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The impact of ground and aerial security robots on human rights in Africa



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Sabelo Gumedze

EXECUTIVE SUMMARY

The objective of this policy brief is to make a case for addressing the impact of the use of ground and aerial security robots on human rights in Africa.

The African continent is witnessing a rapid growth of the robotics industry and the use of ground and aerial robots is steadily increasing in the security sector. Whilst the exponential growth on the use of security robots arguably augment safety and security, many African countries have not enacted frameworks for their regulation. The introduction of security robots and their interface with human beings automatically bring the subject of human rights to the fore.

The use of security robots impact on the enjoyment of a plethora of human rights. These include the following: labour and/or employment rights; the rights to privacy and freedom of expression; the rights to assembly and freedom of movement; and the rights to life and human dignity. As a result of the impact of security robots on the enjoyment of human rights, this policy brief makes the case that attention is required from policy makers at the level of the African Union (AU).

The policy brief suggests that as the use of security robots will pose a serious threat in terms of cyber security, and especially on cybercrime, Africans states must ratify the AU's Convention on Cyber Security and Personal Data Protection, which was adopted in 2014.¹ In order to comprehensively address the concerns relating to the use (and misuse) of security robots and the enjoyment of human rights, the policy brief advocates for a comprehensive regional instrument that will provide guidance to African states. Such a regional instrument must be informed by cutting-edge research on the use (and potential use) of unmanned ground and aerial vehicles in Africa.

1 African Union Convention on Cyber Security and Personal Data Protection (adopted 27 June 2014) (2017) 56 ILM 166 <https://au.int/sites/default/files/treaties/29560-treaty-0048_-_african_union_convention_on_cyber_security_and_personal_data_protection_e.pdf> accessed 10 April 2020.

INTRODUCTION

The Fourth Industrial Revolution (4IR) is now upon us. The 4IR refers to the latest revolution, which is characterised by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human.² The 4IR represents the total distortion of boundaries that exist between the digital, physical and biological worlds with new technologies emerging from it.³ Robotics, which fall under the physical spectrum of the 4IR, are fast gaining momentum in growth mainly because they could well be one of the core aspects of the 4IR. It is reported that the robotics industry in Africa is developing rapidly with under 60,000 imports a year.⁴ Robots have been in use in the manufacturing sector for some time now and are proving to be useful in increasing productivity.⁵ Most recently, robots are used in the battle against COVID-19, where they are used by doctors to help those in isolation, thus reducing the risk of being in contact with the corona virus. Although the idea of robots is not new, their ever-increasing capacity and autonomy is.⁶ In previous years the potential use of robots was viewed as a mere figment, but today the technology used in programming these robots has made it possible for them to become a reality.

Robots are increasingly introduced in the security sector, where companies are now using them to augment the provision of security services for their clients. Security robots are used on the ground and also in the air, hence they are either ground or aerial security robots. While the use of security robots is arguably viewed as perfecting the art of security provision in the sense that the provision of security with the use of robots has never been 'efficient and effective',

this is not entirely true as many flaws are beginning to emerge, especially with their relationship with human beings. The use of security robots, whether ground or aerial, has serious implications on the enjoyment of human rights by those who are found in their way. The purpose of this policy paper is to interrogate the impact of ground and aerial security robots on the enjoyment of human rights in Africa.

Firstly, this policy brief will provide an overview of ground and aerial security robots. Secondly, it will provide examples of these and how they operate, including their interface with human beings. Thirdly, the brief will provide an analysis of the impact of ground and aerial security robots on human rights. Among other rights, these rights include the following: right to life, right to privacy, right to dignity, right to free association, right to freedom of movement and right to property. Fourthly, it will provide policy options (in the form of recommendations) on how human rights could be protected in light of the interface between ground and aerial security robots and human beings. Lastly, a conclusion will be drawn.

