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Governance of AI: Compliance, Ethics, and Standardisation are but a Distant Dream

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Abstract: The pace of artificial intelligence (AI) raises ethical, legal and societal concerns. Regulations concerning AI adoption vary considerably between nations, surfacing questions about the efficacy of AI compliance and the ethical standards necessary to ensure its impact enables citizen's quality of life. Of particular concern is the manner in which decisions are reached, particularly through AI's capacity to process extensive data without recourse to accountability and transparency. Comparison of the regulatory approaches adopted across four leading AI economies highlights substantial disparity whereby China has advanced AI regulation in comparison to the US, which unduly realises on self-regulation. This chapter surfaces the challenge society faces with AI adoption when governments do not pursue a collaborative and interdisciplinary approach to regulation. The pursuit of the greater good of society through AI is in its infancy.

Introduction

Despite the many different forms of AI, it remains critically predisposed to simulate human intelligence (Mintz and Brodie, 2019). AI is reshaping industries and societies, through offering unprecedented opportunities and challenges.

AI advances, however, raise ethical, legal, and social concerns (Bélisle-Pipon et al., 2021). It is no surprise that questions surrounding AI compliance and the nature of the ethical standards to meet through robust regulation have become increasingly prominent. Ethical concerns are at least alluded to in the work of the grandfather of AI, Alan Turing (1950: 455), who

contemplated the problem of the 'margin of safety' and how ‘to find out how to programme these machines to play the game’. The debate concerning the ethical implications of AI took hold in the 1960s (Samuel 1960) and that intensified by the early 1980s. Mason (1986: 12), for example, identified the four ethical issues of the information age: privacy, accuracy, property, and accessibility, adding the moral imperative to ‘ensure that information technology, and the information it handles, are used to enhance the dignity of mankind’. Currently, the intensity of the debate among scholars, policymakers, and, to some extent, practitioners has reached levels comparable to the technological innovations in genetics and nuclear power (Prem, 2023).

Algorithmic systems are now being deployed for high-stakes applications such as law enforcement and automated decision-making. These tools have the potential to increase bias, injustice, and misuse at an alarming scale. As AI technology rapidly advances, it is accompanied by a growing presence of uncertainty and unease alongside the conveniences it offers. The consequences of new AI often only become apparent after the technology gains momentum, leaving people with a sense of limited control due to them only reacting to established trajectories. When the demand for new technology intensifies, the “dilemma of technology control”, also known as the “Collingridge dilemma” (Collingridge, 1980) takes a grip. Collingridge (1980) perceives control technology for a social good as problematic, mainly due to inadequate ‘governance’ of science, technology, and innovation.

Enhancement in decision-making processes due to AI innovation poses unique challenges for governance oversight due to the technologies inherent opaqueness and frequent evolution. Users may control data inputs and observe outputs but often struggle to explain the decision-making process or understand the data points involved. Additionally, the evolving nature of AI processes as systems learn over time which adds another layer of complexity to effective governance.

In this article, we explore the complex landscape of AI compliance, ethics, and standardisation. We delv into the current state of affairs, highlighting the challenges faced and emphasising the importance of establishing a comprehensive framework to guide the responsible development and deployment of AI technologies.

Ethics and AI

What preoccupies contemporaries concerning the ethics of AI adoption is its impact particularly in medicine. It is recognised that it is impossible to develop a code that covers all possibilities. Safety flaws in AI systems may endanger more patients than the possibility of misdiagnosis by a doctor, due to the fact that automated systems replicate errors (Macnish, 2012).

“First, Do No Harm,” an extrapolation of the Hippocratic oath, represents the first tenet of ethics. The principle of non-maleficence to sidestep causing harm or needless suffering forms the backbone of medical ethics. In the UK and in another sector, over 900 sub-postmasters and postmistresses were prosecuted for supposedly stealing money as a result of incorrect information generated by the Horizon, computer system (Peachey et al., 2024).

