This paper was presented at the 20th International Conference on Sustainable Development, Future Africa Campus, University of Pretoria, Pretoria, South Africa on December 3-4, 2024

Policing in the Fourth Industrial Revolution: Prospects and Challenges

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OIDA International Journal of Sustainable Development, Ontario International Development Agency, Canada.
ISSN 1923-6654 (print) ISSN 1923-6662 (online) www.oidaijsd.com
Also available at https://www.ssrn.com/index.cfm/en/oida-intl-journal-sustainable-dev/

Abstract: This conceptual and predictive paper explores prospects and challenges for policing in the fourth industrial revolution. Policing as a social order, is not immune from the influences of new technologies. Whilst technologies were introduced in police work at the turn of the 20th century (1901), in the second industrial revolution or the technological revolution, the move to the third industrial revolution (1950-1999) brought about radical changes in police work globally. In that era, technology enabled high-speed transfers of data, enhanced accuracies in measurements, the electronic tracking of evidence and criminals, biometric identifications on persons, the storing of huge data sets, and the digitisation of work traditionally done by humans. In the fourth industrial revolution, technologies offer more prospects. These form the core of discussions in this paper. Despite technological innovations from the last 120 years plus (1900-2024), policing globally remains beset by challenges that include a technological apartheid owing to the inequalities created by the gaps between the rich and poor nations, economic underdevelopment, resource constraints, lax political will, using outdated methodologies and non-integrated global policing, which problems threaten misalignment with the fourth industrial revolution. This paper extrapolates a few fourth industrial revolution technological applications as a way of imagining some of the prospects for policing, whilst showcasing how the technologies can be used to improve on operational efficiencies in crime prevention. The paper also gives recommendations on what can be done to integrate global policing. The fourth industrial revolution is typified by artificial intelligence, 5G technologies, robotics, virtual reality, Internet of things, smart software's, and big data analytics, which applications can help the police contribute to the sustainability goals. The research is qualitative desktop and draws from literature and fictional sources (movies), to illustrate the prospects, and therefore uses inductive ways to synthesise data.

Keywords: Policing; Industrial Revolution; Artificial Intelligence; Crime Prevention; Robotics.

Introduction

The fourth industrial revolution brought about innovations that enabled technologies to become smarter and more efficient, thus attractive to diverse business spaces. This is also the case with the police or law enforcement, particularly in the crime prevention business. Increased usage of fourth industrial revolution technologies can give the police a competitive advantage over criminals, who also continue to look for new ways to outsmart the police by using technology (Matlala, 2024). This industrial revolution is typified by among other things, artificial intelligence (AI), 5G technologies, robotics, cryptocurrencies, virtual reality, Internet of Things, smart software's, big data analytics, and gamification, which features can enhance the quality of human lives. For the police, fourth industrial revolution technologies can help in the effective management of crime to create public safety and security, thereby promoting sustainability.

The United Nations promulgated on 17 Sustainable Development Goals (SDGs) in 2015. Of the goals, the aim in SDG 16 is "to promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels" (Arugay & Baquisal, 2024; Briones-Peñalver et al. 2024; United Nations, 2024). Access to justice, starts with law enforcement agencies which are the gateway into the criminal justice systems. There is no doubt that the attainment of all the other SDGs would be rendered futile if there was public insecurity caused by high levels of crime, with criminals not being arrested, prosecuted, or justice not served through convictions in courts of law. The importance of public safety, peace and the role of law enforcement in

promoting sustainability is also articulated in a 2024 United Nations General Assembly Economic and Social Council report. This report shows that violent organised crime, illicit weapons trafficking, the raging Russia-Ukraine, Israel-Gaza-Lebanon-Iran, and Sudan wars which displaced over 110 million civilians, with 72% of the casualties being the civilian populations mostly women and children, poses serious threats to the attainment of the sustainability goals, commonly known as Agenda 2030 (Secretary-General, UN, 2024).

Despite the challenges, law enforcement agencies worldwide continue to strive towards creating conditions of safety for the world's civilian populations. This is reflected in the same 2024 report by the United Nations Secretary-General, which further confirms that global homicide/murder rates declined from 5.9 victims per 100,000 population capita in 2015 to 5.5 in 2020 (Secretary-General, UN, 2024). Although the figure remains high as the headcount may speak to the world's population of an estimated 8,2 billion in 2024, there is no doubt that some of the successes came from efficiencies in law enforcement, emanating from the use of technologies that resonate with the fourth industrial revolution. This last assertion is however not intended to discredit traditional manual police work that comes with innovation, experience, dedication, hard work and the deployment of third industrial revolution technologies. The paper extrapolates on some of the modern technologies and gives practical examples on their applications.

What this paper argues on is that without public safety, all the other SDGs whether they speak to climate, food security, education, human settlements, or economic development, shall remain an elusive dream. This is when the world should earnestly reflect on whether the SDGs could be attained in a country such as Haiti, where in 2024 criminal gangs invaded and rendered the capital Port-au-Prince ungovernable, with a diminished law enforcement capability, which affected the quality of life. Such is the story in most developing and underdeveloped countries mainly in sub-Saharan Africa, your Sudan, and in the Americas, your Mexico. The murderous condition created by the Sinaloa drug cartel in Mexico (Diaz, 2024) and Sudan's war which has caused 62 000 deaths (Scales, 2024), are classic examples on how crime breeds instability. Conditions in these countries are an antithesis to acceptable quality standards in human life. It is such conditions that cast doubt on whether some countries could attain the sustainability goals by 2030.

In comparison to the affluent Germany, Britain, Canada and the United States of America, developing and underdeveloped countries further experience some form of a technological apartheid, owing to the inequalities created by the gap between the rich west and poor nations, economic underdevelopment, resource constraints, lax political will, using outdated methodologies, and a lack of police databases interconnectivity (Matlala, 2024). Many in the developing and underdeveloped world are former western colonies. Without a doubt, the dire situation is historically as a result of the poverty caused by colonisation. The police in these worlds have also not been spared, despite technological and intelligence support by INTERPOL. With collaborations, the exchange of skills, technology and other resources, a new world where policing is globally integrated and fully operating in fourth industrial revolution mode could emerge. Such a world where crime is squeezed using technology, would create security and sustainability. Without a globally integrated policing approach, crime will spill over from poor to affluent nations on perceptions of them being lucrative markets. Illegal migration, money laundering, and transnational crime would prevail. As such, other countries will be left behind in terms of attaining sustainability by 2030.

Methodology

The research is qualitative desktop. It draws from literature and fictional sources (movies) to illustrate prospects for policing or law enforcement in the fourth industrial revolution. This qualitative approach uses inductive ways in the analyses and synthesis of data. The paper does not apply any specific analytical strategy, as there is no right or wrong way in doing qualitative data analytics. Salmona and Kaczynski (2024) concurs on the flexibility feature linked with qualitative data analysis strategies. Data in this paper is thus analysed throughout the discussions in the form of problematisation. Discussions in this paper commences with outlining a historical background, this to depict how policing traversed throughout time.

