

WHITEPAPER

# POLICIES AND REGULATIONS AROUND AI USAGE: INTERPRETATION AND IMPACT

AUGUST 2022

Overview of the Policies and regulations around AI usage in various geographies, their sufficiency and impact on our future.

# About the Company

Started in 2013, Arya.ai is the first deep learning (DL) startup in India and has been one of the very early adopters to use DL in Financial Institutions.

[AryaXAI](#) by Arya.ai, a full stack ML Observability platform, offers multiple components - AI explainability, ML monitoring, ML audit and Policy controls, which organisations require beyond simple ML monitoring tools.

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# Executive Summary

Artificial Intelligence (AI) is projected to add up to US\$ 15 Trillion to the global economy by 2030, making it one of the most sought-after technologies in the current decade. While AI promises to offer a tremendous boost to existing productivity and efficiency levels in a range of industries such as Financial Services, Education, Health and Medicine, defence, etc., it also raises several ethical, moral, legal, and security concerns. Considering the brevity of the same, it is clear that AI shall play a vital role in the future of humankind, influencing how humanity integrates technology in its day-to-day affairs.

This report presents an overview of the Policies and regulations around AI usage in various geographies, presents a comment on their sufficiency and assesses their impact on our future.

Keywords: Artificial intelligence, AI, ML, IoT, Big Data, Singapore, United Kingdom, United States of America, India, European Union, Legal, ethical, security, moral, Education, Health, Medicine, Défense, robot, A1 HLEG, Executive Order 13960, NAI, FAT, FATE, GDPR, Responsible AI, AI Auditability



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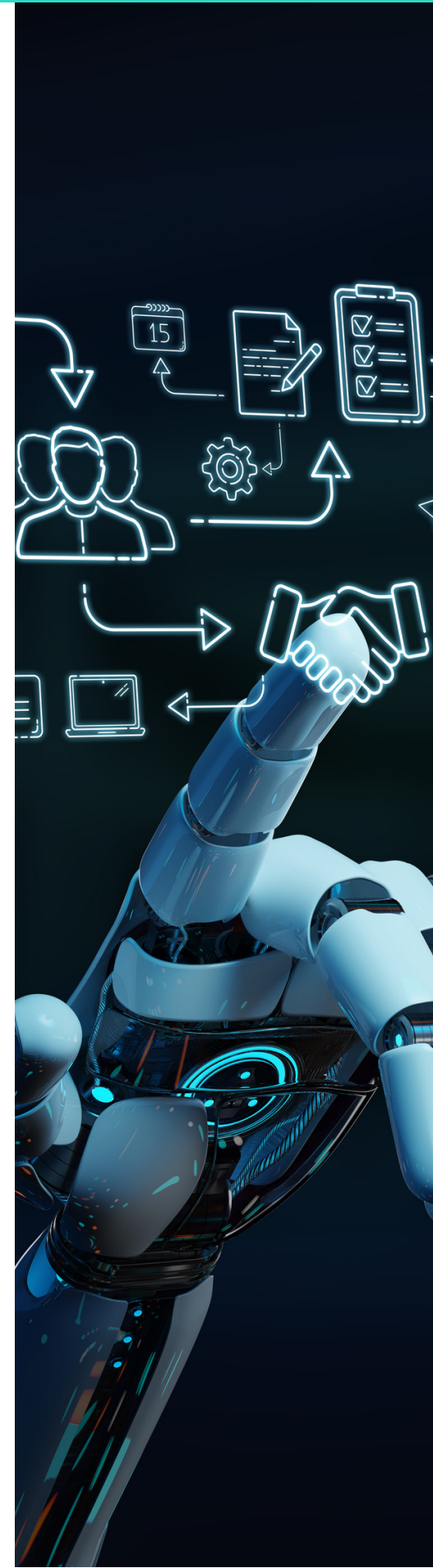


# Policies and regulations around AI usage: Interpretation and impact

Artificial Intelligence (AI) promises to be one of the most effective applied technologies ever developed (it is forecast to add up to USD 15 Trillion to the global economy by 2030) (Oxfordinsights.com, 2019). However, it has also given rise to several challenges regarding risks, security and, privacy, due to automation and the use of advanced technologies. The same finds diverse applications in various fields such as intelligent systems/agents, drones, robotics and autonomous systems. To date, the AI infrastructure in place leaves room for doubt, and even when ML decisions can be explained, their outcomes are not accepted by the subjects in question, leaving room for debate (Rodrigues, 2020). There are possibilities for the misuse of AI and relevant futuristic technologies, and they must be covered against intentional misuses such as terrorism, deep fakes, cyberattacks, warfare, , weapons and unintentional outcomes like biased systems, risk of business failure, unethical functioning etc. The same is not restricted to acts of violence or invading our day-to-day lives.

