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The Thinker

A PAN-AFRICAN QUARTERLY FOR THOUGHT LEADERS

SPECIAL FOCUS ON:

THE INTERSECTION OF THE 4TH INDUSTRIAL REVOLUTION WITH POLITICS AND INTERNATIONAL RELATIONS

By guest editors Robyn Williams and Lisa Otto

PLUS: Patrick Bond on insurgents in Mozambique

ALSO, "Hating Peter Tatchell"

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In This Issue

NOTE FROM THE EDITOR

Prof Ronit Frenkel

The University of Johannesburg acquired *The Thinker* in April 2019 from Dr Essop Pahad. Over the last decade, *The Thinker* has gained a reputation as a journal that explores Pan-African issues across fields and times. Ronit Frenkel, as the incoming editor, plans on maintaining the pan-African scope of the journal while increasing its coverage into fields such as books, art, literature and popular cultures. *The Thinker* is a 'hybrid' journal, publishing both journalistic pieces with more academic articles and contributors can now opt to have their submissions peer reviewed. We welcome Africa-centred articles from diverse perspectives, in order to enrich both knowledge of the continent and of issues impacting the continent.

CONTRIBUTORS TO THIS EDITION - All contributing analysts write in their personal capacity

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Editor's note

Emerging and advanced technologies continue to creep into public and private life. Particularly forceful, the fourth industrial revolution (4IR) is unavoidable. New and advancing technologies such as artificial intelligence, big data and the Internet of Things have injected themselves in big and small ways in various aspects of daily life. Lavopa and Delera (2021) note that 4IR is much more than a 'technological leap forward'; indeed, this industrial revolution is likely to have much wider-reaching consequences than any other than has come before it.

The use of technologies in politics and international relations is not a new phenomenon. Throughout history we have witnessed that technological trends have often impacted domestic politics and state relations. The radio was welcomed by politicians as they were able to communicate to large amounts of citizens, domestically and abroad – think of Roosevelt's 'fireside chats'. Radio transcended the reach of print media in that it allowed listeners to hear the speaker's voice, and in turn leant the speaker the benefit of verbal communication – the use of elements that might otherwise be lost in printed word. Decades later, the invention of the email allowed faster communication within and between states. Overtime, technology has too transformed how states process and store information. The use of social media, for example, has been adopted by most states as a tool for engagement and has completely altered the way in which states communicate with the public – their own citizens, other 'publics', the media, stakeholders, and each other.

The purpose of this special issue is to explore a topic that is new and continuously evolving: the intersection of the fourth industrial revolution with aspects of the practice of politics and international relations. The issue focuses on a number of diverse areas of impact as an introductory exploration of this theme.

The issue begins with Dominique Uwizeyimina's exploration of the contributions by black Africans to industrial revolutions, from a pre-industrial era to the current 4IR. Africa is home to a wealth of talent and materials; however, it requires the support of African leaders through funding, training and supply. Anthoni van Nieuwkerk seeks to understand if, and how, the topic of digital driven warfare is relevant to Africa, further tracing how the continent may protect itself from 4IR-induced attacks. The reality of technological advances is that powerful processes, knowledge and tools are not limited to government and for positive use but may be utilized to manipulate a scenario, impose threats and endanger human life. Robyn Williams and Lisa Otto explore the potential of artificial intelligence when applied in public diplomacy, exploring the case of the United States and Iran who have had strained relations for several decades. 4IR's intrusive is not limited to international relations, as it prompts itself into domestic politics. The effects of 4IR are both far-reaching and wide spanning, having detrimental effects on labour-intensive industries. Alecia Ndlovu seeks to understand the prospects for the mining industry, exploring if and how the adoption of advanced technologies, driven by 4IR, may impact political settlement in South Africa's mining industry. Furthermore, public service delivery may be positively transformed if a state were to adopted a highly digitized and efficient system, in some states, 4IR-driven service delivery may have already been adopted at a highly sophisticated level but in many developing states, implementation remains in the earlier phases. Samantha Layton-Matthews and Chris Landsberg explore the potential of 4IR in South African public service delivery.

While these articles cover five areas where we can witness an intersection of 4IR and politics/international relations, it is worth noting that there are more areas worth discussing, such as e-governance. However, the intersection remains in its infancy and implications and opportunities are yet to fully present itself.