The swift progress of AI technology brings with it risks and challenges, supported by a consensus among experts that the ethical implications of these advancements require scrutiny (Guo, 2020). In attempts to portray their actions, products, and services as ethical, AI companies engage in what is often termed "Ethics Bluewashing" (Floridi, 2019). In essence, reality often falls short of the assurances given. Another strategy employed is the avoidance of direct ethical discussion, opting instead to focus on the concept of "trustworthiness". This approach allows the firm to frame trustworthiness as a gradable quality, suggesting that certain products or services are more trustworthy than others. In providing explanations as to why, Hagendorff (2020: 108) notes that the development and use of AI is "not primarily framed by value- or principle-based ethics, but obviously by an economic logic".

Bias and fairness are primary ethical concerns in AI and revolve around the slant embedded in algorithms. AI systems trained on biased datasets can perpetuate and amplify societal prejudices. Addressing bias requires a multi-faceted approach, including diverse and representative training data, transparency in algorithmic decision-making, and continuous monitoring for unintended consequences.

Transparency and explainability are the other ethical concerns regarding AI systems. The opacity of many AI algorithms poses challenges in understanding and explaining their decision-making processes. Ethical AI demands transparency to build trust and accountability (Gebru et al., 2021). Developing explainable AI techniques is essential for providing users and stakeholders with insights into how AI systems arrive at specific outcomes.

The vast amount of data processed by AI systems raises concerns about individual privacy and data security. Striking a balance between extracting meaningful insights and protecting sensitive information is a further critical ethical consideration (Mittelstadt, 2019). Robust data anonymisation, encryption, and adherence to privacy regulations are essential components of ethical AI development.

Although accountability, privacy and fairness predominate, the present-day guidelines provide the minimal requirements for building and using "ethically sound" AI systems (Hagendorff, 2020).

AI Standardisation and Compliance

As AI technologies become increasingly pervasive, the absence of standardised practices poses challenges in ensuring consistency, interoperability, and ethical conduct. Standardisation is crucial for building a foundation that supports responsible AI development, deployment, and use across different sectors and regions.

Various international organisations are working towards establishing AI standards. Initiatives like the International Organization for Standardization (ISO) and the IEEE Standards Association are developing frameworks to address AI's technical, ethical, and societal aspects. These efforts aim to create a common ground for AI practitioners, researchers, and policymakers to align their approaches.

Further there are a growing number of government policies, ethical guidelines, and literature reviews addressing the current state of AI compliance. Almeida et al. (2021) conducted a systematic review of the literature on AI Regulation, identifying and analysing 21 unique models for policymaking, which aim to achieve gold-standard societal values, such as fairness, freedom, and long-term sustainability. Correa et al. (2023) undertook a meta-analysis of 200 governance policies and ethical guidelines for AI usage published by public bodies, academic institutions, private companies, and civil society organisations worldwide. They found 17 resonating principles are prevalent in policies and guidelines. The top five are accountability/liability, beneficence/non-maleficence, children's and adolescents' rights, dignity/human rights, and diversity/inclusion/pluralism/accessibility. Attard-Frost et al. (2023) reviewed 47 AI ethics guidelines using thematic analysis aimed at determining the extent to which the ethics of AI business practices are even considered. Attard-Frost et al. (2023: 389) found that AI ethics guidelines 'focus disproportionately on issues of algorithmic decision-making, while the fairness, accountability, sustainability, and transparency of the business decision-making contexts in which AI systems are situated remain seriously undermined by competitive and speculative norms, ethics washing, corporate secrecy, and other harmful business practices'. Moreover, the review suggests that AI business practices', political and economic implications are significantly underrepresented in AI ethics guidelines.

Similarly, expanding on the work of Morley et al. (2020), Prem (2023) undertook a systematic analysis of more than 100 frameworks, process models, and proposed remedies and tools for helping to make the necessary shift from AI principles to implementation. Prem (2023) concludes that explicability, fairness, privacy, and accountability are often addressed with proposals for software and algorithms. The literature suggests that there is an abundance of various frameworks and models, encompassing a breadth and variability of approaches and that the impact of AI demands a combination of ethical design, laws, and education. Yet, despite these insights little progress is made in terms of legislative frameworks.