## Examples of AI Risks:

- In 2019, Apple Inc.'s credit card faced criticism for sexist practices, offering higher credit limits to men than to women (despite the women having similar or even better credit scores) (BBC, 2019). The same also raises several policies and regulatory issues such as, 'Did No One Audit the Apple Card Algorithm?' (Osoba, 2019)
- Similarly, there are cases where cybercriminals make use of AI-supported password guessing, employing ML to run algorithms for guessing user passwords (Trendmicro, 2020)



- In October 2019, researchers found that an algorithm used on more than 200 million people in US hospitals to predict which patients would likely need extra medical care heavily favored white patients over black patients. While race itself wasn't a variable used in this algorithm, another variable highly correlated to race was, which was healthcare cost history (Shin, 2020)

To date, the level of regulation in AI-related businesses is still limited, and innovation is freely allowed, with those in charge mainly bearing the consequences in case things go wrong.

# Policy and regulatory issues regarding the use of AI

Regulatory proposals ensure fairness and equity towards all concerned in the application of AI systems by providing AI developers, deployers, and users with clear guidelines regarding their use. AI offers some of the best tools to address today's challenges across domains, helping address micro and macro challenges of a business, society or a nation. Several countries such as Singapore, India, the USA, the UK, and the EU have taken various initiatives to define the guidelines and regulations to set the path to the ethical use of AI and provide checks on misuse of AI and its applications.





# European Union

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The criticality of the argument of whether systems can be evaluated as subjects of law extends to a debate about the use of AI, automation, ethics, and morality. For example, when considering cases involving Autonomous robotic and artificial intelligence (AI) systems, we need to keep in mind that an AI system is not a legal person on whom criminal responsibility could be placed directly (Nicolet-Serra, Knight, 2021). The High-Level Expert Group on Artificial Intelligence (AIHLEG) indicated in 2019 that policy-makers should refrain from establishing a legal personality for AI systems or robots, stating that the same was not fundamentally aligned with the principle of accountability, human agency, and responsibility, posing a 'significant moral hazard'. Other scholars and scientists indicated that a legal personality for AI could be used as a solution to the problem of assigning responsibilities to AI and supporting AI's moral rights (if any). We need to consider the same as we delve into issues about granting AI citizenship and, or taking care of other important issues related to non-biological intelligence (Rodrigues, 2020).

The EU Commission (EC) proposed regulations in April 2021 with rules on Artificial Intelligence as an attempt to establish the first-ever comprehensive legal framework in the form of the 'Artificial Intelligence Act – AIA' (Squire Patton Boggs, 2021).

As per the stipulations of the AIA, Article 29, the users of high-risk AI systems shall use it as per the instructions of use accompanying the systems, without prejudice to other user obligations, and shall maintain the logs automatically generated by the particular high-risk AI system (Kaizenner.eu, 2022).

It may be noted that the EU AI regulation:

(a) lays a ban on “unacceptable risk” (article 5), (b) deems certain types of social scoring and biometric surveillance to be an “unacceptable” risk and Defines “High-risk” AI systems (articles 6 and 7), and comments on Limited-risk AI systems (article 52) (includes emotion recognition, deep fake systems, biometric categorization, and Minimal-risk AI systems (Hrw.org, 2021).