Policing in time

The policing or law enforcement function of crime prevention is as old as mankind. Human beings have always been vigilant and prone to actively protecting their possessions, to maintain their subsistence and sustainability. Prior to the formalisation or institutionalisation of law enforcement-, pre-historic humans who subsisted on hunting and agriculture during the Stone Age, Bronze Age and Iron Age (Kennedy, 2019), teamed up to protect their food supply (crops, hunt, water sources) from being stolen, which in essence was crime prevention without codified laws (Matlala, 2024). This was necessitated by a common purpose to survive famine. It was only about 11 000 years ago that human beings began to domesticate livestock to add to their food supply (Hancock, 2022). Such developments

extended thievery to livestock. This necessitated the then crime prevention measures to be re-imagined. How the then strategies were re-adapted to deal with crime is however not the focus in this paper. The re-imagination of crime prevention in this paper is extrapolated in the context of the industrial revolutions.

As families grew into tribes and leaders were chosen, the business of crime prevention became the prerogative of kings or the state at the time. According to Chinyere (2020), pre-colonial societies in Africa relied on the military with kings as commanders in chief, to protect their territorial sovereignty, prevent crime and keep the peace. Territorial sovereignty was key in preserving lands for livestock grazing, water, farming and for hunting. Whenever crime was committed, warriors would be sent out to ensure that perpetrators were brought before the king or tribal council, to answer for their deeds, and discretionary restorative justice prevailed (Onyeozili & Ebbe, 2012; Chinyere, 2020; Matlala, 2024). There is no doubt that all ancient world societies experienced the same in history whilst under monarchs.

Formalised law enforcement has its origins in Egypt from around 3000 BC. The mandate was to provide security to all subjects of the Egyptian dynasty (Encyclopedia Britannica, Inc. 2017). This was at the fall of the Protodynastic period (3200-3000 BC), when Thinis one of the upper states took over Naqada, Nekhen and the entire southern parts, to create a unified Egypt (Ancient Egypt Online, 2024). The then dynasty had 42 administrative jurisdictions wherein the Pharaoh chose officials who were charged with the responsibility to ensure peace, justice and security (Kelling et al. 2017). These officials were led by a chief of police called the *Sab heri seker,* loosely translated as "the chief of the hitters", who led a group of men responsible for tax collections and law enforcement (Encyclopedia Britannica, Inc. 2017). This system was unduly disrupted by Roman colonisation around 30 BC, which unjustified occupation subsisted for over 700 years (Jones, 1986; Webster, 1996; Ancient Egypt Online, 2017; Matlala, 2024). History confirms that law enforcement systems in Africa and not only in Egypt, were disrupted and tracked by adulterated formalised models, that were re-introduced during colonisation (Matlala, 2024).

The ever-evolving world later went through various epochs. Europe for example went through the Renaissance, a period which was characterised by political, cultural, artistic and economic reforms between the 14th and 17th centuries (Power, 2024). The 17th century was the time when colonisation began to extend its grip onto Southern Africa. This was in response to the political fruition of greed, land invasions, thievery of natural and cultural resources from far flung lands, born of the supremacist ontological idealism whose birth can be tracked back to a Europe that emerged from the dark and medieval ages (Bell & Funk, 2022; Parsons, 2022; Legha & Martinek, 2023; Table, 2023; Matlala, 2024). South Africa was colonised by Dutch settlers in 1652, Lesotho became a British protectorate in 1868 and a colony in 1884, which was about the same time that Germany annexed Namibia as a colony. These powers were responsible for formalising colonial police forces to suppress the conquered masses (Jones, 1986; Bell & Funk, 2022; Parsons, 2022; Legha & Martinek, 2023; Matlala, 2024; Power, 2024).

Descriptions on how policing or law enforcement evolved over time are crucial. This is because the world needs to be informed by accurate historicisation accounts, to dispel western-centric myths that other continents such as Africa were dark, and that Europeans civilised the continent. The contrary is factual. Examples in this regard are the Kingdom of Kush (1069 BCE-350 CE) now northern Sudan, whose economy thrived on incense, ivory, gold and iron trade; the Kingdom of Aksum (4th-10th century CE) now Eritrea and Ethiopia, whose economy had already began to globalise, trading in gold with ancient Europe and the far East; as well as ancient Zimbabwe, whose economy between the 13th and 15th centuries was hinged on crops cultivation, cattle farming and gold; among many other civilisations (WorldAtlas, 2024). The one common feature about these civilisations is that apart from architecture (the pyramids at Giza attest), they had structure and governance. It is unthinkable that such thriving economies would not have had law enforcement machineries of their own, to prevent criminal activities.

The industrial revolutions

Despite the politics of coloniality, Europe was at a later stage to undergo economic reforms known as the industrial revolutions. The times were characterised by moves from handicraft and agrarian economies to industry and machine-dominated manufacturing (Stearns, 2020). Law enforcement agencies were also not spared of the effects. The inherent developments meant that police agencies had to adapt to the changes to keep abreast and effectively manage growing crime. Literature (Lane, 1974; Phillips, 1993; Allen & Barzel, 2007; Ateş, Bostancı & Güzel, 2020; Sukardi, 2022) shows that crime increases and becomes more sophisticated with every industrial revolution. This was also confirmed by Matlala (2024), who postulates that criminals are always looking for new ways to outsmart the police.

The first industrial revolution began in Britain during the 18th and 19th centuries (1700 and 1800s). This aeon was characterised by the replacement of the manual human workforce by machines in industries, the invention of steamboats and railroads, including steam engines and telegraph (Mohajan, 2019). For the police, steamboats, rail networks with steam engine trains meant that deployments in far flung areas for crime prevention purposes became faster. There is no doubt that prior to this industrial revolution, mobility within law enforcement agencies relied heavily on walking, or ridding on horsebacks or carriages. Equally, the invention of telegraph meant that communication was made easier and faster. Telegraph was used to transmit messages to far flung areas along a wire (Honsowetz, 2024). This was a much quicker way for the police to communicate, as opposed to sending a messenger on foot or horseback. This era meant that criminals could also cover huge areas in short spaces of time, using the very mobility and faster communication ways facilitated through inventions in this industrial revolution.

The second industrial revolution happened in the United States of America between 1870 and 1914. It was during this time that innovations such as the electrical light bulb, petroleum refining, the typewriter and wireless radio were invented (Mohajan, 2019). The inventions meant that police stations could be better lit at night using light bulbs, the police could have fuel for their vehicles from the refined oil, and they could typeset official documentation as opposed to handwritings, some of which were not always legible. This industrial revolution is a build-up on the first one, and the implications were always increases in crime. An 1880 census in the United States of America showed that the number of persons incarcerated for various crimes was 30 659, which figure increased by 47,5% in 1890 (Ellwood, 1910). Despite the innovations, the common threat with developments throughout time remains rising crime.

Post the 1870-1914 epoch, came the third industrial revolution in the 1970s to 1999. This period produced innovations that include information communications technologies, telecommunications which includes satellites, cell phones, voice and video messaging, the Internet, computers, television, and optical fibre, to cite a few (Taalbi, 2019). This revolution was globally stretched as opposed to being provicialised in Europe. For example, the four Asian tigers (Hong Kong, Taiwan, Singapore, South Korea) emerged as hubs for the global manufacturing of vehicle parts and electronics, including ICTs (The Association for Asian Studies, 2018). There is no doubt that the third industrial revolution drastically changed lifestyles in societies throughout the world and had an impact on the political, social, economic and cultural spheres of life. For police agencies which are an information-intensive social order, the introduction of computers meant accurate and systematised management and storage of huge data sets. This revolution also brought about more complex computer and Internet-based cybercrimes.