The rapid evolution of AI has outpaced the development of comprehensive regulatory frameworks. Governments and international organisations are grappling with the task of creating laws that balance innovation with ethical considerations. As of 2022, China and the EU have taken significant strides in establishing AI guidelines, but a global consensus is yet to emerge.

In the absence of universal regulations, various industries and corporations are taking voluntary steps to ensure for AI compliance, whilst others are using the "free card" to advance their interests. Certain tech giants and AI developers have initiated ethical guidelines and best practices to address bias, transparency, and accountability concerns.

Collaboration between industry players and regulatory bodies is crucial to establishing a cohesive approach to AI compliance. Table 1 below summarises the approaches of leading AI countries to AI ethical regulation.

Table 1: Regulatory approaches by the leading AI economies

	EU	Israel	US	China

Regulation(s)	• General Data Protection Regulation (GDPR) Article 22. • Proposed Artificial Intelligence Act 2024 (Legislation Endorsed by Member States)	AI Policy (17/12/2023)	• No comprehensive federal AI regulation. Decentralised approach with various agencies addressing specific aspects of AI. • Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, 30/10/2023	• 2021 regulation on recommendation algorithms (the algorithm registry), • the 2022 rules for deep synthesis (synthetically generated content), • the 2023 draft rules on generative AI. • New rules for synthetically generated images and chatbots in the mould of ChatGPT
Regulating Body	EU Global standard for AI regulation	Central Government	• A federal approach is to be developed. • State and local take the lead	Central Government
Motivation	Consumer protection; fairness & safety	Innovative dynamism and safety	Self-regulation, pro-innovation	State control; economic dynamism
Aim to	Set a common framework for AI use across member states, ensuring the responsible development and deployment of AI technologies. To regulate the development and use of AI by providing a framework of obligations for parties involved across the entire AI supply chain	Striking a balance between fostering innovation and ensuring ethical use whilst fostering technological advancements	Promote innovation and economic dynamism. Major IT companies act as a national state without any accountability.	Information control, laying the groundwork for a capstone national AI law.
Approach	• Comprehensive umbrella laws • Horizontal	"Soft" sector-specific regulation	Emergent	• Algorithms as a point of entry • Building regulatory tools and bureaucratic know-how

				• Vertical and iterative (for now
Key features	• GDPR, Article 22 prohibits decisions based solely on automated processes unless the program gains the user's explicit consent or meets other requirements. • Conflicting Perspectives on AI Innovation • Fines (similar to the GDPR) of up to 7% of annual global turnover for certain offences.	• A common set of ethical AI principles based on the OECD AI Principles focuses on human-centric innovation, equality, transparency, reliability, accountability, and promoting sustainable development. • Forums for Regulators and Public Participation	Varies across States and industries	• Firms must require a license to provide generative AI services to the public and submit a security assessment if public opinion attributes or social mobilisation capabilities are used in the model. • AI is an economic tool but must preserve social value.

Source: Based on European Council (2024); IGDPR (2016); MIST (2023); White House (2023); Sheehan (2023); Zhang (2023).

China has rolled out some of the world's first binding national regulations on AI. In so doing it is poised to implement some of the most stringent regulations on AI developers, driven by the need to strike a balance between controlling the information generated by AI models and maintaining competitiveness in the technology race, particularly with the United States (Sheehan, 2023).

Taking a proactive stance, China has advanced AI regulations beyond mere proposals. In March 2022, the country enacted a regulation governing the use of algorithms by companies in online recommendation systems. Although many analysts and policymakers in other countries dismiss China's regulations as irrelevant or political propaganda, the emergent regulation mandates that services must adhere to principles of morality, ethics, accountability, transparency, and the promotion of "positive energy" (Sheehan, 2023). These regulations target recommendation algorithms for disseminating content, synthetically generated images and video, and generative AI systems like OpenAI's ChatGPT. Companies must notify users when AI algorithms influence information presentation, allowing users to opt out of targeted interactions (Zhang, 2023). The regulation also prohibits using personal data in algorithms that result in different consumer prices. These principles are anticipated to influence the development of AI regulations globally.

