbook (the “Fundamental Rules”) require firms to conduct their business with (i) integrity, (ii) due skill, care and diligence and (iii) to act in a prudent manner.</p> <ul style="list-style-type: none"> - Resilience - The Fundamental Rules require all PRA-authorized firms to have effective risk strategies and risk management systems and to control its affairs responsibly and effectively. - Algorithmic trading: the PRA Rulebook⁹³ requires CRR firms (i.e. UK banks, building societies or other firms subject to the EU Capital Requirements Regulation) to have in place effective systems and risk controls to ensure that their trading systems are (among other things) resilient and prevent the sending of erroneous orders or the system functioning in a way that may create or contribute to a disorderly market. CRR firms must also make and retain records of their algorithmic trading strategy, the limits to which the system(s) used for algorithmic trading are subject, testing methods for such system(s) and any other relevant information on the firms algorithmic trading and related system(s). 	

⁹² Available at <https://www.fca.org.uk/news/speeches/market-abuse-requires-dynamic-response-changing-risk-profile>

⁹³ Available at <http://www.prarulebook.co.uk/rulebook/Content/Chapter/341727/03-04-2020>

	European Union	United Kingdom	United States
Principles / requirements		<p>Third Parties</p> <ul style="list-style-type: none"> - As with the FCA, the PRA requires certain PRA regulated firms to take reasonable steps to avoid any undue operational risk and not to outsource important operational functions in a way that could impair materially the quality of its internal control and the PRA's ability to monitor the firm. <p>- AI-specific initiatives⁹⁴</p> <p>- Ethics</p> <ul style="list-style-type: none"> - With AI, overseeing machines may not be as simple as clear accountability. The difference between right and wrong may be more nuanced, not least because wider society has yet to reach a consensus on what is an ethical use of AI - Boards will need to dedicate time and serious effort to identify areas which raise questions from an ethical point of view and to make ethical decisions. <p>- Explainability</p> <ul style="list-style-type: none"> - 'Sufficient' explainability should be the ultimate target – but of course, this will still mean a human will have to decide what amounts to 'sufficient'. - Board members should take a hard line on what 'sufficient' means for them, and also what it should mean for the consumer. - It is vital that board members do not let themselves be seduced by a 'black box knows best' argument. <p>- Transparency</p> <ul style="list-style-type: none"> - Customers should know when and how machines are involved in making decisions, whether it is about them or on their behalf. - AI should only be used if customers consent to its use, which should have been transparently disclosed to them. - Boards will have to set the approach and level of detail involved in transparency, and that in turn will reflect the values of their organisations 	

⁹⁴ Available at <https://www.fca.org.uk/insight/computer-says-what>

	European Union	United Kingdom	United States
Principles / requirements		<p>Liability</p> <ul style="list-style-type: none"> - Boards should bear in mind that the use of AI can change where liability falls in traditional business models. - Boards need to keep an eye on the potentially changing nature of liability for services which include AI. - In particular, firms must consider the possibility of enforcement action under the market abuse regime for activities carried out by AI operating under the firm's governance. <p>- Human Responsibility</p> <ul style="list-style-type: none"> - Model Risk Management (MRM) should be implemented to ensure proper documentation, good oversight and challenge of the basic assumptions with clear processes that deliver expert and independent validation. <p>- Ethics – AI for the consumer good⁹⁵</p> <ul style="list-style-type: none"> - Continuity – Possible harms from AI are often context-specific, so the FCA's approach to AI will be on a case by case basis, with higher level principles (such as transparency and accountability) providing a useful framework. - Public value – Firms must ensure that they consider whether the use of the technology is “morally right”, and the FCA will consider how it can update existing tools that enable it to address the ethical use of technology. <p>Collaboration – The FCA will consider how it can work with others in the private and public sector, other regulators and research organisations to develop a shared understanding that will determine the regulatory approach over the years ahead.</p>	

⁹⁵ Available at <https://www.fca.org.uk/news/speeches/future-regulation-ai-consumer-good>