Examples of cybercrimes include Phishing (obtaining personal information by fraudulent means), Copyright infringement, Cross-site scripting (illicit injection of code into websites), Cyberstalking, Cyberterrorism, Ransomware, Malware (harming computers), AI-Powered attacks, Denial of Service (making websites unavailable), Cyber slander, Typosquatting (replicating domain names), and Eavesdropping attacks (online spying), to cite a few. Cyber Talents (2024) defines cybercrime as the illegal use of communication devices to facilitate illicit activities online. To prevent cybercrime, this last named source suggests the use of upgraded software such as antivirus and firewalls. The upgrades underscore the need for individuals, communities and companies/institutions to take initiatives to guard against being exposed to cyber vulnerabilities, as opposed to relying solely on protection by the police. Issues such as refraining from browsing unsafe sites, keeping authentication/personal information safe, not sharing sensitive data on social media, teaching children about the risks in using the Internet, and reporting cyber criminality to the police, are some of the preventative measures (Biedron, 2024; Cyber Talents, 2024; Kirubai & Priscila, 2024; Kuzior et al. 2024; Trajkovska, Del Becaro & Mijalkov, 2024).

Without overstating the implications of the third industrial revolution in police work, the optical fibre supported Internet meant much faster transmission of information, cell phones meant an alternative to two-way radio communication, satellite meant access to Global Positioning Systems (GPS) and Geographic Information Systems (GIS), which technologies respectively, show directions using geographical coordinates and can do crime hotspots mapping, measure crime trends and patterns, give measurements in relation to the positioning and distances between exhibits on crime scenes (Chourasia & Ponnusamy, 2024; Makola, 2024; Matlala, 2024; Mission, 2024). Crime mapping in particular, can be used to direct resources where they are needed the most. Empirically-driven directing of resources can be key in dealing with violent crimes, especially domesticated violence against women and children. Research (Chourasia & Ponnusamy, 2024) confirms that with the proper usage of the GIS, the police can reduce violence against women and children. How this can be attained is however not the subject for discussions in this paper. The point was merely to spotlight on the illusive domesticated violence, which has been flagged as one of the inhibiting factors in attaining sustainability, and how third industrial revolution technologies can be used to prevent the relating criminal acts (Chiejine et al. 2024).

What this paper also argues on is the legal and political implications of the third industrial revolution. This era also meant that countries had to re-adapt laws to enable the police to factor crime combating technologies into their workspaces, to align with the revolution. Without enabling legislation, the use of some of the technologies would be deligitimised and evidence proffered from any such unregulated applications would not have been acceptable in courts of law. This paper however does not unpack the various pieces of global legislation that regulate technologies. Likewise, the economic and social effects on how the third industrial revolution struck on society in general, are also not discoursed in this paper.

The technological conundrum in police work

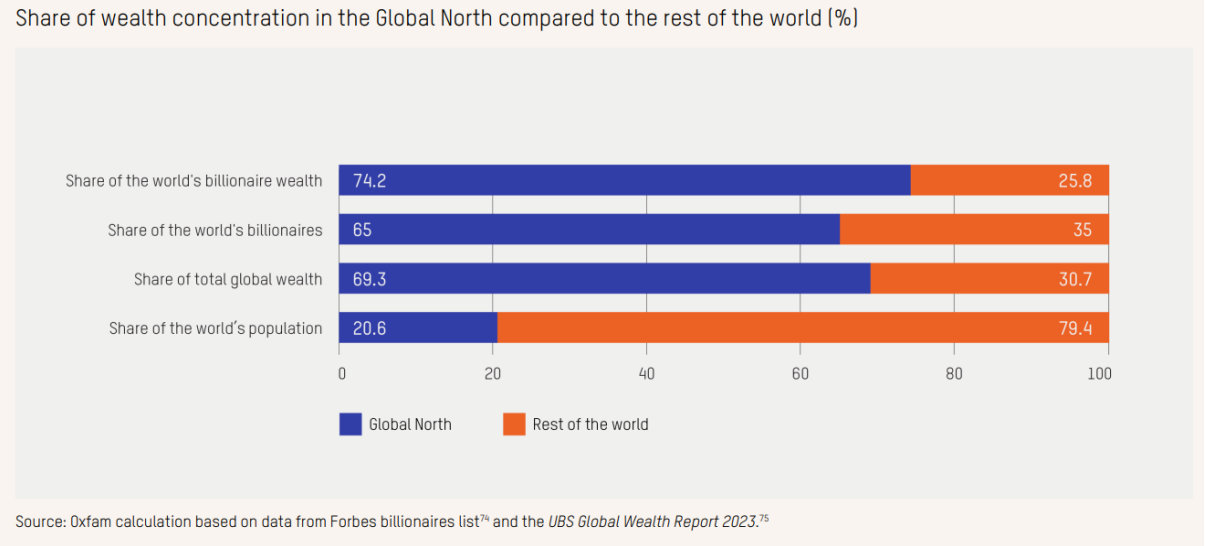
What this paper discourses on though, are the challenges that came with the introduction of technologies in police work. Scholars (Colton, 1979; Brynjolfsson & Hitt 2000; Shih 2004; Nissan, 2008; Wen 2009; Mlambo, 2021; Wang et al. 2021; Makola, 2024; Matlala, 2024) agree that the use of technology offer the police advantages that include faster transfers of data using platforms such as the email for better communication, time saving, better crime scene management facilitated through accurate measurements, computerised tracking of evidence in police custody, the profiling of *modus operandi* in crime scenes, the live tracking of suspects, biometric identification of persons, and the digitisation of work traditionally done by humans, so as to remove police officers from harm's way. The same scholars also took the liberty of highlighting some of the inherent challenges linked with technology. This paper highlights 7 key challenges relating to the use of technologies in the law enforcement space. These are:

(1) ***The philosophical dissonance:*** Contemporary Policing or Law enforcement is philosophically dislocated. The philosophy of modern policing conceptualised by Sir. Robert Peel in 1829 is currently recognised as the metaphysical authority. Matlala (2024) opines that this philosophy consist in clichés and unproven hypothetical statements. He further argues that the 1829 Peelian praxis was conceptualised when Africa (except Ethiopia), parts of Asia and the Americas were under colonial repression. The author's contestation is that one of the Peelian principles assumes that "*the police are the people, and the people are the police*". So, the contention is on which people were being referred to. Was it the oppressed masses? Or the white colonial settlers? Also, the Peelian praxis holds firm that police efficiency is measured by the absence of crime (Peel, 1829). This cannot pass the test for simple logic. Rationality dictates that it holds fact that for as long as human beings subsist, there will always be crime. Generic rhetoric such as "*crime is as old as humanity*" thus hold true. The Peelian praxis was conceptualised by a European based on his surroundings of the time.