## AI policy initiatives in the EU, categorized by policy instruments

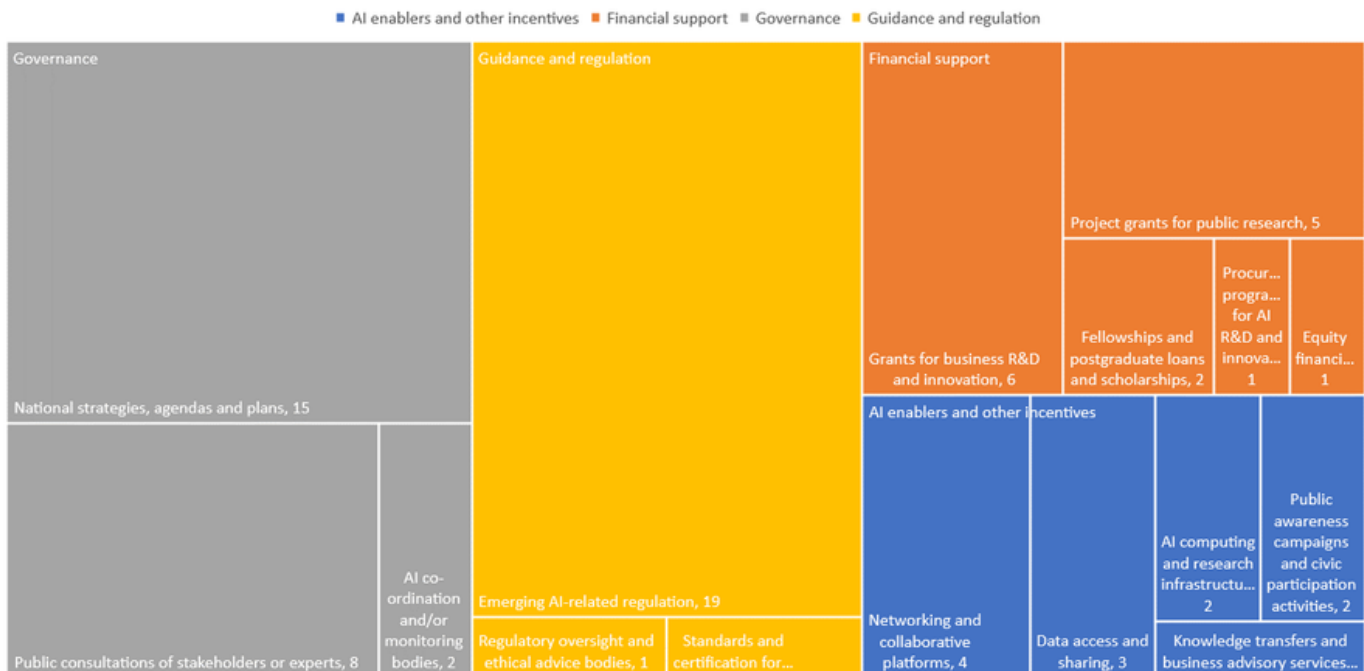


Figure 1: AI policy initiatives in the EU. Source: OECD.AI (2021), powered by EC/OECD (2021), database of national AI policies, accessed on 26/08/2022, <https://oecd.ai>.

### Key References:

- Artificial Intelligence Act (AIA): <https://artificialintelligenceact.eu/the-act/>

# Singapore

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Singapore pursues a balanced approach to promoting AI by facilitating innovation, safeguarding consumer interests, and serving as a common global reference point by enabling good governance and enforcing ethical practices in implementing AI. The same is designed to oversee matters that consider the justification of automation in AI-enabled decision-making, the level of human involvement desired, and the risk involved along with its mitigation. In Singapore, the Personal Data Protection Commission (PDPC) oversees all matters related to data and AI, and it covers AI developers and, User companies (backroom operations, front-end usage companies, and companies that sell/distribute devices or equipment that provide AI-powered features) (Rai, Murali, 2020). The Singapore Academy of Law (SAL) oversees the application of law applicable to AI systems and issues currently under consideration impacting industries relying on AI systems and/or robotics. In reference to the same and the follow-up amendments to the PDPR 2021 (Personal Data Protection Regulations 2021) from October 2021; there are minor clarifications on what constitutes 'significant harm' and egregious mishandling of personal data.

Critical updates in Singapore over the past 2 years or so in the field of AI include the Cyber Security Agency of Singapore (CSA) announcements in October 2021, as well as a court's decision on the scope of the PDPA on 25th May 2021 (Bellingham, Alex v Reed, Michael [2021] SGHC 125) (Crompton, Buttoo, 2022).

The Government of Singapore also launched Singapore's AI Verify, a Testing Framework and Toolkit for AI Governance, for companies that want to test their AI capabilities (Lee, Mulrow-Peattie, 2022).



