Rules of engagement

How research will be impacted as governments across the world create regulation for artificial intelligence

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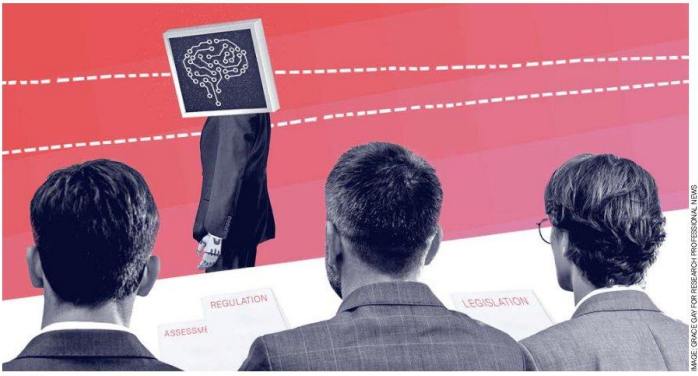

IMAGE: GRACE GAY FOR RESEARCH PROFESSIONAL NEWS

For outsiders peering into the world of academia, scientists' dogged determination to pour years of their lives into experiments that might not ever lead to a breakthrough can seem perplexing. But for scientists, the feeling of exploring new ground at the frontiers of knowledge is worth all the hard work. In future, though, they might be competing with computers for that warm glow—and for the Eureka moments.

Last month, a European Commission analysis warned that artificial intelligence could become the driving force behind major scientific developments. "If current trends persist, the probability of future scientific discoveries being driven primarily by AI applications and tools is set to increase significantly," wrote Commission officials David Arranz, Stefano Bianchini, Valentina Di Girolamo and Julien Ravet.

The rapid rise of AI, including large language models such as Open AI's ChatGPT, has huge implications for R&D. The officials found that AI could "serve as a catalyst for scientific productivity, resulting in more efficient outcomes and pushing back scientific boundaries".

But questions around how to tame AI mean that governments across the world are pushing through regulations and guidelines to create boundaries for the technology. Serious ethical questions around discrimination and bias in AI applications, data privacy for internet users and plagiarism concerns are behind the race to introduce rules, not to mention bleak predictions about what some say are the existential risks posed by AI.

Some researchers worry that too much regulation will hamper research in AI; others fear that too little—and too little alignment between governments—will come with its own set of headaches.

Different approaches

Attempts to regulate AI around the world are not all following the same path. Authorities in China are already deep into rolling out what the Carnegie Endowment for International Peace think tank has labelled "some of the world's earliest and most detailed regulations governing AI".

The rules covering artificially generated images, chatbots like ChatGPT and recommendation algorithms—which use AI to recommend products that a user might like based on their previous searches—have implications for "both Chinese technology exports and global AI research networks", according to a recent paper from the think tank.

On 13 July, China's cyberspace regulator published provisional measures for how to manage generative AI, due to take effect on 15 August. Those measures include forcing AI firms to carry out security assessments for some public-facing services and a ruling that generative AI outputs must be in line with the country's "core socialist values".

In the West, the only nation with an economy bigger than China's has released plans for less restrictive controls with an AI 'bill of rights'. The US Office of Science and Technology Policy has published a blueprint for voluntary measures that would protect citizens from

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> **Lithuania’s innovation ministry** on the EU’s planned AI Act

potential harms such as discrimination from biased algorithms and personal data being accessed without permission.

US senator Michael Bennet has also introduced a bill to create a federal agency to oversee AI. “As the deployment of AI accelerates, the federal government should lead by example to ensure it uses the technology responsibly,” Bennet said in April.

Writing the rulebook

Closer to home, the EU—arguably the third major global power when it comes to AI—is working with the US by sharing AI research on climate and health under an agreement struck in January. But the EU has its own distinct approach to regulating the technology that not all its member states agree with.

Work on the AI Act, which would introduce a set of rules for AI products and their use in the bloc, has been ongoing for around two years. During a vote in the European Parliament last month ahead of talks with EU member states on what the final law will look like, an overwhelming majority of MEPs backed the Parliament’s proposals, with 499 votes for, 28 against and 93 abstentions.

The Parliament’s draft law would classify different types of AI in terms of risk, including a ban on anything that would create an “unacceptable level of risk to people’s safety”, such as biometric identification in public spaces.

Generative systems such as ChatGPT would need to meet certain requirements, including disclosure that content was AI-generated, as well as labelling faked images. The Parliament’s stance would also stop generative AI trained on scientific publications from plagiarising or creating illegal content.

AI systems specifically designed for scientific development and research are exempt from the Parliament’s proposals, which stress that the rules “should not undermine R&D activity and [should] respect freedom of scientific research”.

Still, scientists studying tools classified as “high risk” who later intend to launch a product to market might want to follow proposed transparency rules for AI product datasets. Under the Parliament’s position on the AI Act, providers of products based on AI which are deployed to the market will have to comply with obligations for safety and ethical use. So although research is exempt from the rules, products that are created as a result of that research are not.

And even with the freedoms for research, some countries worry that the latest proposals could still restrict innovation, leaving the EU lagging behind global rivals. Jean-Noël Barrot, France’s minister for digital transition, recently told the publication Politico that the Parliament’s position was “excessive” and came “at a time when we have a pressing obligation to develop generative AI models in Europe over the coming months, to be autonomous and not have to depend on non-European models in the years to come”.