Acknowledgments

We offer thanks to the peer-reviewers for providing high quality and detailed reviews. Lastly, thank you to Bhaso Ndzendze and Tshilidzi Marwala for the providing our concluding note and offering their insightful thoughts on the continuously evolving topic surrounding 4IR and politics and international relations

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Black Africans' Contributions to Global Industrial Revolutions

By D.E. Uwizeyimana | Peer Reviewed

Abstract

This article evaluates the contributions that have been made by Black Africans (in Africa and the diaspora) to the different industrial revolutions. The methodology used in this research was mainly qualitative. The findings confirm that Black Africans had achieved technological advances before the arrival of Western and Eastern slave traders and colonialism in Africa, and had made substantial contributions to the pre-industrial revolution and the first industrial revolution. Even though slavery and colonisation halted further technological innovation and advancements, there is strong evidence to suggest that Black Africans are currently contributing to the Fourth Industrial Revolution. Impressive innovations are coming from Africa. African leaders must support Africans' technological innovations through funding, proper training, and availing raw materials for them to contribute to the Fourth Industrial Revolution.

Introduction

The purpose of this article is to critically evaluate the contributions made by Black Africans to the different industrial revolutions of the past and to explore what Black Africans can contribute to the Fourth Industrial Revolution (4IR). From the onset, the concept 'Black Africans or African people' refers to Black Africans and their dependents with African ancestry in the diaspora. It documents examples of technological contributions made by living and non-living people with African ancestry to demonstrate that Black African people can play a leading role in the current 4IR and future industrial revolutions, irrespective of where they live in the world. The specific intention of this article is to motivate current and future generations of Black Africans by showing them how our ancestors dominated the technological advancements and innovations in what is called the pre-industrial revolution by Western countries; and how Black Africans lost their dominant position in the global technological advancements because of the slave trade, colonisation, and the religious brainwashing that came with these. The article starts with a conceptual and historic overview of the different industrial revolutions and what the 4IR truly entails. It proceeds with a discussion of how Black Africans contributed to technological and scientific innovations of the past industrial revolutions. The article concludes with suggestions for what Black Africans can do to benefit from the 4IR and contribute to its technological innovations. The conceptual and historical development of different industrial revolutions and their effects on the African continent are discussed in the next section.

Conceptual and Historic Overview of Past and Present Industrial Revolutions

The Fourth Industrial Revolution (4IR) has dominated the media, political and economic circles, and academia in Africa and around the globe since the beginning of the 21st century (Maharajh, 2018: 1). Although used earlier by French writers, the term 'industrial revolution' was first popularised by the English economic historian Arnold Toynbee (1852–1883) to describe Britain's economic development from 1760 to 1840. 'Industrial revolution' initially meant 'complete change in the relationship between employers and employees brought about by mechanical inventions in the late 18th and early 19th century' (Fowler & Fowler, 1965: 621). In modern history, the term has been more broadly applied by the media, researchers, politicians, and even ordinary people on the streets to describe the different industrial revolutions dominated by industry and machine manufacturing that followed the UK's First Industrial Revolution (1IR) (Maharajh, 2018: 1). The first part of this article provides a brief discussion of the different industrial revolutions and the disruptions associated and identified with them in the literature; the second part discusses Black Africans' contributions to the different industrial revolutions.

The Journey from the Pre-Industrial Revolution to the Fourth Industrial Revolution (4IR)

The Pre-Industrial Revolution period entailed 'the transition from foraging (wild fruits gathering and wild animal hunting) to farming and animal domestication, which started about 10 000 years ago' (Schwab, 2016: 11). This period ended in the 18th century (1760 to 1840) when the steam engine was developed and used to mechanise, which began the mass Industrial Revolution, first in the UK and later in other Western industrialised countries. The pre-industrialisation period was dominated by the agrarian revolution, which was made possible by the combined efforts of human labourers and animals. Black African slaves were the main source of labour used in the production of products such as sugar and cotton in the European countries and their colonies (Williams, 1988). People and animal labour were also the main source of transportation and communication (Schwab, 2016: 11). The 1IR, which is discussed below, was the next step in the evolution process of the agrarian revolution of the Pre-Industrial Revolution.