## AI policy initiatives in Singapore, categorized by policy instruments

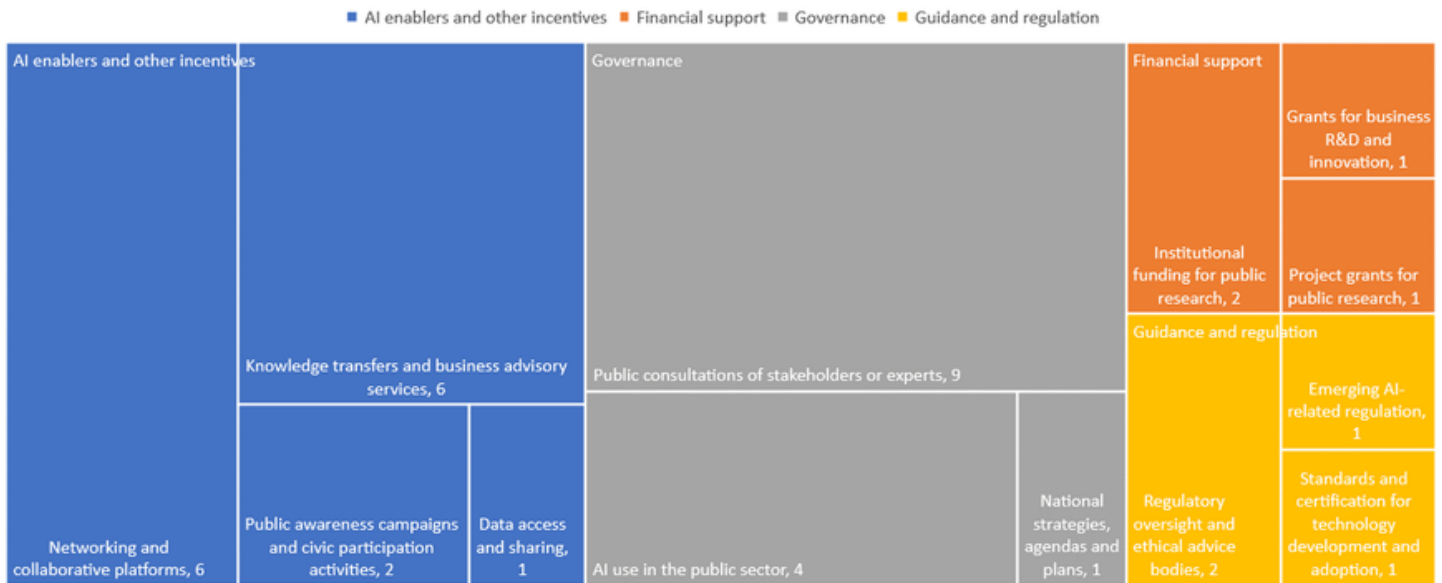


Figure 2: AI policy initiatives in Singapore. Source: OECD.AI (2021), powered by EC/OECD (2021), database of national AI policies, accessed on 26/08/2022, <https://oecd.ai>.

### Key References:

- Singapore's AI Verify framework: <https://www.pdpc.gov.sg/news-and-events/announcements/2022/05/launch-of-ai-verify---an-ai-governance-testing-framework-and-toolkit>
- Personal Data Protection ACT 2012: <https://sso.agc.gov.sg/SL/PDPA2012-S63-2021?DocDate=20210930>

# United States of America

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Acknowledging that no single definition of AI is universally acceptable by practitioners, the National Science and Technology Council (NSTC) Committee on AI identified AI as systems that think like humans, act like humans, think rationally, and systems that act rationally. Aside from this, the John S. McCain National Defence Authorization Act defines AI as including any artificial system performing tasks under varying and unpredictable circumstances without significant human oversight or that could learn from experience and improve performance when exposed to data sets. In Feb 2019, the Executive Order on Maintaining American Leadership in Artificial Intelligence (AI Executive Order) defined the term 'artificial intelligence' to include: the application and adaptation of AI techniques; AI prototype systems; architectural and systems support for AI; R&D of core AI techniques and technologies; and cyber-infrastructure, data sets, and standards for AI (Federal Register, 2019, Sec. 9).

In 2021, the government launched its National Artificial Intelligence Initiative (NAII) following Executive Order 13859 and the establishment of the AI Initiative with the Office of Management and Budget. Legislation and Executive Orders define the US national strategy on AI and Executive Order 13960 establishes principles for the use of AI at a governmental level, with a common policy for implementing the principles, directing agencies to catalog AI use cases, and coordinating AI implementation expertise at the agency level (Ai.gov, 2022).

In February 2022, the Algorithmic Accountability Act of 2022 was introduced, requiring large tech companies to perform a bias impact assessment of any automated decision-making system capable of making critical decisions. In March 2022, the Department of Defense Joint All-Domain Command and Control (JADC2) Implementation Plan was signed enabling the Joint Forces to use automation, AI, predictive analytics, and ML to deliver informed solutions (Gibson Dunn, 2022).