	European Union	United Kingdom	United States
Section D – Key standards specifically relating to AI issued by privacy regulators and ministries / governments			
Key details of the initiative	<p>European Commission High-Level expert group on AI</p> <ul style="list-style-type: none"> - Initiative(s): In April 2019, the high-level expert group issued Ethics Guidelines for trustworthy AI.⁹⁶ - Scope: the framework aims to offer guidance on fostering and securing ethical and robust AI. - Application: all stakeholders <p>European Commission</p> <ul style="list-style-type: none"> - Initiative(s): In April 2021, the European Commission issued a proposal for a regulation laying down harmonised rules on AI.⁹⁷ - Scope: the draft regulation lays down (a) harmonised rules for the placing on the market, the putting into service and the use of artificial intelligence systems ('AI systems') in the Union; (a) prohibitions of certain artificial intelligence practices; (b) specific requirements for high-risk AI systems and obligations for operators of such systems; (c) harmonised transparency rules for AI systems intended to interact with natural persons, emotion recognition systems and biometric categorisation systems, and AI systems used to generate or manipulate image, audio or video content; (d) rules on market monitoring and surveillance. 	<p>ICO</p> <ul style="list-style-type: none"> - Initiative: AI Auditing Framework.⁹⁸ - Scope: Outlines approach to auditing and supervising AI applications while exploring data protection challenges and possible controls. - Application: The framework is targeted at those with a compliance focus, such as data protection officers, general counsel, risk managers and the ICO's own auditors; and technology specialists, including machine learning experts, data scientists, software developers and engineers, and cybersecurity and IT risk managers. The ICO focussed in particular on the below topics:⁹⁹ <ul style="list-style-type: none"> - Meaningful human reviews for non-fully automated decision making - Accuracy of AI systems outputs and performance measures; - Known security risks exacerbated by AI; - Explainability of AI decisions to data subjects - Human biases and discrimination in AI systems. - Status: The ICO has produced guidance on AI and data protection (see further below), and has indicated that there are other areas on which it will provide further guidance. <p>ICO</p> <ul style="list-style-type: none"> - Initiative: Project Explain.¹⁰⁰ - Scope: 'practical guidance' on making AI decisions transparent and explainable. 	<p>US Federal Law</p> <ul style="list-style-type: none"> - Initiative: California Consumer Privacy Act (CCPA).¹⁰³ - Scope: Any models which process personal data related to residents of California, United States. - Application: Enhances privacy rights and protection by offering transparency on the use of personal data and right to delete personal data. - Status: Legally binding.

⁹⁶ Available at <https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai>

⁹⁷ Available at <https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-laying-down-harmonised-rules-artificial-intelligence>

⁹⁸ Available at <https://ico.org.uk/about-the-ico/news-and-events/ai-blog-an-overview-of-the-auditing-framework-for-artificial-intelligence-and-its-core-components/>

⁹⁹ Available at <https://ico.org.uk/about-the-ico/news-and-events/ai-auditing-framework/>

¹⁰⁰ Available at <https://ico.org.uk/media/2615039/project-explain-20190603.pdf>

¹⁰³ Available at <https://www.caprivacy.org/>

	European Union	United Kingdom	United States
Key details of the initiative	<ul style="list-style-type: none"> - Application: the proposed regulation applies to (a) providers placing on the market or putting into service AI systems in the EU, irrespective of whether those providers are established within the Union or in a third country; (b) users of AI systems located within the Union; EN 39 EN (c) providers and users of AI systems that are located in a third country, where the output produced by the system is used in the EU. The proposal adopts a risk-based approach and no direct mention of financial services. - Status: The European Parliament and the Member States will need to adopt the Commission's proposals on a European approach for Artificial Intelligence and on Machinery Products in the ordinary legislative procedure. Once adopted, the Regulations will be directly applicable across the EU. 	<ul style="list-style-type: none"> - Application: aims to give organisations practical advice to help explain the processes, services and decisions involving AI to the individuals affected by them. - Status: Published in May 2020, not legally binding. <p>ICO</p> <ul style="list-style-type: none"> - Initiative: Guidance on AI and Data Protection¹⁰¹ - Scope: Guidance on applying data protection law principles to AI systems that process personal data, including managing trade-offs. - Application: Applies to AI systems that process personal data. It is aimed at compliance roles (e.g. data protection officers, general counsel) and technology specialists (e.g. software developers, cyber security managers) - Status: Published in July 202, not legally binding. <p>There is a Memorandum of Understanding between the ICO and FCA.¹⁰² This includes paragraphs on sharing confidential information (including personal data) and provides that the FCA and ICO can run investigations in parallel.</p> <p>There is also a Joint Statement by the ICO and CMA, published in May 2021, setting out the relationship between competition and data protection in the digital economy and their intention to share information or run investigations together as necessary.</p>	

¹⁰¹ Available at <https://ico.org.uk/for-organisations/guide-to-data-protection/key-data-protection-themes/guidance-on-ai-and-data-protection/>

¹⁰² Available at <https://ico.org.uk/media/2614342/financial-conduct-authority-ico-mou.pdf>

