



Mohammed Bin Rashid School Of Government

POLICY BRIEF

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Summary

Algorithm governance involves establishing rules and practices for creating and employing algorithms within AI technologies tailored for specific purposes. Unlike a mere charter or ethical guidelines, it encompasses comprehensive measures to guarantee the proper functioning of the algorithm and prevent issues such as technological discrimination and legal non-compliance. Similar to a law, effective algorithm governance requires the implementation of a judicial system to ensure continuous assessment and enforcement of compliance.

In this policy brief, we explore the foundational aspects of algorithm governance, initially applied to a specific use case and subsequently extended to diverse scenarios to assess scalability. The iterative and agile methodology employed by teams is crucial for adjusting the company's governance framework during deployment within the organization. This approach ensures the design of algorithms that prioritize inclusivity, respect for citizens, and environmental considerations. Moreover, by publicly communicating and sharing its governance principles, the company actively contributes to legislative debates, influencing the formulation of future laws that govern algorithms in a relevant and sustainable manner.

Companies need to build algorithmic governance ahead of the law

Mark Esposito, Professor of Economic Policy

Algorithmic governance: from law to ethics

In June 2023, the European Parliament voted a legal instrument intended to regulate the design and use of artificial intelligence (AI) according to its level of risk to citizens' fundamental rights. Public and private stakeholders, whether consumers or designers of AI, must develop algorithmic governance to ensure the compliance of their activities and, above all, to avoid causing harm - even to a minority of users (Ruha Benjamin, 2019 ; Cathy O'Neil, 2016) - and to minimise the reputational risk associated with algorithmic scandals such as those seen in recent years (Latanya Sweeney, 2013 ; Kate Crawford, 2021). In this way, OpenAI could have gradually rolled out its conversational agent, ChatGPT - and its GPT algorithm - whilst anticipating the risks associated with mass appropriation thereof (Josh Entsminger et al., 2023) and with errors and approximations in responses and users misunderstanding of the tool. Stakeholders must build algorithmic governance through ethical rules (David S. Rubenstein, 2021) and practices for designing and using these algorithms, using a methodology that is as rigorous as it is pragmatic in order that it may be applied effectively and measurably.

What is algorithmic governance? (and what it is not)

Algorithm governance covers the rules and practices for the construction and use of algorithms embedded in AI technologies designed for a specific use case. It is not simply a charter or a set of ethical principles, but is based on all the measures to be taken in order to ensure that the algorithm in question functions properly and to guard against any errors such as technological discrimination or non-compliance with the law. This is like a law, which must be accompanied by a judicial system if it is to be applied and its compliance assessed at all times.

Algorithmic governance must be multidisciplinary and cross-cutting (Christian Katzenbach and Lena Ulbricht, 2019) with a number of sciences such as sociology (Dominique Boullier, 2019), politics (Mark Coeckelbergh, 2022), and anthropology (Maria Sapignoli, 2021 ; Nick Seaver, 2018). It must link the various stakeholders in a project, including the end user, and incorporate their level of understanding of the technology and algorithmic science in general, as well as their rights, obligations and duties with respect to the algorithm in question.

Algorithmic governance must also enable two simultaneous approaches: the historical top-down approach, which enables a steering committee or project managers to infuse and impose best practices and their application, and the bottom-up approach (Hannah Bloch-Wehba, 2022), which enables every member of a company's staff or the end user to contribute directly (through tangible, practical involvement in the project) or indirectly (for example, by collecting user feedback) to the smooth running of the project: from the launch and development through to deployment thereof.

Finally, governance must be carried out and evaluated in a manner so transparent that it can be understood by all stakeholders in a project involving the design, procurement or use of an algorithm. It should be emphasised here that unconditional transparency of the source code in which the algorithm is programmed should not make it possible to exempt oneself from algorithmic governance. In practice, any transparency being taken into consideration should involve the source code, all the data sets used and the criteria used for algorithmic training. In some cases, this could impede innovation by only

making companies' intellectual property available to the public. Transparency in governance must be imposed unconditionally.

Algorithmic governance models

Few stakeholders have set up or communicated their algorithmic governance model, apart from their ethical charter for trusted AI. Some attempts in the past have been unsuccessful, such as Google's AI ethics committee, which was discontinued in 2019 (Bobbie Johnson and Gideon Lichfield, 2019), or Microsoft's first AI charter in 2017, which was not massively adopted. Added to this is the limited number of academic studies setting out ready-to-use algorithmic governance models, unlike those on data or more generally on the importance of ethics in AI.