### AI policy initiatives in United States , categorized by policy instruments

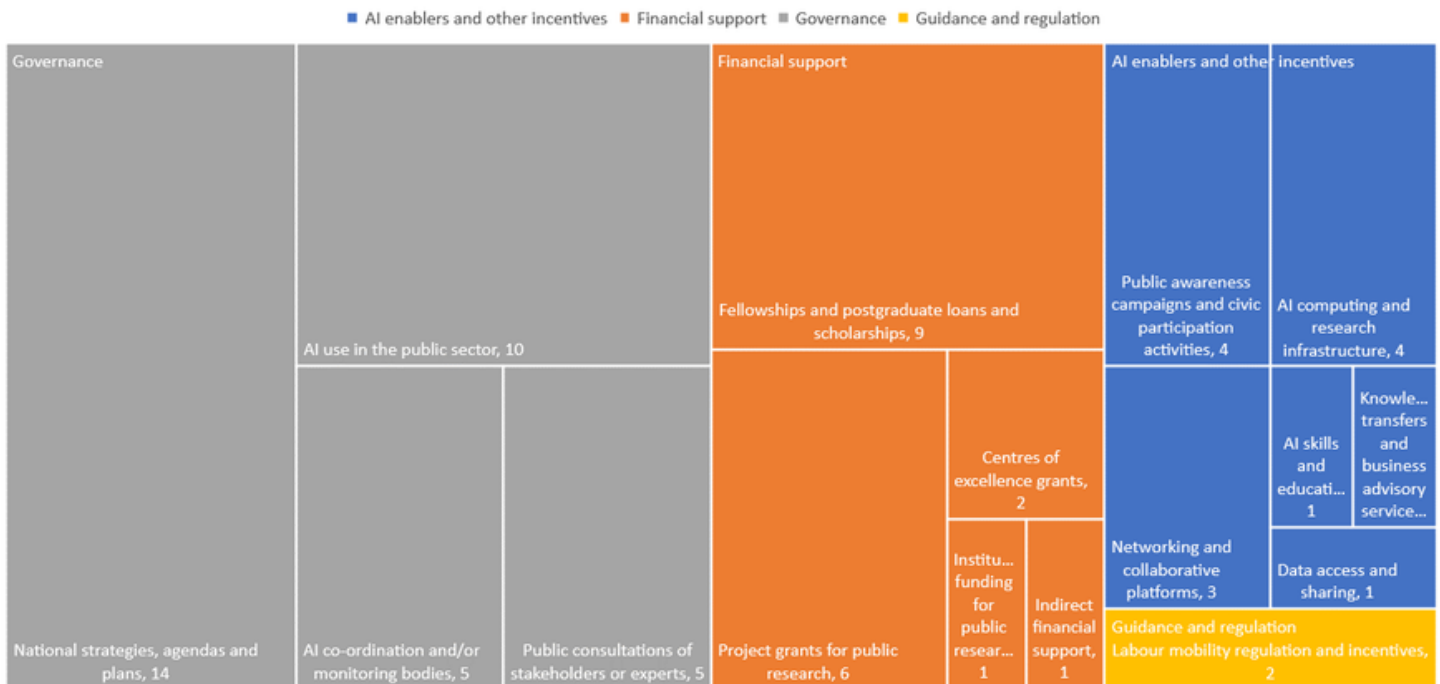


Figure 3: AI policy initiatives in United States. Source: OECD.AI (2021), powered by EC/OECD (2021), database of national AI policies, accessed on 26/08/2022, <https://oecd.ai>.

### Key References:

- Algorithmic Accountability Act of 2022: <https://www.wyden.senate.gov/imo/media/doc/2022-02-03%20Algorithmic%20Accountability%20Act%20of%202022%20One-pager.pdf>
- National AI Initiative Act of 2020: <https://www.ai.gov/>
- Joint All-Domain Command and Control (JADC2): <https://media.defense.gov/2022/Mar/17/2002958406/-1/-1/1/SUMMARY-OF-THE-JOINT-ALL-DOMAIN-COMMAND-AND-CONTROL-STRATEGY.PDF>

# United Kingdom

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A report commissioned by the Business and Cultural secretary of the UK relies on transparency principles of the UK's Data Protection laws and EU's GDPR (General Data Protection Regulation) to highlight the importance of transparency in automated decision-making systems and recommends measures to improve transparency and accountability. Other reports undertaken further highlight the importance of the explainability of AI systems to make their decision-making more transparent. Despite AI and automation being responsible for several decisions by public authorities, the current 'AI ethics' discourse largely removes these new technologies from legal accountability (Yeung, n.d.). While the EU (post-Brexit) has progressed with a proposed Data Act aiming to open opportunities for data-driven innovation, the UK has no intention of following the EU's approach to legislating AI.

The government is, however, committed to creating the right environment for the deployment of AI from a legal and regulatory standpoint (including embedding ethical and moral principles into the system). The government has also taken several initiatives to develop emergent technologies using AI and automation. For example, the Centre for Data Ethics and Innovation (CDEI) develops Emerging AI-related regulations in Facial Recognition Technology to address risks to human freedom and autonomy, Risks to human safety, and Risks to fairness (Oecd.ai, 2021a). However, the government intends to amend the copyright law to enable an easier analysis of ML learning, research, and innovation, helping improve AI based technologies and wider data mining techniques for public good (Gov.uk, 2022).

Recent cases regarding the use of automation and AI in the UK include the NHSX Ethics Advisory / COVID19 Contact Tracing case affecting close to 66 million people and the NHS C-19 datastore / 'data deal' Palantir, Faculty etc. case affecting close to 55 million people (Drake et al., 2021), clearly indicating the severity of the problem.



