

Survey of Global Artificial Intelligence Regulation: An Evolving and Varied Landscape

Global regulation of artificial intelligence (AI) is still in nascent stages, and countries are wrestling with how to simultaneously promote and control this new frontier of technology.¹ While few countries have adopted formal regulations or other measures to govern the implementation and use of AI-based technologies, various international players, including countries and international organizations, have charted out their AI visions through national strategies or white papers.

This document surveys steps taken and proposals offered by the European Union (EU) and some of its member states, the United States, China, the United Kingdom, and a handful of international organizations to address the proliferation and implementation of AI. There are a range of approaches, with some proposals seeking to impose more stringent restrictions than others. Companies developing or using AI should stay versed in these efforts, which will serve as the foundation for potential industry and regulatory standards.

¹ Definitions of AI vary. The European Commission's White Paper on Artificial Intelligence, discussed *infra*, defines AI as "a collection of technologies that combine data, algorithms, and computing power." Meriam-Webster defines AI as "a branch of computer science dealing with the simulation of intelligent behavior in computers, or the capability of a machine to imitate intelligent human behavior."

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I. EUROPE / EUROPEAN UNION

The General Data Protection Regulation (GDPR) is the EU's core data privacy protection legislation. It entered into force in May 2018, and consists of 99 individual articles governing how entities collect, store, access, and use individuals' personal information. While the GDPR does not directly refer to or regulate AI, it does apply to certain AI processes and systems. For example, under Article 22, individuals have the right not to be subjected to "a decision based solely on automated processing, including profiling, which produces legal effects . . . or similarly significantly affects to him or her," subject to certain exceptions. Because Article 22 governs only those automated decision-making processes that implicate a legal right or otherwise "significantly" impact the user, not all AI applications will trigger its protections. For example, common types of targeted advertising would likely not implicate Article 22, nor would those designed to improve network security. On the other hand, an AI process that affects a legal entitlement, or a person's access to essential services, would need to comply with Article 22.

In February 2020, the European Commission issued [a White Paper on Artificial Intelligence \(A European approach to excellence and trust\)](#), which we detailed in [a previous client alert](#). The White Paper articulates the EU's vision on how to best address the risks and opportunities associated with AI technologies. More specifically, the EU proposed a regulatory framework that will create a unique "ecosystem of trust" surrounding AI technology and a policy framework that will mobilize resources across Europe to achieve an "ecosystem of excellence" along the entire AI value chain.

Under the "ecosystem of trust," the EU identified several possible adjustments to its existing legislative framework, including extending the scope of existing product safety rules to cover stand-alone software and services, and clarifying whether responsibility attaches if AI is added after a product is placed on the market by a party that is not the producer. Additionally, new binding regulations were proposed for "high-risk" AI applications, where the sector and manner in which the AI application is used is likely to result in significant risk. Any new obligations would be "addressed to the actor(s) who is (are) best placed to address any potential risk," regardless of which party is liable to the end user. Additionally, the requirements would apply to all relevant economic operators providing AI-enabled products in the EU, whether based within or outside the EU. The Commission also proposed voluntary certificated standards for non-high risk AI applications. Although voluntary, once an entity involved in non-high-risk AI is certified under these standards, the requirements would become binding.

The Commission also sketched out a policy framework to align efforts at the European, national, and regional level to achieve an "ecosystem of excellence" along the entire value chain. These measures include increasing research and development efforts, including AI "excellence and testing centres" and new public private partnerships in AI, data, and robotics.

The White Paper recently closed for public consultation. Subject to any delays caused by the coronavirus, the Commission is expected to release a formal proposal by the end of the year. Any final regulations will need to be approved by the European Parliament and national governments, which would likely not happen until next year.

Member States

Individual member states have also taken action. For example, Germany published its key objectives and goals for its national AI strategy in July 2018. Germany further elaborated on these points in its [November 2019 Artificial Intelligence Strategy](#). The Strategy pursues three broad goals (making Germany and Europe global leaders on AI development, ensuring responsible development and use of AI, and integrating AI into society in “ethical, legal, cultural and institutional terms”), and identifies twelve “fields of action” (including strengthening research in Germany and Europe, accelerating the transfer of research findings to businesses, and deepening European and international cooperation on AI issues). To achieve these objectives, Germany has earmarked €3 billion for investment in AI strategy, and the federal government planned to undergo additional efforts to stimulate further investment.