Lithuania’s innovation ministry told Research Professional News that although the AI Act “is an important step towards regulating the development and application of AI...we also see the need for an emphasis on ensuring that the functioning of the single market and the development of AI products are not hampered”.

“The regulation should ensure a dynamic ecosystem that encourages innovation while upholding ethical standards and protecting consumer interests,” it added.

Finland’s government has stressed that it is of “utmost importance” that the regulation “encourages innovation and supports the development and deployment of new technologies, businesses and services”.

Dragoș Tudorache, an MEP in the Renew Europe political group, says that even though the Parliament’s recommendations for regulating AI “may be not perfect”, leaving AI “without any sort of rules would spell disaster” for anyone interested in thinking with the human mind and producing work as a product of that.

An increased understanding of the risks around AI “has created momentum where politicians, heads of states and governments

*EU Digital Services Act

With details of the EU’s Artificial Intelligence Act still at the discussion stage, the Digital Services Act is expected to have the greater direct, immediate effect for researchers.

The act is part of a push to reduce the risks of harm from search engines and other major online platforms, such as exposure to misinformation and violent content.

The legislation—due to apply from next year—will force platforms and search engines with over 45 million active monthly users to release certain data to researchers who believe they could use it to understand algorithms including recommendation systems.

Daria Dergacheva, a postdoctoral researcher at the University of Bremen in Germany, says that with the data, researchers would ideally be able to explore the roots of misinformation or automated copyright moderation algorithms.

Discoveries would hopefully “lead to better regulation, both within the platforms as well as from the outside governance of these systems”, she says.

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> **Lilian Edwards**, a professor of law, innovation and society at Newcastle University

themselves are looking very differently at this piece of legislation”, he argues. He believes member states will mostly come in line with the Parliament before the AI Act is in effect at the end of 2024 at the earliest.

Laissez-faire UK

Outside the EU, the UK is taking a rather different approach to regulating AI. It sees this as an area where it can press for an advantage following Brexit. Not being tied to the EU, which traditionally takes a cautious approach to regulation, means the UK should be “the world’s regulatory testbed” for technologies, science minister George Freeman has said.

In March, the UK government released a white paper on “a pro-innovation approach to AI regulation”, outlining a light-touch position that focuses on applications rather than the technology itself.

The white paper outlined five principles for AI use, including the need for safety, transparency and fairness. It dismissed the need for an AI-specific regulator to impose accountability, instead promising to empower existing regulators such as the Competition and Markets Authority to develop “tailored, context-specific approaches that suit the way AI is actually being used in their sectors”.

Sneha Das, a computer scientist at the Technical University of Denmark, says the proposal “looks more flexible and relaxed, in contrast to the [Parliament position on potential] EU regulation, which places more [emphasis on] detailed conformal practices from providers and users of high-risk technology”.

But the debate on AI in the UK has shifted since March, with safety concerns taking centre stage amid multiple headlines about existential risks posed by the technology.

“I think there’s more realisation that the ‘wait-and-see approach’ demanded by that white paper already looks naive,” says Jack Stilgoe, professor of science and technology policy at University College London. He is part of a team recently awarded £31 million (€36m) for a project on responsible and trustworthy AI.

Big tech leads the way

In the UK, big tech firms have been leading the narrative on AI safety, with leaders signing a letter in May warning about “the risk of extinction from AI”. But politicians are listening—in May, the chief executives of OpenAI, Google’s DeepMind and Anthropic met prime minister Rishi Sunak and science secretary Chloe Smith to discuss AI regulation.

Some are concerned that important viewpoints are not yet being heard on AI. “A few powerful tech actors are speaking with very loud voices and there is quite an urgent need to bring some genuine democracy into that debate,” says Jack Stilgoe, professor of science and technology policy at University College London.

He warns that there is a risk of making rules “based on an imaginary technology rather than an actual one”, which could “throttle the development of alternatives that might come from some interesting places”, such as universities or startups.

Stilgoe says “the government has been letting itself see regulation as somehow in opposition to innovation”, pointing out that technology companies have themselves been asking for regulation. “The innovators need stability; they need some measure of certainty, so governments should at least want to regulate rather than engage in some sort of race to the bottom,” he says.

Lilian Edwards, a professor of law, innovation and society at Newcastle University in the UK, specialising in AI, says her impression is that the country’s government is “still sitting there on this paradigm” of less regulation in the hope of encouraging companies to see the country as an attractive location.

“My feeling is that this is a foolish strategy because the rest of the world is heading in the opposite direction,” Edwards says.

Rather than the UK being a regulatory outlier, she says that most businesses would benefit from a degree of alignment between the rules in the UK and its much bigger market next door in the EU. Edwards says a better approach for the UK would be to provide the skilled workers needed for a booming industry, as this is what big firms actually want.

But with a visa system that is more expensive to navigate than some competitors’, and strong signals from government about clamping down on immigration, Edwards fears the UK is not doing enough to encourage foreign talent to train at UK universities.

“The way to cultivate a pro-innovation, world-leading UK is not by trying to hold out some kind of law haven…but rather to cultivate a better environment for encouraging and retaining talent,” she says. “If we want to be world-leading in AI, we should be making it far easier for overseas, particularly non-EU, postgrads to come here and work here.”

AI tools are still in their infancy, but their rapid rise is fuelling huge changes in how the technology is regulated. Scientists will have to hope that those regulations allow them to carry out their work and let innovation thrive—but that they are not lax enough to let the computers steal all the glory.