The ontological, epistemological, rhetorical, hermeneutical, and methodological assumptions in Peel's philosophy are indeed through western lenses. What the colonials managed to do though, is to impose colonially structured law enforcement agencies upon all conquered lands, to the alienation of indigenous knowledge systems. On the same breadth, Matlala (2024) further highlights that the Peelian praxis is outdated as it was before the dawn of technology in police work, therefore not relevant to policing in the third or fourth industrial revolution. This author acknowledges the need for an inclusive, epistemologically grounded, transformative, internationalised and techno-centric philosophy, such as the one he conceptualised and termed post-modern policing. To this end, Matlala (2024) acknowledges contributions by: (i) the 1971 crime prevention through environmental design by Ray Jeffery, which talks to using physical security, surveillance, movement control and monitoring devices such as CCTV; and (ii) situational crime prevention, which talks to reducing opportunities for crime using technologies. These theories however do not enjoy the same status of the overarching metaphysical authority, as the Peelian praxis does. In Matlala's (2024) view, both theories fit in with law enforcement in the third industrial revolution and serve as precursors to post-modern policing, thus as key reference points for crime prevention in the fourth industrial revolution.

(2) The gap between the rich and poor: Without understating the blameworthiness of broader geopolitics, geoeconomics and coloniality, this paper discourses mainly on the inequalities, or the gap between the rich and poor nations. From a technological perspective, this is what Fuchs and Horak (2008) refers to as the digital divide that determines if a country can produce wealth and/or knowledge. These authors refer mainly to the needy underdeveloped/developing and the developed world that have technological resources in abundance. Most wealth is intensified in the global north, whilst the global south which consist in about 79.4% of the world's population of 8.2 billion, enjoys only 30.7% share of the total global wealth (Riddell et al. 2024). Such disparity is not by coincident. It is a generational privilege accrued from colonialism, the same way Africa inherited poverty from colonialism (Mpembwa, 2024), a calamity which law enforcement agencies on the

continent could also not escape. The Table below shows the disparities in the world's wealth concentration in 2024.



Source: Riddell et al. (2024)

The gap is generally reflected in the technological resourcing of law enforcement agencies in both the worlds of the haves, and the have nots, which technologies are showcased in discussions on fourth industrial revolution technologies. Matlala (2024) calls it a technological apartheid, which is as a result of disparities between rich and poor economies whose governments are not able to aptly resource the police, a situation historically initiated by coloniality, but grossly perpetuated by local corruption and mismanagement of resources by some politicians and government officials. This is why Aderibigbe et al. (2024) argues that corruption in the underdeveloped and developing worlds hinders the attainment of the SDGs. The paper does however not argue that corruption and mismanagement are absent in the developed world, the opposite is a tangible threat. The moot point in this paper that corruption continues to devastate economies that are already shrunk. What this could mean for law enforcement in high corruption-prone states is technological under-resourcing.

(3) Lack of research on policing technologies: Studies (Ford, 2007) show that the African continent ranks last in research outputs, contributing about 2% of the global research output index. This includes a lack of research on the use of technologies in police work (Matlala, 2024), and no frameworks to evaluate the use of crime prevention technologies (Ford, 2007), which is tantamount to non-empirical approaches in the implementation of technologies in police work (Matlala, 2024). The opposite is apparent in Asian countries whose global scientific advancements driving cutting edge research and technological breakthroughs have made them innovation hubs. For example, Singapore is leading in research on health care and urban sustainability; India leads space exploration, research on pharmaceuticals and communication technologies; and China leads space exploration, artificial intelligence and research on computing, whilst South Korea leads research on biotechnology, information technologies and on green energy (Adjacent Digital Politics Ltd. 2024).

Apart from contributing to sustainability, there is no doubt that the level of research in Asia has also opened doors for research on crime prevention technologies. Outer space research in particular, could open up research on policing in the fifth industrial revolution, which this paper posits that this next revolution will involve police work in outer space. This is because space research serves as an indicator that humanity is preparing to either harvest minerals and commodities from other planets including the moon, and/or is preparing to migrate to planets that can sustain human life. These are in fact strong indicators that law enforcement for outer space may be the focus in the next industrial era. For Africa and the rest of the world, this is what should eventually inspire forecasting research on cutting-edge crime prevention technology, which is what really inspired the research in this paper.

(4) Using outdated methodologies*:* Other problems particularly in the underdeveloped and developing world, relate to using outdated computers (Ford, 2007) and non-integrated police databases (Mlambo, 2021). In comparison to Africa, Europe is for example far ahead in terms of the type of technologies used in police work. Some of the technologies applied are outlined in the discussions on fourth industrial revolution technologies. Despite being advanced, citizens in some European countries perceive the automation of processes by the police, particularly the use of surveillance technologies, to be removing humanism from traditional police functions, replacing them with smart software and artificial intelligence capabilities. The case in point refers to a study in Estonia and Sweden by Masso et al. (2024). This study found that public perceptions on the automation of surveillance creates distrust and disconnect between the police and the public. To deal with this requires of the police to increase on public relations and education. Fourth industrial revolution features such as gamification and virtual reality technologies could prove helpful in public relations and in educating members of the public, and in honing the analytical and tactical skills of police officers, whilst reducing stress and anxiety levels (Alves Heinze, Mandryk & Klarkowski, 2024). In the context of the fourth industrial revolution, using outdated methodologies or technologies, be it out-of-date software, machines or gadgets, basically equates to the under-resourcing of the police.

(5) Resource constraints: The resource constraints in police agencies can be contextualised in terms of the global wealth distribution, which places the global north in privilege, and the mostly poverty stricken global south. For example, Rauch and Van der Spuy (2006) argue that police management in South Africa is frequently grappling with scarce resources, whilst having to navigate with limited finances, high service delivery expectations, and dealing with increasing public and political pressures to effectively manage the scourge of crime. Despite the constraint, South Africa like many other countries in the global south, does not have the appetite to venture for example into cryptocurrencies, in order to mitigate the lack of finances. Such currency can be used to resource the police among other things, which cryptocurrency is characteristic of the fourth industrial revolution.

South Africa like many, has not legislated to enable the state to transact in cryptocurrencies. However, the country has forfeiture laws that enable the state to forfeit assets that are proceeds of crime (Basdeo, 2014; South Africa, 1977; South Africa, 1998; Curlewis, 2024). As to why the state is not seizing cryptocurrency accounts involved in criminal activities and re-direct some of these to a law enforcement resource fund, remains a puzzle. The constraints faced by South Africa are against the backdrop that it is one of the few developing countries in Africa, which means that its police are by far, one of the better resourced on the continent, even in terms of technologies. If South Africa is faced up with such challenges, what of countries such as Chad, which is facing perpetual terrorism by Boko Haram which has killed and displaced many. There is no doubt that transnational organised crime which involves terrorism, and the paralysis of the state and law enforcement, is a threat to security and a barring factor to the success of Agenda 2030 (The African Union Commission, 2024).