The First Industrial Revolution (1IR)

Historical literature shows that the First Industrial Revolution (1IR), 'began in Britain in the 18th century (1760 to 1840) and then from there spread to other parts of the world' (Encyclopaedia Britannica, 2019: 1). The 1IR was epitomised by the development of the steam engine (Harvey, 2017: 2). The steam engine ushered in the mechanical production of

things that were traditionally done by humans and animals in the 1IR (Xing and Marwala, 2019: 2). 'Steam engines use hot steam from boiling water to drive a piston (or pistons) back and forth' (Ślusarczyk, 2018: 232). The steam engine enabled industry owners to mechanise mass manufacturing and build locomotives powered by steam engines to transport people and products to different places great distances apart (Xing and Marwala, 2019: 2). Because of the steam engine, machinery was able to function much faster, with rotary movements and without human power (SAHO, 2017: 1). Noticeably, coal became a key factor in the success of industrialisation. It was used to produce the steam power on which industry depended (SAHO, 2017: 1).

The Second Industrial Revolution (2IR)

The world entered the 2IR with the discovery and use of electricity in factories in the latter part of the 19th century and the early part of the 20th century (Ślusarczyk, 2018: 232). The discovery of electricity made it possible to produce electricity-powered machines/tools, which made mass production much faster than it was in the 1IR (Harvey, 2017: 2; Xing and Marwala, 2019: 1). Because of electric motors, car manufacturers such as Henry Ford increased efficiency on a large scale (i.e. mass production and assembly lines in automobile manufacturing industries as a way to boost productivity) (Schwab, 2016: 11). Because of the discovery of electricity, it was possible to manufacture items that use engines to function, such as aeroplanes, telephones, cars, and radio, most of which could be manufactured through mass manufacturing/production. Electricity led to the further automation of many tasks previously performed by steam engines in the 1IR (Nalubega and Uwizeyimana, 2019).

"There is no doubt that the 4IR differs from the other industrial revolutions that came before it. Unlike its predecessors, the 4IR is based on three 'megatrends', namely physical, digital, and biological (Xing and Marwala, 2019: 1), which are deeply interrelated. In fact, the various technologies of these megatrends benefit from each other and improve based on the discoveries and progress each makes (Schwab, 2016: 17)."

The Third Industrial Revolution (3IR): Electronic/ Programmable Tools

The 3IR slowly began to emerge in the late 1950s and early 1960s. John Bardeen and Walter Brattain's discovery of the transistor in November 1947 catalysed the 3IR. This discovery led to the electronic age that gave the world computers and the internet (Xing and Marwala, 2019: 1). In addition to the development of semiconductors and mainframe computing (the 1960s), other technological inventions of this era included personal computing (1970s and 80s) and the internet (1990s) (Schwab, 2016: 11). Therefore, it is often said that the 3IR (characterised by electronics, the internet, and the use of information technology) further automated mass production (Ślusarczyk, 2018: 232).

The Fourth Industrial Revolution (4IR): Robotics and Artificial Intelligence (AI) (2000 onwards)

There is no doubt that the 4IR differs from the other industrial revolutions that came before it. Unlike its predecessors, the 4IR is based on three 'megatrends', namely physical, digital, and biological (Xing and Marwala, 2019: 1), which are deeply interrelated. In fact, the various technologies of these megatrends benefit from each other and improve based on the discoveries and progress each makes (Schwab, 2016: 17). Thus, the 4IR refers to a new phase that focuses heavily on 'interconnectivity, automation, machine learning, and real-time data' from the physical, digital, and biological fields of practices and disciplines (Marwala, 2007). Xing and Marwala (2019: 2) argue that several rapid changes in physical technologies (e.g. intelligent robots, autonomous drones, driverless cars, 3D printing, smart sensors, etc.); digital technologies (e.g. the internet of things [IoT], services, data and even people, etc.); and biological technologies (e.g. synthetic biology, individual genetic make-up, and bio-printing, etc.) will inevitably and profoundly affect the way we work, learn, and live. These technologies have already become crucial for economic competitiveness and

social development. The link between physical and cyber networks is expected to allow continuous and uninterrupted real-time information flow for robots to do the work and perform tasks that were done by humans in the past (Nalubega and Uwizeyimana, 2019). Machines and robots powered by AI are therefore the hallmarks of the 4IR (Xing and Marwala, 2019: 1). The 4IR is about connectivity between the industrial IoT and Big Data and will require secure and reliable infrastructure to allow for machine learning. The connectivity between the industrial IoT and Big Data enables machine learning to take place, and the emergence of AI machines and robots that can perform sophisticated tasks better, faster, more efficiently, and more effectively than humans (Ślusarczyk, 2018: 232). The following sections focus on Black Africans' contributions to technological innovations that constitute the different industrial revolutions. The following are just a few of the many examples of historical records of Black Africans' technological innovation contributions to different industrial revolutions in almost all fields including, but not limited to: medicine, philosophy, astronomy, mathematics, physics, civil engineering, and other fields.