OVERVIEW OF GROUND AND AERIAL SECURITY ROBOTS

Unmanned ground and aerial vehicles

By definition, robots have a physical body and mobility. Rightly or wrongly, these robots increasingly play a role in our lives. Ground security robots fall under what is known as unmanned ground vehicles (UGVs) and the aerial security robots fall under what is known as unmanned aerial vehicles (UAVs). The main difference between UGVs and UAVs is that while UGVs are land-based, UAVs are airborne. In other words,

2 Klaus Schwab, *The Fourth Industrial Revolution* (Penguin Random House 2016) 16.

3 Cung Vu, 'The Fourth Industrial Revolution: Its Security Implications' (S Rajaratnam School of International Studies (RSIS), Nanyang Technological University, Singapore CO18086 24 May 2018).

4 Torera Idowu, 'African countries are importing robots and young people's jobs are at risk' (*CNN*, 12 April 2018) <<https://edition.cnn.com/2017/08/22/africa/robots-in-africa/index.html>> accessed 27 April 2020.

5 Alex Owen-Hill, 'What's the Difference Between Robotics and Artificial Intelligence?' (*Robotiq*, 19 July 2017) <<https://blog.robotiq.com/whats-the-difference-between-robotics-and-artificial-intelligence>> accessed 15 January 2020.

6 Elizabeth E Joh, 'Private Security Robots, Artificial Intelligence, and Deadly Force' (2017) 51 *University of California, Davis* 569.

while UGVs are robots which operate while in contact with the ground and without an on-board human presence, UAVs aircrafts operate without a human pilot on board. UAVs usually operate with various degrees of autonomy.⁷ They could either be operated by a human operator or onboard programmed computers.⁸

Examples of security robots

The development of security robots has become a novelty which has become part of our lives. Whilst the use of security robots has generally not been widespread within Africa, their use has been more profound in the west. What follows are some of the examples of security robots that have been developed to augment security systems, including those in the African continent.

Ground security robots

Yelp, an American-owned security company, developed a state of the art robot named Cobalt. Cobalt was created to provide security services whereas other robots that have been developed provide concierge services in hotels, do stock-taking in warehouses and give out medicine and food in hospitals.⁹ Cobalt is a patrolling robot that is reported to have a 95% accuracy rate for identifying anomalies and is able to read situations, people and objects in order to evaluate whether or not they belong.¹⁰ The Knightscope K5 robot, which is a car park monitor, uses ar-

tificial intelligence (AI) to read nearly 300 number plates on cars in a minute.¹¹ Just like Cobalt, the K5 sends out a signal to the authorities or its owner when it detects something abnormal.

Aerial security robots

Aerial robots have emerged in the form of drones and other lightweight driverless planes. Drones, being formally known as UAVs or unmanned aircraft systems (UASes), are flying robots that can be remotely controlled or fly autonomously through software-controlled flight plans in their embedded systems.¹² Drones have become very popular not only in the security industry but in other industries as well. They are increasingly being used in Africa for many reasons. In 2017, South Sudan was reported to have spent millions of dollars on Israeli surveillance drones and security cameras aimed at fighting crime in Juba.¹³ The ability to go into spaces that humans may not be able to infiltrate gives drones an advantage.¹⁴ These systems work in conjunction with on-board sensors and a satellite navigation/global positioning system.¹⁵ Just like any robot, drones need to be programmed in order to function. The same technology found in ground robots is also found in drones or aerial robots. SECOM, which is Japan's biggest security company, launched its security drone in 2015. The drone can chase down and follow people without human intervention.¹⁶ The drone is a complementary security equipment that launches to the site whenever suspicious cars or

7 Examples of these are drones, which are formally known as unmanned aerial vehicles (UAVs) or unmanned aircraft systems (UASes) and are flying robots that can be remotely controlled or fly autonomously through software-controlled flight plans in their embedded systems. See eg Margaret Rouse, 'Definition: drone (unmanned aerial vehicle, UAV)' (*TechTarget IoT Agenda*) <<https://internetofthingsagenda.techtarget.com/definition/drone>> accessed 19 January 2020.