(6) Poorly integrated global policing: Global policing is not as integrated as it should be. For example, Europe has the EUROPOL which is a continental law enforcement body whose mandate is to help member states to combat cybercrime, terrorism and serious international and organised crime (Maes, 2024; Szabó, 2024; Vas & Szongoth, 2024). The EUROPOL uses among other things, 5G technologies and artificial intelligence to combat serious organised crime and terrorism, and to combat cyber-related crimes using the European Cybercrime Centre (König, 2020; Dános, 2024; Maes, 2024; Szabó, 2024). To this end, Africa has not even begun to have conversations on continental law enforcement but approaches transnational crime via INTERPOL and by request from member states (Matlala, 2024). Equally, commentators (Lim, Lawton & Sloan, 2024) lament the fact that policing in Asia seems to be polarised as it is characterised by isolated pockets of excellence from countries such as China, South Korea, Japan, and has been neglected by police scholars. The neglect deprives the police of discourse that may brew research on a continental policing approach.

The non-integration is however not only an African or Asian issue, but it is rather globalised. It is unthinkable that in a globalised world that is in the fourth industrial revolution, the integration of law enforcement remains provincialised in Europe or north America (cooperation between law enforcement agencies in the United States of America and Canada), with no appetite to encourage the formation of continental police in other parts of the world, and forging police cooperation at a global scale. As cited, the one organisation that can be used as a conduit is INTERPOL. This institution has technological capabilities that include the Interpol Ballistic Information System (IBIS), the International Child Sexual Exploitation Image Database, Forensic Data Systems that enable access to fingerprint databases and DNA profiles, stolen property databases (Interpol, 2021), as well as forensic databases that can link investigators at an international level, and enable analyses on crime scenes (Coyne, 2022; Akhtyrska et al. 2024; Grossman & Bromund, 2024; Vasile, 2024).

The issue with the INTERPOL however is that it has only 196 member states (Interpol, 2024), out of 195 recognised by the United Nations, to a total of about 237 countries in the world (WorldAtlas, 2024). The difference between INTERPOL members *versus* the total number of countries in the world (recognised or unrecognised by the United Nations), attest to poor collaborations in the law enforcement space, thus poorly integrated global policing. This shortfall means poor or no police database interconnectivity, poor information sharing, and poor crime management at a global scale.

(7) Lack of political will: Poorly integrated global policing is as a result of a lack of political will from world leaders, who have other interests. One of the focus areas during the June 2024 United Nations Chiefs of Police Summit in Zurich was to integrate policing priorities to foster international peace and security (United Nations, 2024a). Whilst police chiefs engaged with matters that are pertinent to integration, political principals (world leaders) continue to create and/or allow situations that render law enforcement ineffective. The cases in particular refer to the geopolitics that have seen the inability of world leaders to stop the wars that rage in Gaza, Sudan, Chad, Lebanon, and other areas. In 2024, the United States of America vetoed a UN Security Council move for a ceasefire in Gaza, on the basis that it does not guarantee the release of hostages held by Hamas (CNN World, 2024).

This paper argues that with or without guarantees, peace is made in such ways, starting with a ceasefire, then negotiating for the rest. The logic in this paper is that peace, public safety and security, are not characterised by the absence of conflict, but rather manifest in the presence of justice amid the conflict. Furtherehereto, the paper posits that part of the reason for vetoing the proposed ceasefire was to keep the supply of weapons flowing to Israel, weaponry that is an income generator. The same goes for Germany and other countries, who have committed to supplying AI-drones and long-range ballistic missiles to Ukraine (Press and Information Office of the Federal Government, 2024).

In reality, world leaders in western powers are concerned with perpetuating neo-coloniality in that the business of war (weaponry sales) keeps their countries' balance sheets afloat. The 2024 November 7 news headline "Biden approves new $680 million arms sale to Israel, despite Lebanon ceasefire" (Truthout, 2024) says it all. Western powers create a level of dependency wherein they control monopolies in terms of whether war should start, continue, or stop, who to supply arms to, which type of arms to be supplied, and whether such weaponry can be used by the recipients or not.

These powers are less concerned with whether their war-mongering could spark off a full scale nuclear warfare, or a third world war, which is an imminent threat, considering the 2024 situation with the Russia-Ukraine and Israels' unending wars that go as far back as May 1948. Russia had for example, threatened to retaliate against any nation that supplies weapons that are used by Ukraine to hit targets within its territory, by using hypersonic missiles that have nucleur capabilities and can hit targets inside and outside of Europe within 15 minutes of launch (Reuters, 2024). In November 2024, Ukraine did fire the first US-made missiles into Russian territory (CNN World, 2024a), whilst Russia threatened to fire intermediate-range missiles, this after an earlier attack that destroyed the energy grid in Kyiv (Independent, 2024), some of which (missiles) can travel at velocity greater than 3,200 km/h or 1,998 Mph (Center for Arms Control, 2024; CNN, 2024a; Independent, 2024; Reuters, 2024). Laws around the globe don't allow such military technologies (missiles) to be used on the worst of criminal syndicates, but in war, such weaponry cause fatalities among innocent civilians.

Similarly, the corruption, kickbacks and fallacies prone (Iraq weapons of mass destruction lies) food-for-oil program, bears testimony on how the United States of America had monopolised using forced regime changes, to access the natural resources in Iraq in exchange for food (Council on Foreign Relations, 2024). From a theoretical perspective, leaders from western powers subscribe to the Machiavellian praxis. According to Shirokova et al. (2024), this theory is based on assumptions that include deception, threats and violence in building and sustaining political power. These last named authors argue that Machiavellianists leaders are intrinsically narcissist. The ontological underpinnings in the Machiavellian theory are therefore in the truism "*the ends justify the means*".

By hook or by crook, proponents of this theory do not really care whether the means are through injustice, immoral acts, or violence, even if the violence mean war (Machiavelli, 1979; Hemsey & Dahling, 2024; Kamali, 2024; Machiavelli, 2021; Shirokova et al. 2024). The conditions created by war not only impact negatively on the sustainability goals, but they also render law enforcement less effective. In a state of war, any country

declares martial law and the army is in charge. This may cause all sorts of problems in dealing with the civilian population, including human rights violations.

Apart from war-mongering, the lack of appetite by world leaders to push for the formation of regional and/or continental police bodies, and for such bodies to collaborate at a global level and share information through integrated databases, is further discoursed. This is also evident in the BRICS formation, whose cooperation agenda is on economics, politics, security, transnational crime, and prosecutorial services, albeit with differing interests and approaches to security (Department of International Relations and Cooperation, 2023; Government Communication and Information System, 2024; Katz, 2024). This causes tentativeness, which hiders the global integration of policing.

To date, BRICS has only acknowledged the value of enhancing cooperation in counter narcotics and firming contact among its law enforcement authorities, a joint statement adopted at the Meeting of the BRICS Anti-Drug Working Group in Moscow on 22 May 2024 (Declaration, K, 2024). This is why this paper argues that there is no real move towards collaborations regarding law enforcement, fighting transnational crime or sharing resources such as crime prevention technologies in the BRICS formation. Instead, there are only statements of intent and acknowledgements. To this end, members are left to forge their own bilateral cooperation agreements without formal regional or continental bodies, or an agency from an economic block such as BRICS, the same way NATO cooperates on military issues. This lack of political will to integrate policing requires world leaders to stop rhetoric's about policing in the fourth industrial revolution. Leaders should take action to support and resource the police immediately and prepare them for the next fifth industrial revolution, which this paper again posits, that the epoch may involve space or inter-galactic law enforcement.