Contributions of Technological Innovations by Black Africans to Different Industrial Revolutions

> 'I have great respect for the past. If you don't know where you've come from, you don't know where you're going. I have respect for the past, but I'm a person of the moment. I'm here, and I do my best to be completely centred at the place I'm at, then I go forward to the next place' (Angelou, 2011).

This opening statement by American poet Maya Angelou (1928–2014) teaches us that the knowledge of where one comes from is an important starting point for one's discovery of what one can do or can become in the future. This statement seems to be true if one looks at the historical records about the indigenous Black Africans in Africa.

Black Africans' Contributions to the Pre-Industrial Revolution

The literature suggests that the Pre-Industrial Revolution era, in both Africa and the rest of the world, was characterised by manual and animal labour. There is evidence to suggest that most African societies had developed technologies in almost all the fields many millennia before what is known as the Pre-Industrial Revolution, long before the arrival of Western colonisers in Africa. While most African countries import everything small and big from Western and Eastern countries, historical records show that Black African ancestors were self-sufficient in almost everything. The oldest stone tools in the world have been found in eastern Africa: 'evidence for tool production by our hominin ancestors has been found across Sub-Saharan Africa' (Maropeng 2021: 1). A review of historical records shows that Africa has the world's oldest record of human technological achievements, long before the arrival of colonialism.

Advancements in Medicine, Surgery, Caesarean Sections, and Mathematics before the Arrival of the Slave Trade and Colonialism

According to Opoku-Mensah (2019: 1), Andreas Vesalius (the 16th century Dutch anatomist and physician), has often been considered to be the father of modern human anatomy because of his influential book, De Humani Corporis Fabrica Libri Septem. However, this is not entirely true, because a study of some of the greatest contributions of Sub-Saharan Africa to human development suggests that the field of anatomy first evolved in Egypt (3,100 B.C.). According to Brazier (2018: 1), 'Ancient Egypt was a civilization that lasted from 3,300 to 525 B.C.E.' Historical records show that the process of gaining knowledge about human anatomy and the cranium began with the ancient Egyptians, whose embalmers were required to gain anatomical knowledge to perform mummification rituals (Opoku-Mensah, 2019: 1). The Egyptians developed the process of embalming before anyone else could imagine that embalming was possible around 3,200 B.C. The reason that the Egyptians embalmed bodies was because they believed religious resurrection could only occur for bodies which were preserved intact (Raymond, 2020: 1). Modern embalming methods originate from Egyptian embalming technology and practices (Raymond, 2020: 1).

A review of historical records also shows that the first school solely dedicated to medicine dates back to ancient Egypt's first dynasty ((c. 2,925–c. 2,775 BCE) (Liberato, 2019: 1). Physicians came from all over

the world to study at Egyptian schools that, when translated, were called The House of Life. Unlike the rest of Africa where knowledge was mostly passed from generation to generation through oral history, medical practices in Egypt were meticulously recorded by scribes on papyrus scrolls, such as the ones known as the Ebers Papyrus (named after the British trader Georg Ebers who claims to have purchased it from Egyptian tomb raiders or could have stolen it from an Egyptian tomb in 1873). The other record is what is referred to as the Edwin Smith Papyrus (also named after the man who may have purchased it or stolen it from an Egyptian dealer in 1862) (Sutherland, 2016). The Edwin Smith Papyrus is a medical text on surgical trauma, dating back to 1,600 B.C., and is considered to be the only medical papyrus of its time to reflect a systematic scientific approach to medicine (Brazier, 2018: 1). Another early medical dissertation is the Ebers Papyrus (an Egyptian medical papyrus of herbal knowledge dating to circa 1,550 B.C.), which contains over 700 remedies and magical formulas and several incantations which are aimed at repelling demons that cause diseases (Brazier, 2018: 1). It is believed that the authors of the Ebers Papyrus likely penned them around 1,500 B.C.E.; however, the document may contain material dating back to 3,400 B.C.E that was copied and included for the preservation of knowledge (Brazier, 2018: 1).