Under the field of action calling for adaptation of the regulatory framework, the Strategy tasks the federal government with reviewing the legal framework governing the use of data for AI-based applications and to assess how AI systems can be made transparent, predictable, and verifiable to ward off discrimination and manipulation. Additionally, the federal government will adapt copyright laws “to make it easier to use text and data mining as a basis for machine learning both for commercial and non-commercial purposes.”

Another field of action focuses on appropriately formulated standards, which requires action and coordination by the private sector, “not the state.” To promote such efforts, Germany is considering providing funding for experts, particularly from SMEs and start-ups, to promote their involvement in standard setting, as well as encouraging the German Institute for Standardization to develop a roadmap on AI standardization.

In July 2018, the federal government also established the Data Ethics Commission to develop ethical guidelines to protect “the individual, preserving social cohesion, and safeguarding and promoting prosperity in the information age.” The ethics commission, which is composed of sixteen medical, legal, computer science, statistics, economic, theology, ethics, and journalism experts, released its [final report](#) on data and “algorithmic systems” in October 2019. The final report contains 75 recommendations, including adopting a risk-adapted regulatory approach to AI and other algorithmic-based decision making systems. This proposal recommends more regulatory oversight for riskier algorithmic systems.² The ethics commission further suggested that the risk-adapted regulatory approach be applied to the entire EU. Under the ethics commission’s proposal, an operator’s liability for making use of AI technology should correspond to existing vicarious liability regimes of a principal for its agent. The proposal also recommends a private right of action to allow individuals to bring claims directly against businesses that use AI.

2 Specifically, for technology with a low potential for harm (Level 1), e.g., an automated drink dispenser, no additional regulation would be needed. Under the ethics commission’s proposal, technology with some potential for harm (Level 2) “can and should be regulated on an as-needed basis,” facilitated by risk assessments, disclosure obligations, and ex-post controls. Levels 3 (regulator or significant potential for harm) and 4 (serious potential for harm) should be subject to “enhanced oversight and transparency obligations,” which may extend “all the way through to the publication of information on factors that influence the algorithmic calculations and their relative weightings, the pool of data used, and the algorithmic decision-making model.” Additionally, an “option for ‘always-on’ regulatory oversight via a live interface with the system” may also be required. Under the proposal, a complete or partial ban would be imposed on applications with an untenable potential for harm (Level 5).

In March 2018, France also issued a [national AI strategy](#) (“For a Meaningful Artificial Intelligence: Towards a French and European Strategy”). The strategy focuses on four major challenges: “reinforcing the AI ecosystem in order to attract the very best talents,” “developing an open data policy, above all in sectors where France already has the potential for excellence, such as healthcare,” “creating a regulatory and financial framework favouring emergence of AI champions, through provision of special support to AI research projects and startups,” and “giving thought to AI regulation and ethics, to ensure its development in line with the very best standards of acceptability for citizens.” To combat the first of these challenges, President Macron pledged to set up a national AI program coordinated by the National Institute for Research in Computer Science and Control, to double the number of students studying AI, and to strengthen synergies between public and private research. In order to encourage an open data policy, President Macron vowed to open up public data and develop a European framework for data use. Furthermore, France will adapt existing regulations, “for driverless vehicles for example,” and devote €1.5 billion to support AI as first steps in establishing a favorable AI regulatory and financial framework. Lastly, the plan calls for supporting human sciences research on ethics of AI, disclosing all algorithms used by the government, and encouraging AI’s “openness to diversity” to ensure high AI standards.

II. UNITED STATES

On February 11, 2019, President Trump signed [an executive order](#) announcing the American AI Initiative, the United States’ national strategy to promote and protect national AI technology and innovation. At a high-level, the executive order directs the federal government to “invest in AI research and development, unleash AI resources, remove barriers to AI innovation, train an AI-ready workforce, and promote an international environment that is supportive of American AI innovation and its responsible use.” Consistent with the Executive Order, the Trump administration called for a two-year doubling of non-defense AI research and development in his fiscal year 2021 budget proposal. Additionally, the White House Office of Management and Budget established a Federal Data Strategy, which contains best practices for how agencies use and manage data in AI applications.

To remove barriers to AI innovation, the Trump administration has advanced two initiatives. First, in an effort to develop technical standards and related tools to support reliable, robust, and trustworthy systems that use AI technologies, the National Institute of Standards and Technology (NIST) issued its [Plan for Federal Engagement in Developing Technical Standards and Related Tools](#) in August 2019. The plan recommends that the “[f]ederal government commit to deeper, consistent, long-term engagement in AI standards development activities to help the United States to speed the pace of” AI development. The plan specifically calls for the federal government to bolster AI standards-related knowledge and coordination among federal agencies, promote focused research to better understand how standards can be developed in a trustworthy manner, expand public-private partnerships to develop AI standards, and engage with international parties to advance AI standards.