Crime prevention technologies in the fourth industrial revolution

As technology continues to evolve across the various industrial revolutions, law enforcement agencies will need to be well-informed about the various technological capabilities. Key to gaining such insights is also understanding the nexus or interplay between policing, crime and technologies (Matlala, 2024), including the relating impacts on the safety of officers, the public, and the ethical issues connected with the use of technology *versus* individual privacies (University of San Diego, 2024). History has it that removing officers from harm's way was an innovation that started during the third industrial revolution, with the deployment of the first bomb disposal robot in 1969 (Lisle, 2020), whilst the use of technology and individual rights to privacy is discourse that will never end. Scholars (Ezzeddine, Bayerl & Gibson, 2023; Bowers & Johnson, 2024; Kisio & wa Teresia, 2024; Murray, 2024) have written extensively on the ethical usage of crime prevention technologies and the protection of human rights such as privacy. There is also no doubt that bomb disposal robots in the fourth industrial revolution boast even better capabilities. For example, the T4 bomb disposal robot operates on batteries that can last upto 7 hours, can climb stairs, traverse steep slopes, and has multiple cameras (Defence Online, 2024). This machine was acquired by the British military in 2024 and there is no reason why the British police cannot use it.

Other fourth industrial revolution technologies used by the British police include forensic video. The world will recall the Boston marathon terrorist bombing attack and how the FBI assisted the British police by using the technology to isolate and track the suspect, which led to the eventual arrest. Forensic video uses digital imaging algorithms, signal processing, and computer imaging to enhance, track and authenticate video footage, clear blurred images, and to recover deleted footage (Prema & Anita, 2022; Epstein, 2024; Pappachan, Adi & Firmansyah, 2024; Sandhya & Kashyap, 2024; Singh, 2024). If forensic video was to upgrade the software to include biometric identification capabilities such as ear and facial recognition, this would enable quicker identifications and thus enhance police investigations.

Another fourth industrial revolution crime prevention technology is forensic photogrammetry. This is technology used to determine geometric properties and distances from 2D and 3D photos from a crime scene, as a way to systematically generate accurate measurements (Chango et al. 2024). According to Mokwena (2022), forensic photogrammetry produces reliable, credible and error-free measurements from the crime scene. Forensic photogrammetry is used by police in countries such as the United States of America and Germany. As of 2024, there was no evidence of police agencies on the African continent having acquired and used the technology, this owing to the resource constraints discoursed in this paper. The technological apartheid discoursed herein is thus an even greater feature in policing in poor states.

Judging by what is outlined in this paper, it holds fact that technology is transforming 21st century law enforcement. This is law enforcement in the fourth industrial revolution. The University of San Diego Online (2024) outlines additional innovative technologies used in crime prevention work and these are:

- ***Digital Forensic Software:*** The software is used in searching for and storing digital evidence in investigations on cybercrimes such as credit card fraud and child pornography. The software recovers deleted files, bank statements, phone numbers, social media posts and text messages.
- ***Virtual Reality and Gamification:*** These technologies are used to enhance police training. Examples include video simulated shooting ranges and navigating hostage situations. Such training not only sharpens the shooting skills of police officers and how they handle real life situations that require the use of firearms, but also save time and costs. The savings comes from the non-utilisation of live ammunition in a physical shooting ranges and/or driving to the venue. There is also gamification, which according to Alves Heinze et al. (2024), has proven to decrease stress and anxiety among gamers. Both Virtual reality and gamification thus equips users with analytical skills, which improves tactical awareness of police officers in the line of duty. Gamification on the other hand, can be used to educate the public about the dangers of crime. One interesting feature is that modern computerised games can include more than one player and uses 5G technology and voice technology that enables live communication among players when playing the game (Venugopal et al. 2023; Alves Heinze et al. 2024; Li, 2024).
- ***eCitations and Automated Licence Plate Recognition:*** This is technology that enables police officers to input and print data for fines on traffic violations. The technology cuts on the time taken if the citation was to be handwritten. Such capabilities mean that the police can issue more citations, which is an income generator. What the income from citations is spent on, is however a matter not discoursed in this paper. The electronic licence plate recognition on the other hand, allows officers to automatically scan and collect fines on a vehicle registration plate. This technology too uses AI to enable quicker identification of vehicles and processing of fines. A key feature of the technology is that it helps patrol police officers to identify stolen vehicles.
- ***Facial Recognition:*** This is software used to identify facial features to confirm suspect's identities. The New York Police Department is one leading agencies that applies the technology. The types of facial recognition that can be used are Retrospective Facial Recognition which uses CCTV, doorbell, dashcam and social media footage after a crime has occurred; live Facial Recognition, which enables suspect identifications in real-time; and Operator Initiated Facial Recognition, which is a mobile App that allows officers to photograph a person of interest to determine the identity and effect arrest when necessary (Home Office Media, 2024). The various capabilities of this technology were used during the coronation of King Charles III, and have been used by British Police since 2020, with success in arrests and convictions in courts.
- ***Biometrics:*** This software does electronic identifications on fingerprints, palmprints, and DNA profiling to identify and connect suspects to crime scenes**.** The South African Police Service also uses the technology, albeit with outdated software, technology whose database is not connected to other state departments who also carry digital fingerprint data (Matlala, 2024). Examples of state departments with biometric systems is the Department of Home Affairs whose database consist in birth and death fingerprint records, and the Department of Transport whose database stores fingerprint records for driver's licenses and permits. This is an issue problematised as using outdated methodologies in this paper, an issue that continues to plague the police in the underdeveloped/developing world, owing to the gap between the rich and poor.
- ***Voice Command Technology and Smart Cruisers:*** Voice command makes police vehicles smart. The technology enables officers to use voice commands whilst driving. Examples include giving orated instructions to run a license plate or to turn the siren on and off. In terms of running registration plates, the results are automatically stored in police databases, which can generate reports at a later stage. This therefore makes filling for an incident an easier and quicker process. This technology makes police cars smart cruisers. A smart cruiser is a car that also has Wi-Fi connectivity, which allows police officers on patrol quick access to information.

- ***Robotics:*** This involves the use of machines with visual and audio capabilities in crime scenes that may be too dangerous or inaccessible to police officers. Tunisia was also the one country that used robots for the enforcement of protocols during the COVID-19 lockdown. The P-Guard robot was successfully deployed to warn the civilians who were in violation of the lockdown regulations and advised them to comply with the law or face arrest and prosecution (BBC, 2024). There is no doubt that this robot also saved some police officers from being infected. This paper does however not probe this supposition on technology and the relating infections. The point in this paper is that the police in South Africa could in late 2024, not access disused mine shafts to arrest illegal miners, many of whom are illegal migrants, because they had neither the technology, nor the requisite skills to navigate such terrain (disused mine shaft). The use of camera equipped robots could have shed light on the nature of the scene and skirmishes therein.

  What this paper further postulates is that robotics could be helpful in the illegal mining policing operation underway in 2024. According to the Citizen (2024), illegal miners have been emerging from a disused shaft in Stilfontein, following a police operation that started in August 2024, targeting an estimated 4000 illicit miners underground. This source also reports that some of the minors are undocumented underage children, which suggests child labour and child trafficking, foreign undocumented migrants from Zimbabwe, Mozambique, Lesotho and locals who are heavily armed with illicit firearms. These illegal miners are said to be working for kingpins who facilitate the arms trafficking, do illegal sales and exports of the gold, as well as engage in money laundering to conceal the proceeds from crime (Dyan, 2022). Scholars (Ngozo, 2020; Dyan, 2022; Kohnert, 2024; Östensson, 2024) argue that illicit mining not only facilitates trafficking and other economic-related crimes but is also a threat to national security.