8 Captain Brian P Tice, 'Unmanned Aerial Vehicles: The Force Multiplier of the 1990s' (Spring 1991) *V(1) Airpower Journal* 41.

9 Robbie Gonzalez, 'I spent the night with Yelp's robot security guard, Cobalt' (*Wired*, 8 April 2017) <<https://www.wired.com/story/i-spent-the-night-with-yelps-robot-security-guard-cobalt/>> accessed 15 January 2020.

10 Nanalyze, '7 Security Robots "Complementing" Security Guards' (*Nanalyze*, 3 November 2017) <<https://www.nanalyze.com/2017/11/7-security-robots-complementing-security-guards/>> accessed 15 January 2020.

11 Ibid.

12 Rouse (n 7).

13 AFP, 'Broke South Sudan spends millions on surveillance drones' (*News24*, 4 December 2017) <<https://www.news24.com/Africa/News/broke-south-sudan-spends-millions-on-surveillance-drones-20171204>> accessed 2 May 2020.

14 Ibid.

15 Ibid.

16 Martyn Williams, 'This Japanese security drone will chase down intruders' (*PCWorld*, 11 December 2015) <<https://www.peworld.com/article/3013810/this-japanese-security-drone-will-chase-intruders.html>> accessed 20 January 2020.

people are detected on the property by other security equipment.¹⁷ Unlike the conventional surveillance cameras, drones are a promoted security equipment alternative because of their ability to fly anywhere on a property and take pictures of people and objects from different angles.¹⁸

Singapore based company Otsaw Digital has also developed a drone called the O-R3 which is dubbed the ‘world’s first ground-aerial outdoor security robot’.¹⁹ The drone is a dynamic duo with a self-driving vehicle with four-wheel drive and a drone for the areas the vehicle cannot reach.²⁰ Dubai planned to have these robots policing the streets by the end of 2017 and to make up 25% of the police force by 2030.²¹ Drones are also being used in the law enforcement and military space. In the United States of America (USA) they are used for search and rescue missions, traffic collision reconstruction, crime analysis, surveillance, crowd monitoring and in investigations of active shooters or suspects.²² It was reported that over 347 USA government departments use drones with a growth of 518% in their use between 2016 and 2017.²³

Zipline,²⁴ an San Francisco-based robotics company, was launched in Rwanda and Ghana to supply drones to deliver and provide doctors with instant access to vaccines and blood donations, among other things. In Malawi, Zipline partnered with UNICEF and the Government of Malawi to test the potential humanitarian use of drones such as generating and analysing aerial images for development and during humanitarian crises like floods and earthquakes. In Morocco, Zipline supplied drones that are used to survey Casablanca port facilities and monitor construction as a way of ensuring compliance by constructors.

PROBLEM DESCRIPTION / RATIONALE FOR ACTION

The increasing demand for security robots has become the new normal. Today, ground and aerial security robots have become useful in protecting persons and property in many ways. They have also become critical in carrying out dangerous tasks aimed at saving human life from unpredictable hazards. Geopolitical instabilities and asymmetrical threats are among the main drivers for the use of security robots. While many studies have focused on the importance of security robots, little attention is paid on their impact on the enjoyment of human rights. Computation technologies, of which security robots form part, have an impact on the enjoyment of a plethora of human rights. In some instances, they even have the capability of putting the enjoyment of human rights at risk, as some security robots could be characterised under the so-called lethal weapons systems (LAWS), often described as ‘killer robots’. These ‘killer robots’ put autonomous robotic systems in charge of life and death decisions, sometimes with limited or no human control.

THE GROUND AND AERIAL SECURITY ROBOTS AND HUMAN RIGHTS

The interface between security robots and human rights cannot be over emphasised. The following provides an overview of how this interface plays out in practice.