Second, in January 2020, the White House Office of Science and Technology Policy (OSTP) released [ten principles](#) for government agencies to follow when proposing AI regulations for the private sector. These principles aim to ensure public engagement, limit regulatory overreach, and promote fair, transparent, and safe AI. The principles encourage agencies to, *inter alia*, promote reliable, robust, and trustworthy AI applications; provide ample opportunities for public input on AI regulation; leverage scientific and technical information and processes; and consider how AI applications may promote discrimination. Under the guidance, federal agencies are required to submit a memorandum to OSTP explaining how proposed AI-related regulations satisfy these principles, which are broadly defined to provide agencies latitude in their sectors.

Several agencies have taken action to address the adoption of AI technologies in their sectors. For example, prior to the release of OSTP's guidelines, the Food and Drug Administration (FDA) published [a discussion paper](#) containing a proposed approach for evaluating and approving medical devices containing AI. FDA viewed its existing regulations as insufficient to address the unique challenges posed by AI. Under the proposal, the FDA would “expect a commitment from manufacturers on transparency and real-world performance monitoring” for medical devices containing AI, as well as “periodic updates to the FDA on what changes were implemented.”

In February 2020, the Department of Defense (DOD) adopted [a set of five principles](#) aimed at promoting ethical AI in defense technologies: DOD will responsibly develop and use AI capabilities in defense settings; seek to minimize unintended bias in AI technologies; develop AI technologies so that DOD personnel understand the technology, its operations, and its use of data; adopt safe and secure AI capabilities that are subject to regular testing; and develop AI technologies to detect and avoid unintended consequences. These principles follow DOD's [February 2019 AI strategy](#), which sought to advance DOD's AI capabilities through increased research, development, and recruiting.

In July 2019, the Department of Treasury's Financial Crimes Enforcement Network (FinCEN) held its first [Innovation Hours](#) meeting focused on the use of AI in detecting illicit activity in financial transactions. FinCEN's Innovation Hours program promotes AI development by offering financial institutions, technology providers, and other firms an opportunity to discuss innovative methods to detect illicit activity with FinCEN. These monthly meetings will likely inform FinCEN's approach to regulating AI in the future.

In addition to these executive actions, Congress has also considered legislation to govern AI. These proposals have ranged from requiring companies that possess large amounts of personal data to conduct impact assessments regarding automated decision systems (S. 1108/ H.R. 2231), to directing the Secretary of Labor to produce a report on the impact of AI on the workforce, (H.R. 4829) to promoting the use of AI in the armed forces (S. 1471). To date, most legislative proposals related to AI have not passed either chamber of Congress.

In lieu of more specific federal measures, some state and local governments have taken action. For example, San Francisco's Board of Supervisors voted in May 2019 to ban the use of facial recognition software, including software utilizing AI, by police and other agencies. Other cities, including Somerville, Massachusetts and Oakland, California, followed suit, and some states,

including Oregon, New Hampshire, and California, have enacted statewide facial recognition bans. In Illinois, the General Assembly passed a measure in May 2019 restricting employers' use of AI "hiring bots" during the hiring process, which evaluate an interviewee's facial expression, body language, and tone of voice. Additionally, a proposed ballot initiative amending the California Consumer Privacy Act includes a provision requiring disclosures of artificial intelligence and decision-making tools used in certain industries, such as personal lending and insurance. At the time of this writing, it is uncertain whether the California Attorney General will include this ballot initiative on the November 2020 ballot.

III. CHINA

The Chinese government and Chinese companies have invested heavily in AI. President Xi Jinping believes that China should lead the world in AI technology, which would reduce its dependence on technological imports. Chinese officials have also begun to advocate for the development of international norms to mitigate the security risks caused by AI.