- ***Video Doorbells:*** This is doorbells with video surveillance. The technology is installed by homeowners who prefer and can afford smart homes. Footage from such technologies can be instrumental in the investigation of crimes such as home burglaries, house robberies and domestic violence. Judging by the global wealth distribution, the majority of smart homes are arguably in the global north. This means less security in homes that cannot afford modern technologies, thus a lesser quality of life. For policing, this digital divide or technological apartheid thus mean that the quality of investigations in smart homes is higher in comparison. This paper poses the question: How then does the world foresee sustainability post Agenda 2030, when inequality is forcing the provision of law enforcement services to be unequal on the basis of how people are resourced? The author is reminded of the 1945 George Orwell novel "*Animal Farm*" where some animals are said to be more equal than the others (Orwell, 2021). This paper argues that lack of technological resources creates the same type of layers of inequality that Orwell sought to problematise in his book, layers that are real in the 21st century. If the world intends to eradicate inequality, then the global integration of policing and their equitable resourcing worldwide cannot be ignored as part of the global agenda on sustainability.

- ***ShotSpotter:*** This technology helps the police to identify the exact location of gunfire. Apart from enhancing the safety of officers in that they will know what cautionary measures to employ when approaching gunfire scenes, the technology also enables faster response times in that officers don't have to waste time looking for the gunfire origin, they can go directly to the scene. This technology is said to enable the police to identify the shooter in 4 minutes and 13 seconds. Such quick reaction time thus assists in the arrest and swift prosecution of offenders.

- ***Artificial Intelligence:*** This technology uses the Internet of Things which enables the collection, processing and generation of huge data sets. For law enforcement agencies which are an information-intensive social order, this technology significantly decreases the amount of time taken to process and generate data, if the exercise was done manually by humans/officers. The technology is furthermore used to support other crime prevention technologies such as the ShotSpotter and biometric identification technologies. Artificial intelligence thus applies 5G capabilities to enable the interconnectivity that supports other crime prevention technologies. Like the GIS, Artificial Intelligence is also used to do crime mapping and crime forecasting. These capabilities can be an effective tool when used appropriately in criminal investigations.

- ***Thermal Imaging:*** The technology uses thermal imaging cameras, some small handheld, that apply infrared imaging to detect humans and animals. In detecting, the technology generates heat pictures, or heat maps of the environment being scanned. Apart from helping the police locate and apprehend a suspect(s) who is hidden, the technology can also be used in lifesaving exercises that include identifying and rescuing people and animals trapped in burning buildings. This technology could have in 2024, helped the police in

South Africa to navigate the illicit mining shafts crime scenes, which they have no capacity to navigate, this owing to resource constraints. The South African Police Service had an operation to wit out illegal miners by limiting the supply of rations, waiting for them to emerge, and then arrest (The Citizen, 2024).

- ***Drones:*** The most sophisticated of drones have thermal imaging, 3D mapping and are used for aerial vantage in accident scenes, search and rescue, and crowd management and control. For law enforcement agencies, drones offer precision in areas being charted, which is key in producing accurate reporting, as well as in assisting the courts with visual evidence. The scientificity of evidence generated using technologies such as drones is thus beyond reproach. This is because visual images are like eyewitness accounts that are viewed as credible in courts.
- ***Body Cameras:*** Body cameras are tried and tested in most developing countries. For police agencies, the technology ensures the accountability of officers. Even though the technology cannot stop police brutality, footage from body cameras has served as vital evidence, which can result in convictions or acquittals. A study by Wright, Gaozhao and Houston (2024) found that the use of body cameras has significantly decreased the police's use of brutal force. This study also found that more police officers in the United States of America where being convicted using evidence from body cameras. In South Africa where the police don't have this, crucial evidence on police brutality is found on cell phone video footage mostly proffered by civilians. The footage is made viral on social media, which prompts authorities to act on police officers. These are some of the realities faced in law enforcement in the developed and developing world. For South Africa, debates on the use of body cameras by the police raged from 2023, with parliamentarians raising cogent queries relating to police accountability (BussinessTech, 2024).

Prospects for policing

Despite the exciting innovations offered, crime prevention technologies in the fourth industrial revolution offer even greater prospects that can increase police efficiency beyond current imaginations. The world should be reminded that Uber began experimenting on flying cars since 2020 (SmartCompany, 2024). Apart from saving the environment (reduced carbon emissions), imagine what flying cars would mean for police patrols. Similarly, Hyundai is experimenting on walking cars (Hyundai Motor Company, 2024). Imagine what this would do to police patrols in areas with bad roads, or land borders with no roads. These types of technologies together with drones, can go a long way in helping to combat transnational criminal activities like illegal migration, contrabanding and pouching.

Speaking further on the reimagination of patrols, one can also forecast policing in the fourth industrial revolution in the context of the 2017 Vin Diesel movie**, xXx: Return of Xander Cage**, which showcases motorbikes that can drive on land and in water (Men's Journal, 2023). Another is the 1977 James Bond movie, **The Spy Who Loved Me,** which showcases a vehicle that can double as a submarine (Bond Lifestyle, 2023). Police patrols in Africa and parts of Asia that have poor roads infrastructure can benefit greatly from investing in such cutting-edge technologies, which are by the way, not a far-fetched dream, but rather an imminent reality in this 21st century. If Uber and Hyundai can experiment on flying and walking cars, then aquatic capabilities for cars and bikes are also a possibility. The use of such hybrid capabilities could save resources. Patrol officers on high speed chase driving in hybrid transport may not have to call for marine support, should the chase divert to the waters. Such hybrid vessels can also be useful in marine border patrol, to detect and prevent illegal migration, drug, persons and human trafficking, as well as contrabanding facilitated through large ship containers.

Many of the prospects for policing in the fourth industrial revolution can further be imagined in the context of other fictional Hollywood movies. One such example is the 2019 Robbie Amell blockbuster **Code 8**. This movie showcases big police drones that carry human size cyborgs that are deployed and respond with lethal force in the event human officers come under attack. The drones and cyborgs are fitted with guns and cameras with facial recognition and thermal imaging. Once a suspect is identified, the message is communicated to human officers on the ground and an arrest is made. A sneak preview of the movie is available on the link **https://youtu.be/PrX1JJ5dduA.** There is no doubt that such technological capability is within reach, especially in this fourth industrial revolution epoch of robotics.

The age of robotics mean that the world can begin to also imagine robocop becoming a reality in the near 21st century future. The 1987 movie **Robocop** is another trailblazer in reimagining police work. This movie was made during the third industrial revolution and is an example of prospects for policing in the fourth industrial revolution. The movie was later remade in 2014, starring Samuel L. Jackson and Abbie Cornish. To elucidate, the movie relates

to the highly dedicated officer Murphy who is killed in the line of duty and is later resurrected as half a man and half a machine crime fighter. This man/cyborg police officer is fitted with firearms and an electronic helmet with thermal imaging cameras that enables the crime fighter to easily locate hostile (armed) suspects and lock the targets for enhanced accuracy when shooting. A sneak preview of the 2014 version of the movie is available on the link Bing Videos.