	European Union	United Kingdom	United States
Principles / requirements	<p>European Commission High-Level expert group Ethics Guidelines for trustworthy AI</p> <ul style="list-style-type: none"> - Fairness The development, deployment and use of AI systems must be fair, with fairness having both a substantive and a procedural dimension. The substantive dimension implies a commitment to ensuring equal and just distribution of both benefits and costs, and ensuring that individuals and groups are free from unfair bias, discrimination and stigmatisation. The procedural dimension entails the ability to contest and seek effective redress against decisions made by AI systems and by the humans operating them. There are also requirements around the avoidance of unfair bias - Governance and accountability: - Oversight may be achieved through governance mechanisms such as a human-in-the loop (HITL), human-on-the-loop (HOTL), or human-in-command (HIC) approach. There is a principle around accountability which includes requirements around auditability, minimisation and reporting of negative impacts, trade-offs and redress. 	<p>Office for Artificial Intelligence / Government Digital Service¹⁰⁴ Understanding artificial intelligence ethics and safety: A guide for the responsible design and implementation of AI systems in the public sector.¹⁰⁵ This is designed to complement and supplement the Data Ethics Framework published by the Department for Digital, Culture, Media & Sport. It is a guidance paper, so is not legally binding. The principles include the following:</p> <p>ICO – AI Auditing Framework</p> <ul style="list-style-type: none"> - Fairness and transparency in profiling Including issues of bias and discrimination, interpretability of AI applications, and explainability of AI decisions to data subjects. - Accuracy Covering both accuracy of data used in AI applications and of data derived from them - Fully automated decision making models Including classification of AI solutions (fully automated vs. non-fully automated decision making models) based on the degree of human intervention, and issues around human review of fully automated decision-making models. - Security and cyber Including testing and verification challenges, outsourcing risks, and re-identification risks. - Trade-offs Covering challenges of balancing different constraints when optimising AI models (e.g. accuracy vs. privacy). 	<p>CCPA provides California residents with the right to:</p> <ol style="list-style-type: none"> 1. Know what personal data is being collected about them. 2. Know whether their personal data is sold or disclosed and to whom. 3. Say no to the sale of personal data. 4. Access their personal data. 5. Request a business to delete any personal information about a consumer collected from that consumer. 6. Not be discriminated against for exercising their privacy rights.

¹⁰⁴ Available at <https://www.gov.uk/guidance/understanding-artificial-intelligence-ethics-and-safety>. See also https://www.turing.ac.uk/sites/default/files/2019-06/understanding_artificial_intelligence_ethics_and_safety.pdf

¹⁰⁵ Available at <https://www.gov.uk/guidance/understanding-artificial-intelligence-ethics-and-safety>. See also https://www.turing.ac.uk/sites/default/files/2019-06/understanding_artificial_intelligence_ethics_and_safety.pdf

	European Union	United Kingdom	United States
Principles / requirements	<ul style="list-style-type: none"> - Transparency: processes need to be transparent, the capabilities and purpose of AI systems openly communicated, and decisions – to the extent possible – explainable to those directly and indirectly affected. There are also requirements around transparency, which suggestions around traceability, explainability and communication. - Data quality: The quality of the data sets used is paramount to the performance of AI systems. When data is gathered, it may contain socially constructed biases, inaccuracies, errors and mistakes. This needs to be addressed prior to training with any given data set. In addition, the integrity of the data must be ensured. - Data protection: AI systems must guarantee privacy and data protection throughout a system's entire lifecycle - Resilience: A crucial component of achieving Trustworthy AI is technical robustness. Technical robustness requires that AI systems be developed with a preventative approach to risks and in a manner such that they reliably behave as intended while minimising unintentional and unexpected harm, and preventing unacceptable harm. AI systems should have safeguards that enable a fallback plan in case of problems. - Cybersecurity: AI systems, like all software systems, should be protected against vulnerabilities that can allow them to be exploited by adversaries, e.g. hacking. For AI systems to be considered secure, possible unintended applications of the AI system (e.g. dual-use applications) and potential abuse of the system by malicious actors should be taken into account, and steps should be taken to prevent and mitigate these. 	<ul style="list-style-type: none"> - Data minimisation and purpose limitation. - Exercising of rights Including individuals' right to be forgotten, data portability, and right to access personal data. - Impact on broader public interests and rights Such as freedom of association, freedom of speech, etc. (NB the framework will only consider these issues as they pertain to data protection legislation, not the broader public policy objectives). <p>ICO – Project Explain</p> <ul style="list-style-type: none"> - Overview – the guidance is divided into three parts: - Principles / definitions – including the legal requirements around AI decisions, such as data protection and other relevant regimes, and the benefits and risks of explaining AI decisions. - Tools for explaining AI in practice – aimed at technical teams. - What explaining AI means for businesses – roles, policies and procedures for organisations to put in place. - Principles / definitions - The guidance defines “explanations” broadly by identifying six ways of explaining AI decisions, including a “responsibility explanation”, regarding who is involved in managing the AI system; and a “fairness explanation”, regarding steps taken to ensure decisions are unbiased. - Transparency – the necessity of being open and engaged with customers and the wider public about the use of AI decisions - Context – the requirement of AI decision explanations to clearly indicate the unique context in which an AI decision is made - Accountability – the importance and need of corporate governance measures to manage the entire AI decision making process 	