China does not currently have a comprehensive legal regime regulating AI, but has issued a number of plans and standards intended to help grow AI technology in China. In 2017, the State Council announced the [New Generation Artificial Intelligence Development Plan](#) that, among other things, set out a goal to build a preliminary AI legal, ethical, and regulatory system by 2025, and to perfect such a system by 2030. Also in 2017, the Chinese Ministry of Industry and Information Technology released its [Three-Year Action Plan to Promote the Development of a New Generation of the Artificial Intelligence Industry](#), which encourages development in areas such as autonomous vehicles, robotics, drones, medical imaging, video image identification systems, voice interactive systems, intelligent translation systems, and smart home products. And in June 2019, China's Ministry of Science and Technology published its [Governance Principles for a New Generation of Artificial Intelligence](#), a non-binding set of guidelines developed by a group of academic experts meant to promote sound AI governance and responsible technological development. The principles include fairness, harmony, privacy, inclusivity, and safety.

In the absence of a comprehensive AI legal and regulatory framework, AI is governed by sector-specific laws and standards. For example, China's [standard on personal information protection](#) sets forth a voluntary framework of best practices to protect personal data. Such standards will likely be seen by regulators as "best practices" for compliance with China's data protection rules, such as the 2017 Cybersecurity Law. In the area of self-driving and autonomous vehicles, the Chinese Ministry of Industry and Technology sought public input on the proposed national standards for "[Taxonomy of Driving Automation for Vehicles](#)" in March 2020, which classifies six levels of autonomous driving based on the degree to which artificial intelligence controls vehicle function. This classification has major implications on the Chinese liability insurance regime, which depends on the level of involvement of the driver. The classification will likely become effective in 2021.

IV. UNITED KINGDOM

In the UK, the focus has been around understanding how existing data protection, privacy, and anti-discrimination laws govern AI, rather than on crafting new laws or regulations. In that way, AI is essentially treated like other types of software or data collection products.

The primary laws and regulations governing AI in the UK relate to the uses of personal data, the two most important of which are the GDPR³ and the Data Protection Act 2018. These two laws set forth the transparency and accountability when businesses collect, process, and use data related to identifiable individuals. Also relevant is the Equality Act 2010, which consolidated, updated, and supplemented the UK's anti-discrimination laws. While none of these laws is specific to AI, they regulate elements integral to artificial intelligence technology.

On May 1, the UK Information Commissioner's Office (ICO) closed the consultation period on its draft [AI auditing framework guidance](#). The guidance is targeted at both technologists and risk and compliance specialists, helping them to assess the potential risks to rights and freedoms that AI can cause, and how to mitigate them. The guidance focuses on the GDPR's core principles on AI, including: (1) accountability and governance; (2) fairness, lawfulness, and transparency in processing, including countering discriminatory effects of AI processes; (3) security and data minimization; and (4) facilitation of the exercise of individual rights. The guidance is extremely detailed, and the amount of documentation and governance procedures recommended for compliance personnel is extensive.

The ICO has also focused heavily on promoting transparency in AI and helping organizations explain to the public how AI-generated decisions are made in an effort to increase accountability.

In Parliament, the Committee on Standards in Public Life published a report in February 2020 asking for input on how public sector entities should ensure compliance with Equality Act 2010 when incorporating AI.

The one exception to the UK approach of using existing legal frameworks to govern AI is the area of autonomous vehicles. Parliament enacted the Autonomous and Electric Vehicles Act 2018. The law revises the UK's third-party insurance framework to autonomous vehicles, as well as improves the development of electric and hydrogen-powered vehicle charging infrastructure.

3 Under the terms of the UK's withdrawal agreement from the EU, the GDPR will become incorporated into UK domestic law.

V. INTERNATIONAL ORGANIZATIONS

The OECD adopted its [Principles on Artificial Intelligence](#) in May 2019. Although it is not legally binding, it articulates a number of principles central values that could shape frameworks adopted by countries. It promotes five principles:

1. AI should benefit people and the planet by driving inclusive growth, sustainable development and well-being.
2. AI systems should be designed in a way that respects the rule of law, human rights, democratic values and diversity, and they should include appropriate safeguards — for example, enabling human intervention where necessary — to ensure a fair and just society.
3. There should be transparency and responsible disclosure around AI systems to ensure that people understand AI-based outcomes and can challenge them.
4. AI systems must function in a robust, secure and safe way throughout their life cycles and potential risks should be continually assessed and managed.
5. Organizations and individuals developing, deploying or operating AI systems should be held accountable for their proper functioning in line with the above principles.