17 Ibid.

18 Ibid.

19 Nanalyze (n 10).

20 Ibid.

21 Ibid.

22 Marco Margaritoff, ‘Drones in Law Enforcement: How, Where and When They’re Used’ (*The Drive*, 13 October 2017) <<https://www.thedrive.com/aerial/15092/drones-in-law-enforcement-how-where-and-when-theyre-used>> accessed 18 January 2020.

23 Ibid.

24 Abhishek Mishra, ‘Ushering drones for development technology in Africa’ (*Observer Research Foundation*, 12 June 2019) <<https://www.orfonline.org/expert-speak/ushering-drones-for-development-technology-in-africa-51920/>> accessed 30 April 2020.

Labour and/or employment rights

One of the main challenges which security robots bring is the replacement of warm bodies. Security robots are arguably impacting on job security for many people, thus impacting on labour rights. For companies looking to save money and maximise their profits, the idea of being able to replace human beings with robots remains enticing. It must be noted that security robots can work with little to no pay or benefits, are advertised as ‘error-free’ and are usually faster than human beings. One example of security robots that replace security guards are those from Knightscope. These security robots can hear, see (both at day and night) and even detect any dangers in the area within which they are patrolling. These robots can even go to the extent of alerting human beings when it senses danger and potential threats. In the Democratic Republic of Congo, robots are now already part of everyday life. In Kinshasa, it was reported that eight foot tall, solar-powered ‘robocops’ were brought in to direct traffic.²⁵ These robots effectively eliminated the need for human traffic wardens as they detect pedestrians and are designed to withstand all weather conditions.

The replacement of human beings by security robots means that many security officers will in the not so distant future face dismissals or retrenchments. Over and above this, security robots will pose a threat to the right to work in the sense that they will effectively prevent people from accessing the labour market, where automation results in job losses. According to *The Guardian*, there are 20 million private security workers worldwide and one company, Cobalt Robotics, hopes to be a game changer in this space by replacing security guards with a

65% cheaper robotic security robot.²⁶ This is part of the fear which the new robotic revolution is bringing. One question which states, and African states in particular, will have to face is the question of whether or not they are ready to see millions of jobs being lost due to the introduction of security robots, such as Cobalt’s security robots.

The right to privacy and freedom of expression

The implications of security robots on the right to privacy could be illustrated by reference to Trinetra, the service robot.²⁷ Trinetra performs the monotonous task of greeting people by a recorded message and a hand gesture. This service robot is used for monitoring data about visitors in any environment for security purposes. The recording of such data takes place without the knowledge of the recorded people. Cobalt’s security robot service is another example where information is taken from an individual, sometimes without their knowledge. According to Cobalt, all the data and insights collected via its robots are organised and made available for buildings and security optimisation.²⁸

Another example of a security robot which has the capability of infringing on the right to privacy is the security drone. The right to privacy is guaranteed in international instruments.²⁹ The American Civil Liberties Union argues that:

drones deployed without proper regulation, drones equipped with facial recognition software, infrared technology, and speakers capable of monitoring personal conversations would cause unprecedented invasions of our privacy rights. Interconnected drones could enable mass tracking of vehicles and people in wide areas. Tiny drones

25 Idowu (n 4).

26 See eg Hooman Radfar, ‘The rise of robots-as-a-service’ (*VentureBeat*, 30 June 2019) <<https://venturebeat.com/2019/06/30/the-rise-of-robots-as-a-service/>> accessed 15 March 2020.

27 G Rajitha and others, ‘Trinetra - The Security Robot’ (April 2019) 7(IV) *International Journal for Research in Applied Science and Engineering Technology* 3296 <<https://www.ijraset.com/files/serve.php?FID=22124>> accessed 8 April 2020.