## AI policy initiatives in United Kingdom , categorized by policy instruments

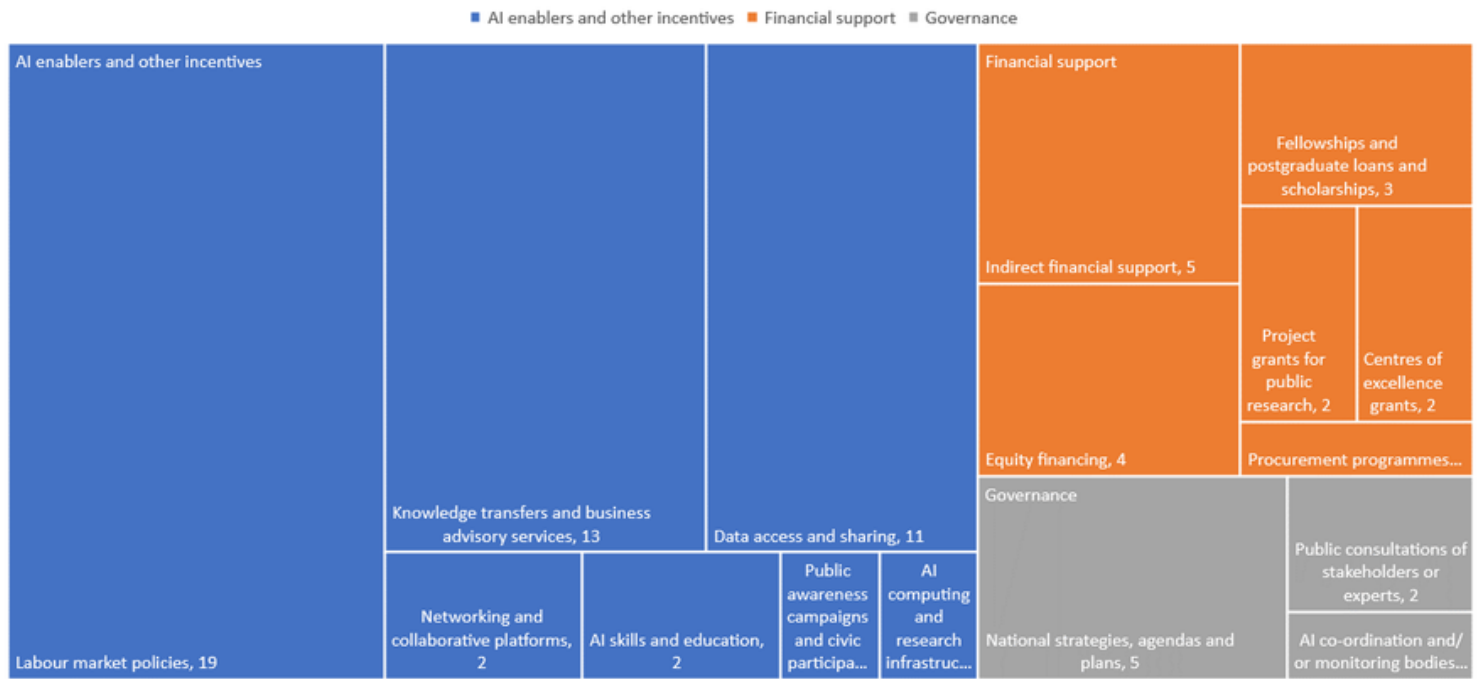


Figure 4: AI policy initiatives in United Kingdom. Source: OECD.AI (2021), powered by EC/OECD (2021), database of national AI policies, accessed on 26/08/2022, <https://oecd.ai>.

### Key References:

- CDEI's new responsible data access work programme: <https://cdei.blog.gov.uk/2022/06/13/introducing-our-responsible-data-access-programme/>
- NHSX Ethics Advisory / COVID19 Contact Tracing: <https://covid19.nhs.uk/pdf/ethic-advisory-group-report.pdf>
- NHS C-19 datastore: <https://www.england.nhs.uk/contact-us/privacy-notice/how-we-use-your-information/covid-19-response/nhs-covid-19-data-store/>

# India

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The planning commission (Niti Aayog), the Government of India aligns its policy imperatives for the management of AI to oversee issues regarding the modification of intellectual property law; legal data privacy network/s to protect human rights/privacy, and evaluate sectoral regulatory guidelines encompassing privacy/security/and ethics. AI regulations must be designed to include FAT (fairness, accountability, transparency) or FATE (fairness, accountability, transparency, and ethics) to ensure the responsible, ethical, safe, and accountable deployment of AI tools (Aashna, 2021).

Principles for the responsible management of AI in India are aligned to the Constitution under Fundamental Rights (such as Article 14: Right to Equality; Articles 15 & 16: Right against Discrimination; Article 21: Right to Life and Healthcare; and Article 38: State Directive for Economic Equality) (Niti.gov.in, 2021). As of Jan 2022, there were no specific laws in India that relate to AI, BD, or ML (Singh et al., 2022).

The Indian Government proposes to hold a Security Council Counter-Terrorism Committee (CTC) meeting to discuss ways to tackle the danger of terrorists exploiting emerging digital technologies, from crypto and NFTs to 3D-printing and AI comprehensively (Indiatimes.com, 2022). Further, recognising that offences in the online world, including social media platforms, can be unique with no equivalent in the offline world.

the Ministry of Electronics and IT (MeitY) is considering regulation of "deliberate" misinformation and doxing as offences under fresh legislation, which is expected to replace the Information Technology Act, 2000 (Barik, 2022).

