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## Technology and national security: what's IP got to with it?

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Innovations in advanced and emerging technologies are on the rise in several parts of the world. Innovations in AI, robotics, gene editing, 3D printing and other emerging technologies have benefitted and continue to benefit humanity in diverse ways. In the fields of biology, medicine, physics, security, etc., researchers (and nations) have made significant progress by leveraging on AI and associated developments. The fact that these technologies are capable of being used across multiple fields increases the quest for not only their acquisition but their promotion as tools to confer competitive advantage on persons and organizations who can own, acquire and/or develop them. Beyond uses within industry, AI and associated technologies can also be deployed by government in efficient public service delivery and even in military operations for the protection of citizens.

Structured to confer exclusive rights to creators and inventors and thereby provide means to generate revenue, IP laws are generally one of the go-to ways to promote innovation in these fields. Nevertheless, there is debate as to the appropriate approaches to the use of IP law in this regard. There are also questions as to the suitability and appropriateness of using the IP legal framework at all. In scholarly writing and in government consultations, the debate revolves inter alia around whether the existing legal frameworks support the use of and application of IP laws to recognise and protect innovations in advanced and emerging technologies. The World Intellectual Property Organisation (WIPO), the African Union, the EU and individual countries have ongoing consultations on these issues.

From an ethical point of view, there are also questions as to how to ensure that, whilst innovations in advanced and emerging technologies such as in AI are protected and permitted, the use of AI in law enforcement and in public institutions generally does not come at the expenses of rights of private citizens. There is also the question of responsibility for acts said to be performed by AI.

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It is therefore clear that the benefits of all these technologies and the use of IP protection frameworks to promote innovation need to be weighed against national and public security considerations. Some examples are illuminating. AI systems have the ability to be and have been deployed for malign purposes. It has been shown that AI-enabled disinformation attacks can be used to create dissent within countries and interfere with democratic processes.<sup>1</sup> In the field of biotechnology, while AI can be combined with other innovations to provide solutions that improve human health, food production and environmental sustainability, it can also enable a pathogen to be engineered for lethal purposes. In the course of biomedical research using CRISPR and modern genetic editing applications, there is also a risk of non-consensual collection of important genomic data. Lack or inadequacy of genomics and biobanking facilities, absence of words for many genetic terms in African languages,<sup>2</sup> poor accessibility to research centres, cultural norms resulting in fear and concerns<sup>3</sup> amongst other challenges, contribute to placing African countries significantly at risk on this.<sup>4</sup> 3D printing has several helpful applications in fields including medicine, aerospace, etc. but can equally be applied in dangerous ways.<sup>5</sup>

In light of the foregoing, while many jurisdictions deploy a combination of various legal frameworks – export control, investment screening, non-proliferation laws, etc. - to shield innovations from malevolent elements, the IP protection landscape needs serious (re)thinking too. The question is not whether IP laws serve a purpose here. They do. The question is *how* to use the IP protection framework to serve the ends of national security. Below, I offer two issues for further reflection: patent applications and IP due diligence.

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<sup>1</sup> E Rosenbach, and K Mansted 'Can democracy survive in the information age?' (2018) *Belfer Center for Science and International Affairs*, 30. See also, <https://theconversation.com/how-artificial-intelligence-conquered-democracy-77675>. M Boyd, and N Wilson, 'Catastrophic Risk from Rapid Developments in Artificial Intelligence: what is yet to be addressed and how might New Zealand policymakers respond?' (2020) *Policy Quarterly*, 16(1).

<sup>2</sup> RN Diallo, M Gadji, BJ Hennig, MV Guèye, A Gaye, JPD Diop, MS Niang, PL Sall, PM Guèye, A Dem, and O Faye, 'Strengthening human genetics research in Africa: report of the 9th meeting of the African Society of Human Genetics in Dakar in May 2016' (2017) *Global Health, Epidemiology and Genomics*, 2.

<sup>3</sup> SN Adebamowo, V Francis, E Tambo, SH Diallo, G Landouré, V Nembaware, E Dareng, B Muhamed, M Odutola, T Akeredolu, and B Nerima, 'Implementation of genomics research in Africa: challenges and recommendations' (2018) *Global Health Action*, 11(1), p.1419033.

<sup>4</sup> N Munung, B Mayosi, and J de Vries, 'Genomics Research In Africa And Its Impact On Global Health: Insights From African Researchers' (2018) 3 *Global Health, Epidemiology and Genomics* 1.

<sup>5</sup> T Volpe, 'Dual-Use Distinguishability: How 3D-Printing Shapes The Security Dilemma For Nuclear Programs' (2019) 42 *Journal of Strategic Studies* 814-840.

Patent applications require the disclosure of inventions to enable patent examiners to ascertain whether the inventions are eligible for and satisfy the criteria for patent protection. These disclosures, which then go to form prior art and patent documents, provide a valuable source of technical information on inventions. By extension, sensitive information disclosures ascertained, disclosed and published in patent documents may also be open to malevolent elements. As a result, all this calls for a re-consideration of patent disclosure requirements and processes in a way that recognises national security concerns of technologies. By extension, governments should be able to guarantee confidentiality of sensitive disclosures made in the course of patent applications. This raises a related conversation concerning the African continent.

The prevailing situation in the patent protection landscape in Africa is that a depository system exists for patents. Patent applications do not undergo the scrutiny of substantive examination in many countries in Africa and patents are granted once they comply with formal requirements. One immediate consequence of this approach is that the patent system relies on the judicial process to ensure that patents are only retained for actual inventions.<sup>6</sup> But if patents are not challenged in court, they remain protected. This may therefore mean that disclosed inventions may get published without security considerations due to a lack of substantial examination. Some related questions in this regard include the kind of publication system that should exist for innovations in advanced and emerging technologies to dissuade diversion for malign purposes and those exploring appropriate systems to encourage disclosure of inventions to government even where the prohibition or control of exploitation is likely.

These are questions for government, lawmakers and/or policymakers to address. But for IP practitioners, particularly those involved in due diligence processes towards IP acquisition or transfer, the security risks inherent in advanced and emerging technologies also require to reconsider the questions that they ask and the information they request from potential transferors, transferees and/or investors during due diligence processes.

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<sup>6</sup> See *Ascendis Animal Health (Pty) Limited vs Merck Sharp Dohme Corporation and 2 Others* [2019] ZACC 41. (decision of the Constitutional Court of South Africa).

In essence, the re-thinking process on how to use the IP protection framework vis-à-vis emerging technologies, to serve the ends of national security requires significant cooperation between government and private sector. In designing IP legal and regulatory frameworks, government must carefully balance the goals of promoting innovation with the interests of national security so that one does not stifle or derail the other. The private sector must exercise diligence in the manner in which it handles research in, development, acquisition and/or transfer of these technologies to ensure that their work does not lead or contribute to malign ends. IP has got lots to do with national security, after all.