The two papyruses are among the oldest preserved medical documents in existence. The Ebers Papyrus 'provides evidence of some sound scientific procedures', some of which are still practised today (Brazier, 2018: 1). A closer look at the Ebers Papyrus shows that ancient Egyptian doctors had specialised knowledge of dentistry, pharmacology, gynaecology, autopsy, embalming, and general healing. The largest contribution the ancient Egyptians made to medicine may be that they realised that the pulse related to the heartbeat and that the bronchial tubes were related to the lungs (Brazier, 2018: 2). The first known physician was the high priest and Vizier, Imhotep, who lived from 2,667 B.C. to 2,648 B.C. The polymath Black man Imhotep is the true father of medicine in world history. This genius African doctor is believed to have diagnosed and treated over 200 diseases that included (but were not limited to) the abdomen, eyes, rectum, bladder, and many more. He also practised surgery as well as dentistry. Because of his abilities to treat and heal many diseases he was initially considered to be a demi-god. He was elevated to full God status in 525 A.D. and is the only human being ever to be given this status (Brazier, 2018: 1). The fact that an ordinary person was given a status which was known to be exclusively reserved for the Creator alone in ancient Egypt suggests that Imhotep was a genius and a successful doctor in his time.

Ancient Africa's contribution to scientific knowledge was not limited to Egypt. It is said that European travellers in the Great Lakes region of Africa during the 19th century also reported cases of surgery in these kingdoms (Doyle, 2006: 37). Medical historians, such as Jack Davies, argued in 1959 that Bunyoro's traditional healers could have been the most highly skilled in pre-colonial Sub-Saharan Africa. The Bunyoro's traditional healers possessed a remarkable level of medical knowledge (Davies, 1959: 47). According to Doyle (2006: 32), Caesarean sections and other abdominal and thoracic surgery operations were performed regularly in the Great Lakes region of Africa. These ancient surgeons used antiseptics, anaesthetics, and cautery iron to avoid haemorrhage and sepsis.

In addition, around 400 B.C., West Africans began smelting iron. Societies in East Africa—in what are now known as Tanzania, Rwanda, and Uganda—had achieved significant advances in metallurgy and tool-making between 1,500 and 2,000 years ago. These advances in scientific knowledge and tool-making were more significant than those of Europe, which astonished Europeans when they learned about it (Opoku-Mensah, 2018: 2). In fact, ancient East African furnaces could reach 1,800°C, 200 to 400°C warmer than those used by the Romans at the time (Opoku-Mensah, 2018: 2).

As Lovejoy (n.d.: 14) puts it in the analysis of African Contributions to Science, Technology and Development, scientific discovery in almost every field such as Mathematics can be found in the 35,000-year-old textbooks on mathematics in Egypt. These were housed in the Library of Alexandria founded in 295 B.C., which is now considered the largest library in the classical world. Another example is the Sankoré University in Mali (1312 C.E. to 1337 C.E.), which was capable of housing 25,000 students and had one of the largest libraries in the world containing between 400,000 and 700,000 manuscripts. There is a consensus among many scholars such as Strouhal

(1989: 241) that ancient Egyptian mathematicians had an impeccable understanding of the principles underlying the Pythagorean theorem. The ancient Egyptians knew, for example, that 'a triangle had a right angle opposite the hypotenuse when its sides were in a 3 - 4 - 5 ratio' (Katz and Imhausen, 2007: 31). They were also able 'to estimate the area of a circle by subtracting one-ninth from its diameter and squaring the result' (Strouhal, 1989: 241; Katz and Imhausen, 2007: 31), as follows:

$$\text{Area} \approx [(8/9)D]^2 = (256/81)r^2 \approx 3.16r^2,$$

[Sources—Strouhal, 1989: 241; Katz and Imhausen, 2007: 31]

According to Strouhal (1989: 241) and Katz and Imhausen (2007: 31), the above area formula is the closest approximation of the modern mathematic formula πr2. In addition, Kemp (1991) states that 'the golden ratio seems to be reflected in many Egyptian constructions, including the pyramids' (Kemp, 1991). In fact, according to Bianchi (2004: 230), the engraved plans of Meroitic King Amanikhabali's pyramids show that Nubians had a sophisticated understanding of mathematics and an appreciation of the harmonic ratios (HR). They also provided other sacred ratios with incredible details of time and space (i.e. duration, length and size of the days, months, and years) in what is known as sacred geometry. The engraved plans of the HR are indicative of much to be revealed about Nubian mathematics. Lovejoy (n.d.: 14) avers that the application of technology to the natural environment by ancient Africans has been a vital part of the history of Africa and the development of the African diaspora throughout the world, especially in the Americas. When Black Africans migrated, whether they did so as slaves or as willing travellers, they took with them knowledge of agricultural techniques and skills that they were able to employ in other countries to develop the natural environment into farmland (Blackburn, 2011).