To date, India doesn't have any specific law for data protection yet has provisions for safeguarding personal information u/s 43A and u/s 72A of the Information Technology act. The same gives a right to compensation for improper disclosure of personal information, similar to GDPR (Chowdhary, 2022).



## AI policy initiatives India , categorized by policy instruments

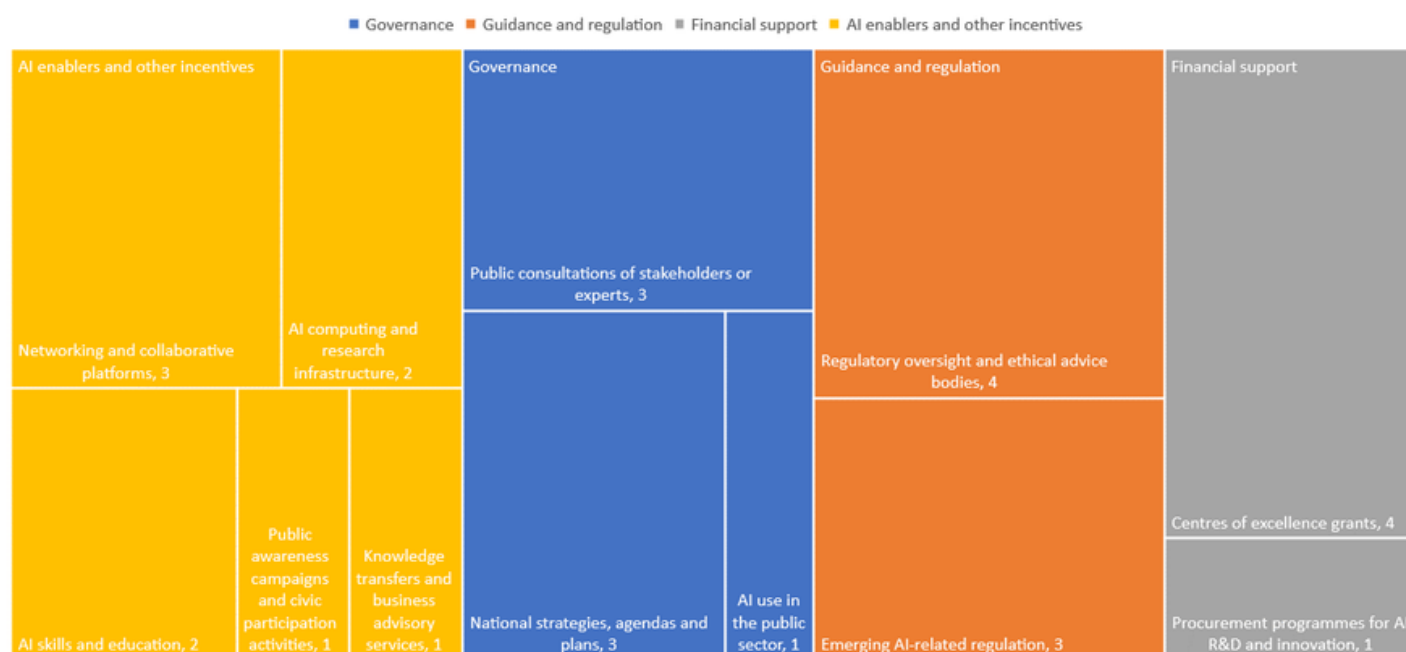


Figure 5: AI policy initiatives in India. Source: OECD.AI (2021), powered by EC/OECD (2021), database of national AI policies, accessed on 26/08/2022, <https://oecd.ai>.

### Key References:

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- Recommendation of The National AI Platform (NAIRP) by Ministry of Electronics and IT (MeitY): [https://www.meit.gov.in/writereaddata/files/Committes\\_B-Report-on-Key-Sector.pdf](https://www.meit.gov.in/writereaddata/files/Committes_B-Report-on-Key-Sector.pdf)



# Conclusion

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In the years to come, IoT-based technologies shall connect almost 20 million gadgets, cars, smart speakers, etc. (about three for every person living) (2020), robots shall dramatically change the way we do our jobs, and autonomous self-driving vehicles shall change the way people travel and commute. The adoption of newer technologies and ways of life shall accord greater importance to AI-related technologies, helping humans manage the vast majority of how we access data.

Despite a lot of study and research on the ways by which we can monitor the use of AI and Big data for its correctness, practicality, and sustainability; the legal status of AI when it comes to facilitating innovation and equating its rights and liabilities concerning others is still under question (Mittal, Chamola, 2021). As the adoption of AI-based technologies increases, we shall need to adopt responsible AI-based practices to deliver societal value and mitigate risk using ethical and transparent practices. One of the fundamental challenges in implementing AI is that regulatory bodies aren't equipped with the desired expertise to oversee AI-related queries without focus, investment and keeping pace with rapid technological changes. It also makes keeping legislators informed of developments difficult, and it is impractical and expensive to make the pre-screening of every new product using AI mandatory (Pazzanese, 2020).