Both vertical and iterative elements characterise China's regulatory approach. Vertical regulations focus on specific applications or manifestations of technology, diverging from

horizontal regulations like the European Union's AI Act, which seeks to comprehensively cover all applications of a given technology (Sheehan, 2023). While no regulation is entirely vertical or horizontal, most tend to lean toward one direction or the other.

Challenges in AI Compliance, Ethics, and Standardization

Turning principles into practice is one of the most pressing concerns for AI governance (Prunkl, 2021). The pace at which AI technologies evolve poses a significant challenge for regulators and standardisation bodies. Traditional regulatory approaches struggle to keep up with rapid advancements, creating a potential gap between technology development and ethical adoption. The distributed nature of AI development and deployment often leads to friction in assigning accountability. Determining responsibility for ethical lapses or compliance violations becomes intricate when multiple entities are involved in different stages of the AI lifecycle.

Diverse cultural, legal, and ethical norms across different regions complicate the establishment of global AI social and ethical practice standards. Achieving consensus on ethical principles and regulatory frameworks requires navigating these variations and fostering international collaboration.

The development of autonomous vehicles adds to the ethical challenges posed by AI. As self-driving cars become more prevalent, questions arise about their decision-making. Ethical considerations include determining how AI systems prioritise the safety of passengers, pedestrians, and other drivers and whether transparency in these decision processes is achievable. Currently, autonomous cars operate at level 2, where a driver is still in charge, but electronic chips control two or more elements, such as lane-keep assist and auto cruise control. Vehicles are now near to level 3, where humans are still hands-on at all times, but the car boasts safety-critical functions such as lane-change mode, self-parking features, driver monitoring, etc.

Level 4 driverless cars have the driver on standby and can be hands-off for periods of time. The car is fully autonomous in controlled areas based on next-gen sensors and algorithms. Laws for the level 5 fully autonomous or driverless cars with genuine hands-off driving where the driver is optional, are yet to come.

The use of AI in predictive policing has sparked ethical concerns related to bias and discrimination. Algorithms analysing historical crime data may perpetuate existing biases, leading to disproportionate targeting of specific communities (Reese, 2022). Striking a balance between effective crime prevention and avoiding discriminatory practices remains a significant challenge.

In healthcare, AI-driven diagnostic tools are gaining prominence. Ensuring the ethical use of these technologies involves addressing issues such as data privacy, informed consent, and the potential impact on doctor-patient relationships. Balancing the benefits of improved diagnostics with the ethical implications of handling sensitive health data requires careful consideration.

Today's data is known as the "new oil" due to its economic value (*The Economist*, 2021). For example, in 2020, a Chinese imaging AI was hacked, and its source code and training data were sold on the dark web for four bitcoins (about 210,000 RMB) (Zhang, 2020). Healthcare data has high research and business value, and data breaches occur frequently. In 2017, 15% of global data breaches came from the healthcare industry, second only to the financial sector.

As quantum computing advances, its intersection with AI introduces new challenges and ethical considerations (Brooks, 2023). The potential for exponential increases in computing power will impact the ethical dimensions of AI, particularly related to privacy, encryption, and the development of more powerful AI algorithms. Moreover, the convergence of AI with human augmentation technologies raises ethical questions about the boundaries between humans and machines (Cinel et al., 2019). Issues such as consent, autonomy and the potential for social inequality must be carefully considered as AI technologies become more integrated into the human experience. The ethical debate surrounding neuroscience, neuro-ergonomics, brain-to-brain communication, neural engineering, and their growth, is long overdue.

Compliance and Collaboration

Global collaboration is paramount to addressing AI compliance, ethics, and standardisation challenges. To date a variance of governance practice exists. China leads the way with US tech giants operating as 19-century “robber barons”. Currently, certain major high tec companies act as a national state without any accountability. With such extremes of governance practices, continued self-regulation only harms the public interest. International efforts should be intensified to establish a harmonised set of standards that guide the responsible development and deployment of AI technologies across borders.