And yet, acting upstream of legislative debate is essential for these stakeholders. There are many advantages to being ahead of the law: anticipating the ethical implications of a new technology, preventing costly litigation, avoiding reputational pitfalls, boosting stakeholder confidence, differentiation from competitors by enhancing attractiveness, and playing an active role with European legislative bodies.

Which model of algorithmic governance should be adopted?

There is not just one model, but a multitude of models that can be adapted to industry, to a company and its ambitions, and also to a type of algorithmic project. That being stated, a general structure should be used to build the foundations of one's own governance. This structure should include several phases of a project to design or procure an algorithm: from the ideation phase, which includes the formulation of the business problem to be solved, to the use phase, which includes feedback from the end user. It should include the business and technical specification phases, including environmental issues associated with the extraction of raw materials for the manufacture of hardware, as well as the computing power - and therefore energy consumption - involved in training the algorithm and running it. It should also include data collection phases, including

any sampling and representativeness tests to be carried out, computer programming and algorithmic training, validation and deployment of the algorithm, and the tests carried out on it once it has been used, sometimes by millions of individuals. This should also include assessment and enhancement of the level of technical understanding by stakeholders, including business staff and end-users. A risk score must be calculated as the governance process progresses, in order to assess the scientific, technical, ethical and reputational risks associated with this algorithm. Charters and principles of good practice should be drafted when the structure on which the algorithmic governance is based is being drawn up, in order to add any questions and points concerning the project that need to be addressed. The presence of an internal or external ethics committee (Reid Blackman, 2022) can help to ensure that the governance process runs smoothly.

Explainability calculations (Valérie Beaudouin et al., 2020), which are statistical methods used to control or extract the algorithm's operating logic, must be systematically applied (Aurélien Jean, 2021) before (i.e. on data sets), during and after automatic training. These calculations, which make it possible to reduce the opacity of the algorithm and control its responses and their variability, significantly reduce the risk of errors, bugs or algorithmic bias at the root of technological discrimination. This is how one could have prevented the first facial recognition algorithms (Joy Buolamwini, 2016) from being biased with respect to the colour of one's face, or the Goldman-Sachs algorithm in the Apple Card application (Niall Firth, 2019) from giving women lines of credit far lower than those given to men.

Where to start?

The company must identify a use case involving algorithmic technology to meet one of its precise business needs. Together, the technical and business teams must identify the form of each phase of algorithmic governance, and define the questions, actions and tests to be carried out for each of them. Moreover, the teams must decide how to calculate the algorithm's risk score and the governance success metrics. This initial governance is then applied to the use case and then to several other cases in order to check that it can be scaled up. Finally, using an iterative and agile method, the

teams must adjust the company's governance whilst deploying it within the organisation. In this way, the company will design algorithms that are inclusive, respectful of citizens and the environment. By communicating and sharing its governance publicly, it will also contribute to legislative debates in the drafting of the next relevant and sustainable laws governing algorithms.

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Economic Policy

This research area focuses on the future of the economy in the region and the UAE, with a strong emphasis on policy analysis and economic foresight aimed at sustained long-term prosperity, growth and sustainable development. It explores the main economic challenges and structural shifts underway in the UAE and the region, including the economic consequences of innovation and emerging technology, the knowledge economy, the economic impact of the Fourth Industrial Revolution, the adequacy of existing employment and social policies and inclusive policymaking for greater economic inclusivity.

Furthermore, research in this area aims to create thought-leadership and advance the quality of government practice in the field of public economics in the region, analysing the economic aspects of the expansion and regulation of the public sector and its role in driving economic growth and equity.

Economic policy research at the MBRSG seeks to be intrinsically cross-sectoral, supporting and overlapping with most other research tracks led by the School. It strives to provide a holistic approach to economic policy research and policymaking in the region by addressing a wide variety of topics. Examples of such research topics include economic diversification, sharing and circular economy, the economics of the “new oil normal” and the economics of innovation.

Finally, policies directly and indirectly aimed at economic diversification are explored at length in this research area, with a focus on commodity-dependant economies in the GCC and beyond.



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