The same is especially valid in the use of responsible AI (refer to appendix A), where in we need to mandate a professional code of conduct across the organization, incorporating means for the ethical use of data and AI and use AI in an ethical, fair and explainable manner to engender trust. By the year 2025, almost 70% of organizations shall require a professional code of conduct incorporating ethical use of data and AI (Chandrasekaran et al., 2022), and nearly 80% of personnel hired for AI development and, or training shall need to demonstrate expertise in the responsible development of AI.



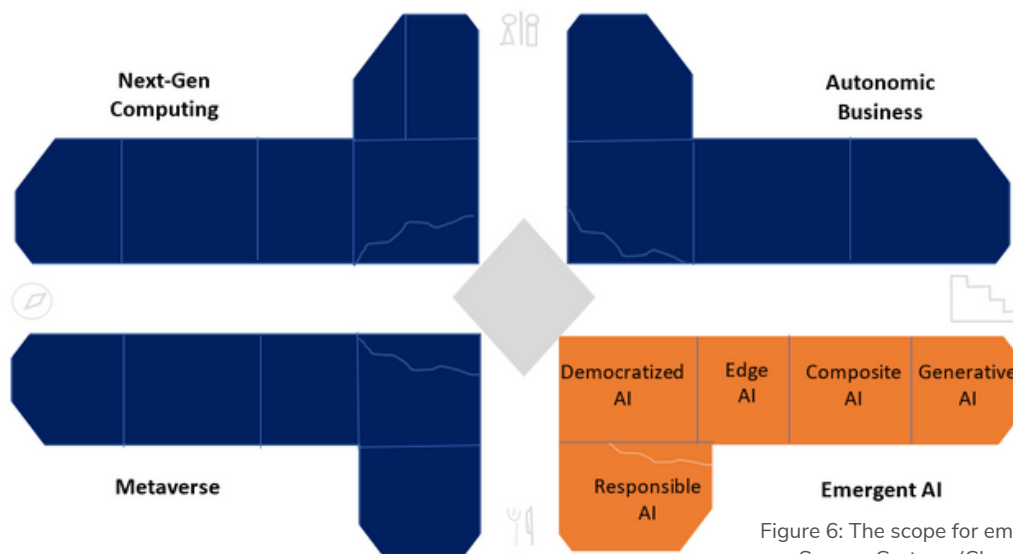


Figure 6: The scope for emergent AI in the Digital future  
Source: Gartner, (Chandrashekar et al., 2022)

The same requires policy initiatives by various Governments similar to the US 'AI Training for the Acquisition Workforce Act (Bill S-2551)', which is designed to provide an AI training program for the acquisition workforce, and for other purposes, thereby ensuring that the workforce has the desired knowledge about the capabilities and risks associated with AI (Oecd.ai, 2022).

Recent AI-related cases such as the NHSX Ethics Advisory / COVID-19 Contact Tracing case in the UK; the stipulations of Article 29 of the AIA for the users of high-risk AI systems, or matters relating to the use of AI-based systems in the EU are examples of the urgent need for reaching consensus on a range of moral, ethical, administrative, and technological issues related to the use of AI-based technologies in various industries and applications across the globe. AI experts would be required to ensure the ethical, bias-free, and responsible implementation/ evolution of AI-based applications.

Responsible AI practices shall reinforce the belief that AI should always be human-centred, helping humans and society reach higher goals under the supervision of humans, ensuring fairness, and preventing uncontrolled bias. The same should be reinforced by exhibiting conformance to the highest quality standards as per an established, internationally recognized, and universally acceptable, QMS policy, similar to those specified under Article 17 of an EC regulation document (Europa. EU, 2021), laying down harmonised rules on artificial intelligence (artificial intelligence act) and amending certain union legislative acts.

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# About Arya.ai

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Arya.ai offers a low-code 'AI Operating Platform' for financial institutions to deploy, scale and maintain responsible self-learning AI engines for core business functions like Underwriting, Risk Monitoring, Claims Processing etc. all on the same platform. The modular construct of the platform allows financial institutions to scale one function at a time and offers utmost flexibility to centralize the control on AI assets like - Models, Data pipelines, APIs, Security Guidelines etc. This makes it the only AI platform required to achieve organization wide adoption of autonomous AI. Arya brings in the best of both worlds - products & platforms onto a single unified technology stack.

Arya.ai was one of the first startups to deploy deep learning in Financial Institutions since 2013! Arya.ai founders named in Forbes Asia 30 under 30 under 'Technology' category. Arya.ai is also named in 'Top 61 AI Startups global' list by CB Insights.



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