The history of science and technology in Africa since then has, however, received relatively little attention compared to other regions of the world, despite notable Black Africans' developments in mathematics, metallurgy, architecture, and other fields in the Pre-Industrial Revolution era.

Black Africans' Technological Innovation Contributions to the First Industrial Revolution (1IR)

The 1IR period (1750–1840) is believed to have led to the Berlin Conference, which kickstarted the 'Scramble for Africa' from 1884 to 1885 (Mjamba, 2014). The Berlin Conference signalled the start of a long period of colonialism, which was between 1804 and the 1950s, even though some countries such as Namibia, Zimbabwe, and South Africa attained independence between 1980 and 1994. By the time of the 1IR in Britain in the 18th century (Encyclopaedia Britannica, 2019: 1), Britain, Spain, Portugal, France, Germany, and other Western countries were already aware of the existence of the abundant natural resources in Africa (and other colonised parts of the world) (Austin, 2021). Colonialism helped to achieve several objectives, namely, to extend markets, keep the enslaved people in their home environments, and access much-needed raw material for free from colonised countries (Austin, 2021). Instead of establishing commercial partnerships with the Black African kingdoms, they colonised them so that they could acquire free raw materials and free human labour (Kessler, 2006: 1).

It is therefore not surprising that Britain, the country in which the 1IR started, also had many colonies under its control in different parts of the world. This is confirmed by Hudson (2011: 1) who stated that the Industrial Revolution began to transform Britain to such an extent in the 19th century that by the time of the Great Exhibition in 1851, the country became known as the 'workshop of the world'. 'The Great Exhibition of the Works of Industry of All Nations (also called the Great Exhibition or the Crystal Palace Exhibition)', which took place in Hyde Park, London, from 1 May 1851 to 15 October 1851 was an international exhibition (The Gazette, n.d.: 1). It is therefore not surprising that World War I (1914–1918) and World War II (1939–1945) were fought between Western powers to wrestle colonies from each other. As Crowder (1985: 1) argues, the most important legacies of WWI were the reordering of the map of Africa by creating artificial borders which characterise Africa today. It is also during this time in 1914 that Germany lost control of its colonial empire to the Allies (Handerson, 1942: 124).

It is important to note that no colonial power developed manufacturing industries in their colonies. Manufacturing in colonial countries was

discouraged to avoid competition for raw materials with manufacturing industries back in Europe. Therefore, Black Africans lost everything from wealth and skills to belief systems, and become impoverished during the colonial era. King Leopold II of Belgium's speech, which shows the real intention of the Christian missionary journey in Africa, was exposed to the world by Mr Moukouani Muikwani Bukoko, a Congolese man born in 1915. In 1935, while working for the missionaries in the Congo, Mr Bukoko bought an old Bible from a Belgian priest who forgot King Leopold II's speech in the second-hand Bible he sold (Nobles and Okoro, n.d: 1).

In an extract of the Letter from King Leopold II of Belgium to Colonial Missionaries, 1883, King Leopold II of Belgium describes the objectives of colonialism and western religious missionaries as follows:

- Your principal objective in our mission in the Congo is never to teach the niggers to know God, this they know already. Your essential role is to facilitate the task of administrators and industrials, which means you will go to interpret the gospel in the way it will be the best to protect your interests in that part of the world.
- Your mission in Africa is 'to keep watch on disinteresting our savages from the richness that is plenty [in their underground].' You must use any possible means 'to avoid that they get interested in it, and make you murderous competition and dream one day to overthrow you.'
- Your mission in Africa is to use the gospel to make the Negro and their off-spring believe they can find comfort in poverty and misery. To achieve this objective, 'you must find texts ordering, and encouraging your followers to love poverty, like; 'Happier are the poor because they will inherit the heaven' and, 'It's very difficult for the rich to enter the kingdom of God.' To 'make sure that niggers never become rich. Sing every day that the rich can't enter heaven.'
- Use the Gospel to make them powerless and helpless and ensure that their posterity is also as powerless as their parents. 'You have to detach from them and make them disrespect everything, which gives them the courage to affront us. Your action will be directed essentially to the younger ones, for they won't revolt when the recommendation of the priest is contradictory to their parents' teachings. To ensure perpetual subjugation and total control of the Negros, 'You must singularly insist on their total submission and obedience, avoid developing the spirit in the schools, teach students to read and not to reason' (Nobles and Okoro, n.d: 1).
- Trick the Negro into believing that pain and suffering are good for them. To do so, you must; 'Recite every day – 'Happy are those who are weeping because the kingdom of God is for them."
- Teach them that they are born with sins and that you, the Whiteman have come to rescue them from their sinful nature. To do so, you must; 'Institute a confessional system, which allows you to be good detectives denouncing any black that has a different consciousness contrary to that of the decision-maker.'
- Corrupt the niggers' minds by teaching them to forget their heroes, culture, belief systems and to adore only ours (King Leopold II of Belgium, cited in Nobles and Okoro, n.d: 1).

> "It is important to note that no colonial power developed manufacturing industries in their colonies. Manufacturing in colonial countries was discouraged to avoid competition for raw materials with manufacturing industries back in Europe. Therefore, Black Africans lost everything from wealth and skills to belief systems, and become impoverished during the colonial era."

Colonialism has achieved its intended objectives to a significant extent. Without industrial development in colonial countries, Black Africans are only consumers of western and eastern produced goods and services. Without the education that trains people to become rational thinkers and innovators, most people attending African schools and universities are only trained to repair the goods and equipment designed and manufactured in Western and Asian industries. With all the colonisers' and religious efforts to discourage Black Africans from

following in the footsteps of our ancestors, who took the leading role in the pre-colonial era, colonialism eliminated Black Africans' abilities to develop in many social, economic, technical, intellectual ways. Most training received by Black Africans empowers them to be better users and consumers of Western and Asian electronic products. This explains why few African countries have developed industries, research and development, and manufacturing.

In his analysis of 'Why has Africa failed to industrialize?', Tefirenyika (2016: 2) explains that the African continent is 'less industrialised today than it was four decades ago.' Consequently, 'the contribution of Africa's manufacturing sector to the continent's gross domestic product declined from 12% in 1980 to 11% in 2013, where it has remained stagnant over the past few years' (Tefirenyika, 2016: 2). Africa accounted for more than 3% of global manufacturing output in the early 1970s. However, this percentage has since fallen from 3% in 1970 to less than 2% in 2013 and it is likely to remain small throughout the coming decades (Tefirenyika, 2016: 2). This problem emanates from the colonial era. Innovation and manufacturing became impossible through many decades of the slave trade, when the African continent lost many of its artisans to slave traders and colonialism because the few remaining Black African artisans could no longer gain access to the necessary raw material (such as copper, zinc, and gold) that their ancestors used to manufacture ornaments and household goods before the arrival of Western people in Africa. Hence, it was impossible for the skills possessed by our ancestors to evolve and develop in the same way technological evolution took place in Western countries.

Black Africans' contributions to, and benefits from, technological innovations in the 1IR and 2IR

The above discussion shows that Black Africans were not able to contribute to the First Industrial Revolution, which started between the 18th and 19th centuries. Black Africans' contribution to the First Industrial Revolution was in terms of them being turned into slaves and in terms of having their raw material stolen by their colonial masters. There is no evidence of Black Africans' technological contribution or benefits from the Second Industrial Revolution. It has been argued above that the 2IR was characterised by the discovery of electricity-powered machines/tools and took place in the latter part of the 19th century and the early part of the 1950s (20th century). The contribution of Black Africans to the development of electricity-powered machines was limited. Evidence suggests that the African continent did not benefit from the discovery of electricity. For example, almost 17% of the world's citizens still have no access to electricity, and many people still do not have access to other basic infrastructure such as cell phones and the internet (Schwab, 2016). The World Bank (2021: 1) estimates that '660 million will still lack access in 2030, most of them in Sub-Saharan Africa.'