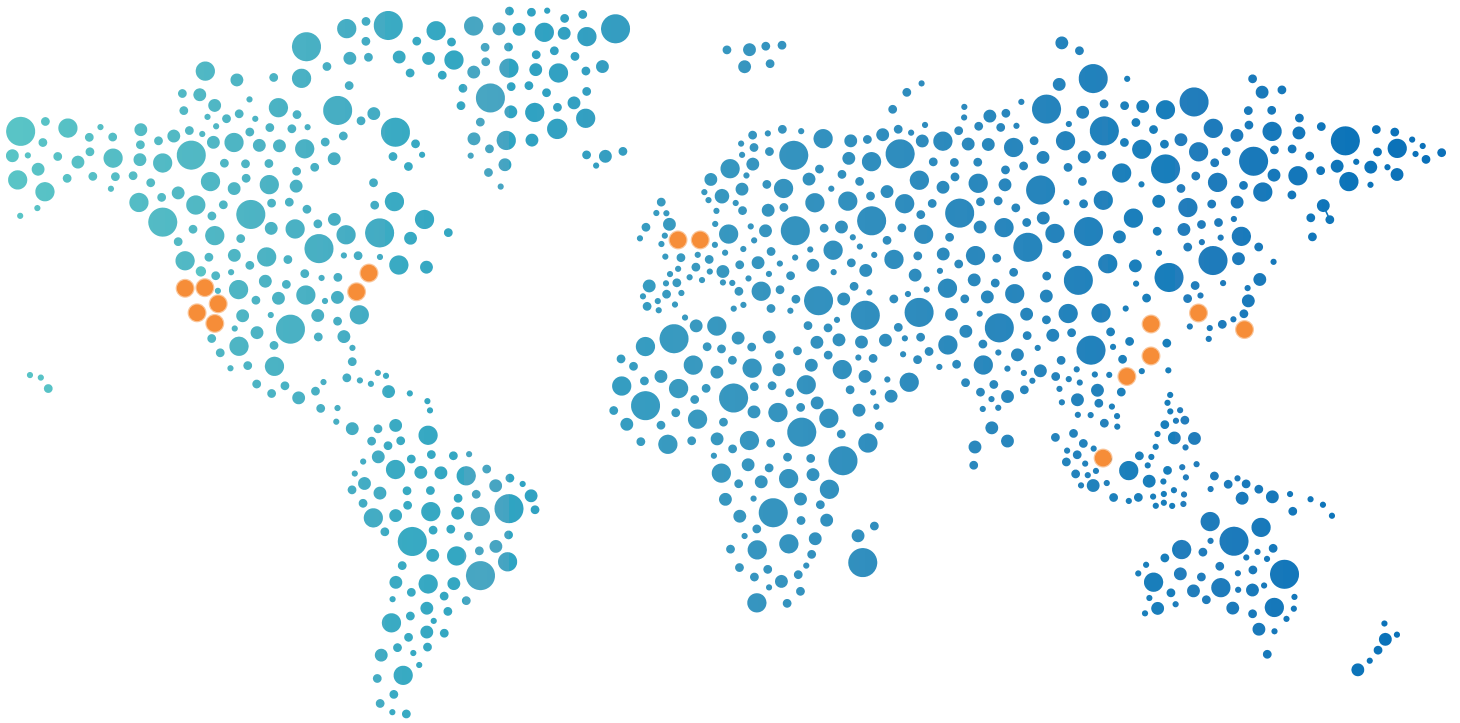
The OECD Principles also recommend that member governments do what they can to facilitate investment in and development of AI, “foster accountable AI ecosystems,” implement policies that help create “trustworthy” AI systems, re-train workers and help them transition “fair[ly],” and cooperate across borders and sectors on “responsible stewardship.”

In 2017, the United Nations commissioned a report from the Special Rapporteur on the promotion and protection of the right to freedom of expression on the implications of AI technologies for human rights, particularly the rights to freedom of opinion, expression, privacy, and non-discrimination. The [report](#), issued in 2018, includes recommendations for how the private and public sectors should ensure AI technologies respect human rights in both their design and their use. The recommendations include employing human rights impact assessments during the design and deployment phases, ensuring that AI design and deployment teams are diverse to guard against biases and potential discrimination in data analysis, updating and revising existing regulations, and sustained public engagement.

UNESCO is in the midst of a two-year process to develop a “standard-setting instrument” on the ethics of artificial intelligence. A group of worldwide experts is currently drafting a working recommendation, which will then receive input from various stakeholders. The current plan is for the General Conference of UNESCO to consider the issue in 2021.

VI. CONCLUSION

Regulating AI is a high priority for many countries and international organizations. As these entities consider appropriate measures, companies using or developing AI should stay abreast of these proposals, which may lead to binding requirements that vary by jurisdiction.



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