28 Radfar (n 26).

29 See Art. 12 of the United Nations Declaration of Human Rights (adopted by the UN general Assembly on 10 December 1948) and Art 17 of the International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR).

could go completely unnoticed while peering into the window of a home or place of worship.³⁰

Within the African continent, it is not known how many security drones are hovering in the skies above. Not only are security robots impacting on the enjoyment of the right to privacy, but they also violate the right to freedom of expression. As Access Now argues, '[w]hen people feel that they are being watched, or lack anonymity, they have been shown to self-censor and alter their behaviour'.³¹ As security robots, which are powered by AI, their use for surveillance has serious repercussions for freedom of expression.³²

The right to assembly and the right to freedom of movement

The use of security robots impacts on the right to assembly and freedom of movement, for instance such as where a security drone is used to collect data in public spaces where individuals are staging a protest. Access Now argues the use of security drones in countries that restrict the freedom of assembly would effectively prevent the enjoyment of the right to freedom of assembly since 'many people rely on the level of security anonymity provides to gather in public and express their views'.³³ Linked to the negative impact of security robots on the right of assembly is its impact on the right to freedom of movement. The fact that security robots have a (security) surveillance capability curtails the right to freedom of movement. In 2018, South Africa's Nedbank imported the first fully programmed humanoid robot,

Pepper (manufactured by Softbank Robotics), which is a chat robot designed with the ability to read emotions.³⁴ The fact that such a robot is now found in banks may discourage many customers from visiting such banks for the fear of being exposed to a robot that is capable of extracting information from them.

The majority of security robots combine data from satellite imagery, facial recognition-powered cameras and mobile phone location information, which in essence renders every human being's right to privacy a fallacy. A South African company, Drone Guards, provides not only drones, but also pilots and software systems to 'add a layer to existing security operations'.³⁵ Drone Guards is licensed by the South African Civil Aviation Authority. Through AI, security robots can provide a detailed picture of any movements as well as predict future location. This knowledge on its own has the potential on making people reluctant to move and to assemble. This becomes even worse where companies gather information through these robots on behalf of undemocratic governments. These security robots could be used by despotic governments to silence the opposition, thus infringing on other rights, such as political participation.

The right to life and the principle of human dignity

The use of LAWS, otherwise known as 'killer robots', are increasingly being used in security operations. These 'killer robots' engage targets without any meaningful human control. The LAWS are in the form of either UGVs or

30 American Civil Liberties Union, 'Domestic Drones' (*American Civil Liberties Union*) <<https://www.aclu.org/issues/privacy-technology/surveillance-technologies/domestic-drones>> accessed 2 April 2020.

31 Access Now, 'Human Rights in the Age of Artificial Intelligence' (Access Now November 2018) <<https://www.accessnow.org/cms/assets/uploads/2018/11/AI-and-Human-Rights.pdf>> accessed 4 April 2020.

32 Privacy International and ARTICLE 19, 'Privacy and Freedom of Expression in the Age of Artificial Intelligence' (Privacy International and ARTICLE 19 April 2018) <<https://www.article19.org/wp-content/uploads/2018/04/Privacy-and-Freedom-of-Expression-In-the-Age-of-Artificial-Intelligence-1.pdf>> accessed 6 April 2020.

33 Access Now (n 31).

34 Duncan Alfreds, "'Hi, I'm Pepper" – first humanoid robot in SA gently introduces herself' (*News24*, 5 June 2018) <<https://m.news24.com/SouthAfrica/News/hi-im-pepper-first-humanoid-robot-in-sa-gently-introduces-her-self-20180604>> accessed 28 April 2020.

35 For more information, see Drone Guards, 'Drone Security & Surveillance' (*Drone Guards*) <<https://droneguards.africa>> accessed 30 April 2020.

UAVs and are predominantly used in theatres of war and are in contravention with international humanitarian law standards.³⁶ One of the challenges posed by these robots is that AI cannot reliably distinguish between a lawful and an unlawful target as provided under International Humanitarian Law.³⁷ A classic example is made by Patrick Lin, who argues that AI in these robots cannot distinguish an enemy combatant with a gun from a civilian with an ice-cream cone.³⁸

An example of an UGV is the Heider-1, a low-slung 6x6 unmanned ground UGV with a pair of antennae and cameras mounted on a pedestal, which was recently revealed by the Islamic Republic of Iran Army Ground Forces. The Heider-1 has an assault-rifle equipped version which appears to have a telescopic optic sensor for weapon aiming. It is claimed that this small remote-controlled military vehicle could prove to be a big danger to tanks and vehicles with troops riding them.³⁹ The Heider-1 can fire guns and can also roll towards a tank-like target before exploding.