Governments play a pivotal role in shaping AI compliance and ethics. A great deal will depend on the direction provided by regulatory bodies to be ahead of technological advancements. There need to be considerable penalties for those who do not comply, and that needs to be higher than the EU-proposed Artificial Intelligence Act 2024, which imposes similar fines to GDPR of up to 7% of annual global turnover for certain offences. A more meaningful deterrent for unethical profiteering needs to be established.

Given the dynamic nature of AI, regulatory frameworks and standards need to be designed with flexibility and adaptability in mind. Regular updates and revisions should be facilitated to incorporate new knowledge, technological advancements, and evolving ethical considerations.

AI development requires input from various disciplines, including ethics, law, sociology, anthropology, and psychology. Only interdisciplinary collaboration can contribute to a more holistic raising of the governance standards of AI.

Bearing in mind the variance of practice, it is questionable whether tech companies will take a proactive role in fostering ethical practice. Transparency in algorithmic decision-making, responsible data management, and cooperation with regulatory bodies are crucial steps for industry leaders to contribute to a responsible and sustainable AI ecosystem.

But will they?

Burrell (2016) argues AI systems harbour three distinct opacities. Algorithms are trade secrets that companies intentionally hide. The low level of ability of lay people to understand programming and algorithmic techniques and the complex nature of the algorithms themselves, promotes a “black box” mindset. Inputs and outputs are visible and understandable, but the process from input to output often cannot be explained or even understood. (Burrell, 2016). The first two types of opacity can be improved by establishing better regulation and education. The third opacity, algorithms are black boxes due to the fact that machine learning is based on data rather than rules and imitates the multilayer structure of the human neural network.

Thus, engaging the public in AI compliance and ethics discussions is crucial for building a consensus on acceptable norms and values. Public awareness campaigns, educational initiatives, and forums for open dialogue can contribute to a more informed and engaged citizenry, influencing the direction of AI development and regulation. Public forums are the basis for the Israeli AI Policy (17/12/2023) which others should be adopted.

In parallel to campaigns for greater public awareness, embedding AI ethical considerations into education is vital for shaping the mindset of future developers, practitioners and users. Universities and training programs should have at their core the ethical implications of AI technologies, which foster a sense of responsibility and ethical awareness among those entering the field.

Academic institutions and research organisations play a key role in shaping the ethical landscape of AI. Research should focus not only on technological advancements but also on the societal implications of AI. Collaboration between academia, industry, and regulatory bodies can bridge the gap between theoretical ethical considerations and practical implementation.

Only governments can establish establish robust standards and ethical guidelines, so that advances can be made towards ensuring that AI contributes positively to society while minimising risk and preventing harm.

The challenges are complex in the dynamic landscape of AI compliance, ethics, and standardisation. The responsible development and deployment of AI technologies requires a concerted effort from governments and regulators to establish comprehensive standards which the private sector is likely to resist. The free-market argument is likely to be at the forefront with the firm camouflaging unacceptable practices.

Government must remain vigilant and committed to a collaborative and interdisciplinary approach. The challenge will be that of staying ahead of technological advancements, so that a future can be shaped to where AI enhances human well-being, respects diversity, and upholds the principles of transparency, fairness, and accountability. That is the desire. The path forward is likely to be that of no shared commitment to harnessing the potential of AI for the greater good while safeguarding the values that define us as a society.

In the years ahead, how government resists kidnap by the tec giants and the dollar loaded private equity interests behind them is the critical point of concern. The objective is to have

organisations that utilise AI to document specific information about their systems totally in keeping with regulatory frameworks. To not do so must induce a punitive fine.

To secure compliance with emerging regulations and build trust in technology will require government to display independence from and resilience against powerful private interests. To date only the Chinese government displays such qualities with the US veering in the opposite direction,

Do not expect a fair for all society soon.

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