This paper however does not suggest that the future entails turning police officials who perish whether on or off duty, into half man- half machine. Such move would be considered unethical as death in almost all world societies has religious, spiritual and/or cultural connotations. Humans prefer to bury their dead, loved ones, or kinsmen, and honour their memory, rather than having them chasing after criminals. For Africans, when a person departs, they are presumed to have joined the ancestors in the afterlife (Ogungbemi, 2022). Transforming a dead officer into a machine would be perceived morally uppalling. Many jurisdictions around the world generally have legislation that prohibits tempering with the dead.

The era of robocop will however not be without challenges. This paper already postulated that criminals are also using technologies to outsmart the police. Thus, there might be instances where technology malfunctions and the consequences might be dire. One such case was abstracted in the 1969 Yul Brynner antiquated movie **Westworld**. The storyline is about tourists who visit an amusement park featuring wild west human-like robot characters. Owing to a malfunction, the robots begin to attack patrons, culminating in fatalities. Another is the 2004 Will Smith blockbuster **iRobot**. In this movie, human size robots are deployed as servants to humans. The one robot is however manipulated to commit euthanasia and is investigated for murder since the act was considered a crime, and the robot kept on evading arrest.

Although robocop can be an exciting addition to policing in the fourth industrial revolution, this futuristic crime fighter will not be exempt from vulnerabilities that may include human error (programming) or cybercrime (manipulation). Apart from high ethical standards, proper accountability protocols (laws, policies and procedure manuals) and upgraded software such as antivirus and firewalls, law enforcement agencies will have to educate and resocialise the public, as the introduction of robocop will mean a new methodology in law enforcement, one that might really shock the public and cause fear. This may cause distrust and lack of cooperation between the police and communities, which is an antithesis to the Community Policing philosophy. The philosophy assumes axioms that promote crime fighting approaches that follow police-community cooperation and collaborations (Dharavath, 2024). De Paepe and Easton (2024) warn that because technology reduces human interactions, the use thereof may render police work abstract and dehumanised, thus rendering Community Policing a futile exercise. This philosophy is crucial in promoting the inclusivity element articulated in SDG 16 of Agenda 2030.

Another Hollywood blockbuster within which policing in the fourth industrial revolution can be imagined is the 2002 film starring Tom Cruise, **Minority Report**. The movie is set in 2054 where a precrime program using three psychics (unwilling Precogs) helps the police arrest perpetrators before they commit the crimes (Ebert Digital LLC, 2024). Although this paper does not argue for the use of unwilling psychics as this would be unethical, the key consideration is that psychic powers are more on the reductive realm of reasoning, whilst law enforcement is a science which uses the inductive and deductive logic. Using reductionism in fact equates to legal presumption of guilty until proven innocent.

What is interesting about the movie though, are the types of technologies used. Apart from the precogs premonitions which are generated as holographic computarised images, policing in this movie uses small robots that can crawl under residential doors and scan retinal signatures of persons/suspects for identification. In the movie, this is done without court order or reasonable suspicion. It is just done on everyone during routine raids, something that would not only raise legal questions on warrants, but also issues on individual privacies. What is key about such small machines is imaginations on how this would impact on policing in the fourth industrial revolution, if such technologies were to be deployed under proper enabling legislation. Of course, one suspect in the movie does have eyes transplanted and evades detection. This once again shows how criminal suspects can subvert technology to evade arrest.

Another is the 2013 Tom Cruise again sci-fi **Oblivion**. This movie is about a love story set in 2077 in a postapocalyptic world where people live in space stations, wherein a woman lost in space after crashing a spaceship or aircraft she travelled in, is rescued (The Cinemaholic, 2024). Although the movie features some interesting technologies that resonate with the fourth industrial revolution, the element of people migrating to space stations is not far-fetched given how global warming is rapidly deteriorating the earth's environment, slowly rendering the planet uninhabitable, juxtaposed by current advancements in space research. This is the migration that can

necessitate space/intergalactic policing, which this paper postulate will be in the next fifth industrial revolution, although the paper does not predict the timelines as to when the epoch might start, and whether law enforcement will be ready then.

What the fifth industrial revolution will look like is fictionalised in the 2024 film **Intergalactic.** Apart from it also being a love story, the movie showcases women who are sent to an outer space prison for their crimes. The trailer is available on Bing Videos. The imagery in this film predicts the migration of the entire criminal justice system, that is law enforcement, prosecutions, courts and prisons to the outer space. This is what the paper postulates will characterise the fifth industrial revolution, particularly for the law enforcement function which is the gateway into the entire criminal justice system. The US Coast Guard is currently unlawfully operating floating prisons out in the Pacific Ocean (The World, 2024), Dubai (UAE), Singapore, Tanzania, Maldives, Australia and Sweden are among countries with hotels either floating on the water or built inside the water or at sea. There is thus no reason why world criminal justice systems which include law enforcement agencies, will not migrate to outer space in the next era.

Conclusions and recommendations

Although this paper has attempted to tackle the mind-boggling question on political will, history has shown that politicians will always react, even to issues on law enforcement, in a way that secures them political mileage. Even when such mileage is derived from populism, creating or perpetuating war and insecurity. The intention is for career politicians to secure office or remain in power. So, the postulations in this paper are far from convincing politicians to stop the wars. Rather the paper seeks to reason with, and persuade politicians, police chiefs and policy makers to support and take the global integration of law enforcement and the role of technology, together with what it adds to sustainability, more serious.

This paper thus recommends the formation of the Global Police Organisation. The mandate of the organisation should be to drive the global integration, the equitable resourcing of police, and to strengthen global police cooperation, in collaboration with organisations such as INTERPOL, UN Police Chiefs, as well as regional and continental police formations. The proposal is for the organisation to have a Global Police Governance Work Group, which consist in political principals, law makers, police chiefs, and policy advisors from across the world. This group can among many other governance issues, deal with issues on legalities around global police integration and cooperation, issues on extradition protocols, issues on resource sharing, skills transfer and police databases' interconnectivity.

The proposed organisation should also have the Global Police Resource Network, which focuses on creating and managing a global police resourcing fund to finance the modernisation of police technological infrastructures worldwide. Likewise, the organisation should also have the Global Police Research Network. The group can consist in scholars/researchers in the fields of science, technology and law enforcement, retired police officers/detectives, analysts and many other relating expertise. This group's focus is purely to research and advise the organisation on crime prevention, technology and other related matters. The organisation should be calibrated to make global policing empirically-driven.

Conclusion

This paper concludes that human sustainability can be meaningful when all quality aspects of life are enhanced and balanced. Maintaining acceptable quality standards of life and attaining the sustainability development goals hinges on public safety and security, a function fulfilled by law enforcement, capacitated by the use of modern technologies that align with the contemporary times. The 21st century is the era of the fourth industrial revolution. This era requires the reimagination of crime prevention. Apart from technologies, the global integration of policing could turn the tide in the fight against crime.

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