The fact that this robot can kill indiscriminately has an impact on the right to life and human dignity. Many innocent civilians can be easily eliminated. The fact that 'killer robots' in the form of drones and similar weaponry could be accessible to non-state actors that are not bound by traditional laws of armed conflict (as is currently the case) is not only a threat to African states but to their populations. As Access

Now argues, the use of autonomous weapons in a conflict situation 'could result in the death or injury of innocent civilians that a human operator may have been able to avoid'.⁴⁰ It has been argued that the issue of 'killer robots' may seem insignificant, however, 'Africa is often a field of experimentation for new technologies in order to satisfy the interests of Western countries'.⁴¹ For this reason, the potential risk of developing and using killer robots are enormous, particularly at a time when their quest is to address the root causes of conflict.

The rights for robots

The question of whether or not robots have rights have been a subject of interest. There is a controversial movement for the recognition of rights for robots. The American Society for the Prevention of Cruelty to Robots (ASPCR) advocates for robot rights.⁴² The ASPCR believes that 'robots are people too! Or at least, they will be someday'.⁴³ It is intriguing to note that ASPCR equates robots to human beings and that they have rights. The ASPCR states 'we must be prepared to treat them as sentient beings, and respect their desires, wants and needs as we respect those things in our society'.⁴⁴ The society even go to the extent of stating that, '[f]ailure to recognize and grant these rights to non-human artificial intelligences would be similar to early western cultures' failure to recognize the humanity and attendant rights of non-European

36 See Art. 57 of the Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977.

37 Ibid.

38 Patrick Lin, 'Do Killer Robots Violate Human Rights?' (*The Atlantic*, 20 April 2015) <<https://www.theatlantic.com/technology/archive/2015/04/do-killer-robots-violate-human-rights/390033/>> accessed 4 April 2020.

39 Kyle Mizokami, 'Iran Unveils new Tank-killing Ground Drones' (*Popular Mechanics*, 9 October 2019) <<https://www.popularmechanics.com/military/weapons/a29402300/iran-tank-drone/>> accessed 4 April 2020.

40 Access Now (n 31). See also World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), 'Report of COMEST on Robotics Ethics' (COMEST SHS/YES/COMEST-10/17/2 REV.Paris 14 September 2017) <<https://unesdoc.unesco.org/ark:/48223/pf0000253952>> accessed 6 April 2020.

41 Guy Feugap, 'Stop the killer robots, it's now or never' (2019) 1 *The Tipping Point?* 17 December 2019 <<https://www.una.org.uk/magazine/2019-1/stop-killer-robots-it-s-now-or-never>> accessed 3 May 2020.

42 See the ASPCR website (ASPCR) <<http://www.aspcr.com>> accessed 5 April 2020.

43 Ibid.

44 See ASPCR, 'What rights should robots have?' (ASPCR) <http://www.aspcr.com/newcss_rights.html> accessed 5 April 2020.

peoples...'⁴⁵ Our view is that human beings cannot be equated to robots and the discussion on whether non-human beings have rights should not even be a subject of discussion.

POLICY OPTIONS

Due to the fact that security ground and aerial robots have implications on the enjoyment of human rights, there is a need for effective regulation of the use of security robots at international, regional and state levels. As a result of the increasing use of security robots within Africa, a regional human rights regulatory system (that is, at the level of the AU) must be developed. The African Charter on Human and Peoples' Rights⁴⁶ does not comprehensively address the human rights concerns specifically related to the use and misuse of security robots. The AU needs to also take the lead in ensuring that African states have regulations that guide the use of security robots. According to an AU and The New Partnership for Africa's Development (NEPAD) report, as of July 2017, only 14 African countries (out of 54 countries) had published dedicated UAV regulations.⁴⁷ At present, it is unknown how many African states have regulations on UGVs.