	European Union	United Kingdom	United States
Principles / requirements	<p>GDPR GDPR sets out seven key principles of the data protection regime.</p> <ul style="list-style-type: none"> - Lawfulness, fairness and transparency - Purpose limitation - Data minimisation - Accuracy - Storage limitation - Integrity and confidentiality (security) - Accountability <p>It also specifies the lawful basis for processing personal data, individual rights, accountability and governance, security, international transfers and required procedures to handle data breaches</p>	<ul style="list-style-type: none"> - Organisational Controls - Roles – guidance on mapping roles involved in AI decisions, identifying reporting lines and assigning responsibilities - Policies and procedures – guidance on the requisite policies encompassing training, risk assessment and monitoring - Documentation – guidance associated with the documentation of AI decisions, including maintaining an audit trail - Technical Controls - Data Collection – guidance on the integrity of the data used to train AI models - Model Selection – guidance relating to appropriate AI models applicable for different contexts - Explanation extraction – guidance on approaches used to draw out relevant explanations of AI decision - Explanation Delivery - Proactive Engagement – guidance relating to engagement with individuals, prior to making any AI decision - Explanation Selection – guidance on suitable explanation types relating to different contexts - Explanation Timing – guidance associated with appropriate delivery timing of explanations in relation to different contexts 	

	European Union	United Kingdom	United States
Principles / requirements		<p>ICO – Project Explain</p> <ul style="list-style-type: none"> - Accountability and governance - Align internal structures, responsibility allocations, training and incentives to your overall AI governance strategy. - Set a meaningful risk appetite; it is unrealistic to adopt a zero tolerance approach to risks to rights and freedoms, and that is not what is legally required. It is about ensuring risks are identified and mitigated. - Conduct a DPIA where necessary or legally required, which will assist with identifying and controlling risks to rights and freedoms posed by AI. - Identify who is acting as controller and who is acting as processor. - Document the assessment of trade-offs. <ul style="list-style-type: none"> - Fair, lawful and transparent processing - Identify each distinct processing operation, ensure accuracy and be transparent about how personal data is processed in an AI system. - Identify purpose and lawful basis for processing. - Ensure AI systems are sufficiently statistically accurate to ensure that processing of personal data is fair. - Ensure fair processing of personal data and use technical and organisational measures to prevent discrimination. <ul style="list-style-type: none"> - Data minimisation and security - Ensure that personal data is secure and mitigate against potential privacy attacks. - Implement data minimisation and privacy preservation techniques. <ul style="list-style-type: none"> - Compliance with individual rights - Consider how different individual rights apply at different stages of the AI lifecycle. - Comply with specific legal requirements regarding individual rights. - Ensure human oversight by engaged, critical and well-trained people. 	

	European Union	United Kingdom	United States
Principles / requirements		<p>Office for Artificial Intelligence / Government Digital Service¹⁰⁶</p> <ul style="list-style-type: none"> - Fairness - Use only fair and equitable datasets (data fairness) - Include reasonable features, processes, and analytical structures in your model architecture (design fairness) - Prevent the system from having any discriminatory impact (outcome fairness) - Implement the system in an unbiased way (implementation fairness) <ul style="list-style-type: none"> - Accountability - Establish a continuous chain of responsibility for all roles involved in the design and implementation lifecycle of the project - Implement activity monitoring to allow for oversight and review throughout the entire project <ul style="list-style-type: none"> - Sustainability - The transformative effects AI systems can have on individuals and society - Your AI system's real-world impact <ul style="list-style-type: none"> - Transparency - Explain to affected stakeholders how and why a model performed the way it did in a specific context - Justify the ethical permissibility, the discriminatory non-harm, and the public trustworthiness of its outcome and of the processes behind its design and use 	

¹⁰⁶ Available at <https://www.gov.uk/guidance/understanding-artificial-intelligence-ethics-and-safety>. See also https://www.turing.ac.uk/sites/default/files/2019-06/understanding_artificial_intelligence_ethics_and_safety.pdf

	European Union	United Kingdom	United States
Principles / requirements		<ul style="list-style-type: none"> - Process Based Governance Framework - The relevant team members and roles involved in each governance action - The relevant stages of the workflow in which intervention and targeted consideration are necessary to meet governance goals - Explicit timeframes for any evaluations, follow-up actions, re-assessments, and continuous monitoring - Clear and well-defined protocols for logging activity and for implementing mechanisms to support end-to-end auditability 	