The use of robots and cyber security

The use of security robots in Africa will arguably pose a serious threat in terms of cyber security, and especially cybercrime, which is viewed as a growing concern in the continent. In addressing this, in 2011, the AU drafted the Convention on Cyber Security and Personal Data Protection in order to establish a credible framework for cybersecurity in Africa through protection of personal data, among other things.⁴⁸ This

convention was adopted in June 2014, but is not yet in force.⁴⁹ The convention does not, however, address challenges which security robots are posing in so far as the enjoyment of human rights are concerned.

The use and misuse of security robots

Whilst appreciating that security robots are multi-use tools, it is important that at the level of the AU, a policy must address their misuse, particularly, their use for killing and harming human beings, thus infringing their right to life and human dignity. Under no circumstances should security robots be used to kill or harm human beings, even if this advances national interests. To this end, the responsible agents should be those who own and control the security robots. Put differently, accountability on the use of security robots remains critical. There is also a need to ensure that security robots are designed using processes which assure safety and security. The likelihood of security robots malfunctioning and causing unnecessary harm and death is very high. They can injure human beings through inaction.

The privacy concerns in relation to security robots

While it remains clear that security robots, whether UGVs or UAVs, have the capability of invading the human right to privacy, it is important that they should be designed and operated as far as possible to comply with existing laws (including aviation laws in the case of drones), fundamental human rights and freedoms, including the right to privacy. The right to privacy protects human beings from unjustified use of power by states, companies and other actors.

45 Ibid.

46 The African Charter on Human and Peoples' Rights (adopted 1 June 1981, entered into force on 21 October 1986) (1982) 21 ILM 58.

47 See African Union and NEPAD, 'Drones on the Horizon: Transforming Africa's Agriculture' (African Union and NEPAD 2018) <https://rpas-regulations.com/wp-content/uploads/2018/06/African-Union_Drone-Report_Transforming-Af-ricas-Agriculture_EN_180608.pdf> accessed 2 May 2020.

48 The Convention on Cyber Security and Personal Data Protection (n 1).

49 As of 28 June 2019, only five states ratified the convention, namely: Ghana, Guinea, Mauritius, Namibia and Senegal.

Privacy is an essential element of autonomy and the protection of human dignity. Security robots have the capability of denting the individual boundaries which privacy creates. Through the use of security robots, unwarranted interference with people's lives remains a concern. To this end, policy direction is again required from the level of the AU.

The loss of jobs resulting from the use of security robots

The use of robots as replacements to human beings is a cause for concern. There is a need to have in place policies that will ensure that job losses are minimised in the advent of security robots. These policies must ensure that there is a balance between labour replacing technologies and labour reinstating technologies. In other words, the use of security robots must be in such a way that they create more jobs. The development of security robots, therefore, must lead to more jobs and higher wages. These policies would encourage more dynamic training opportunities for workers to perform new tasks created by the use of security robots in order to complement the new technologies when they come along.

CONCLUSION

Robots, either in the form of UGVs or UAVs, are increasingly being used, particularly in the security space. Many African states have arguably not put in place regulatory mechanisms and policies to address the use and misuse of security robots. As a matter of fact, the AU and individual African states cannot account for all the UGVs or UAVs used in the continent and their countries, respectively. This in itself poses serious challenges, particularly on the use of security robots.

The implications of security robots on the enjoyment of human rights has also arguably not been adequately addressed, either at state or regional level. The policy direction on the challenges posed by security robots could be addressed at the AU level and filter through state levels. The AU could initiate a project for the development of an international instrument that

will comprehensively address the use of UGVs and UAVs in Africa. The development of this instrument should be informed by cutting-edge research on the use (and potential use) of such UGVs and UAVs in Africa.

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