Black Africans' contributions to the 3IR

The 3IR slowly began to emerge in the late 1950s and early 1960s. The 3IR (characterised by electronics, the internet, and the use of information technology such as computers) further automated mass production. It can be argued that Africa, and Sub-Saharan African countries in particular, have not been able to replicate what developed countries such as the UK and USA have done to achieve the same results. This is because of limited availability of, or lack of access to, infrastructures such as computers, smartphones, and electricity. High levels of illiteracy or poor education are also some of the main problems facing citizens in almost all Sub-Saharan African countries, especially those living in rural areas (Uwizeyimana, 2015: 150). To date, Africa remains the part of the world with the least access to the internet and electronic facilities such as computers and smartphones. Few, if any, of these electronic tools are manufactured in Africa. Most of them are manufactured by Asian and Western developed countries. Africa's 43% internet penetration on 09 December 2020 was far below the world average of 64.2% (Statista, 2020: 1). The success of the 4IR will depend on widespread and uninterrupted access to the Internet where anything and everything is linked.

Can Black Africans contribute to the 4IR?

As indicated above, Africa was one of the leading continents before the arrival of slave traders and colonialists. However, because of the slave trade and colonialism, Africa contributed little and has missed out on many of the inventions/innovations of the 1IR, 2IR, and 3IR. Black Africans cannot afford to fail to maximise the benefits of the 4IR. Examples showing that Black Africans are capable of making significant

contributions to the 4IR abound in the literature. For example, Nsengimana (2018: 2) cites the examples of young Black African university students from Senegal who won a global innovation contest run by Ericsson. These students created a Virtual Reality (VR) headset that allows scientists, especially students, to complete science laboratory experiments through VR without the need of constructing a laboratory or buying equipment. Heinrich-Böll Stiftung (2018: 3) mentions examples highlighted in the 2018 edition of the Innovation Prize for Africa, where the African Innovation Foundation (AIF) recognised ten major examples of innovations by Africans. Among these innovations were 'two molecular tests for the rapid, accurate and effective detection and load quantification of tuberculosis and hepatitis C' (Morocco) and an eNose sensor for tea processing (Uganda) which supplements current tea-processing procedures using low-power sensor devices to determine optimum levels of tea fermentation. They also included Mobile Shiriki Network, a smart solar kiosk powered by strong solar panels and equipped with large-capacity batteries invented by Rwandan students, and Waxy II technology, invented by Tanzanians (Heinrich-Böll Stiftung, 2018: 3). In addition, on 16 November 2017, CNN broadcasted a programme titled 'African innovations that could change the world' and listed several innovations that it said were 'truly African' in the sense that, unlike innovations in Western countries that seek to replace human labour to increase profit, these Black Africans' innovations make the work of human professionals (labourers) more effective, efficient, economic, and faster. These 4IR innovations range from VR, 3D printing technology, and AI to cars (CNN, 2017: 2). They also include the Biomedical Smart Jacket (Uganda) that helps medical doctors improve the diagnosis of pneumonia in a faster and more accurate way than human beings. The Biomedical Smart Jacket analyses the chest and then sends medical reports and pictures via Bluetooth to a computer. They also include robot traffic wardens, which were invented by a team of Congolese engineers, based at the Kinshasa Higher Institute of Technology. The robot traffic wardens are used to control traffic jams across Kinshasa (Nsehe, 2014: 2). They also include the M-Pesa app for mobile banking, which was invented in Kenya in 2007 and is now used by 30 million users in 10 countries (Nsehe, 2014: 2).

There are currently many Black African innovations to be listed in the limited space of this article, but one cannot forget Dr Philip Emeagwali (born 23 August 1954, Nigeria), who invented the world's fastest computer 'based on bees'. According to CNN (2017: 2), Dr Emeagwali discovered the efficiency of the way bees construct and work with honeycombs. In 1989, he used 65,000 processors to invent the world's fastest computer, which performs computations at 3.1 billion calculations per second. His invention is used in weather forecasting and in predicting global warming (Famous Black Inventors, 2019: 1). This Nigerian-born scientist and inventor is known for first using a Connection Machine supercomputer to help analyse petroleum fields (CNN, 2017: 2).

Conclusion and Recommendations

The objective of this article was to analyse the different types of industrial revolutions and to discuss how Black Africans contributed to them. The analysis in this article shows that Black Africans contributed heavily to the Pre-Industrial Revolution period in the sense that they led technological innovations from medicine to engineering, manufacturing and other disciplines. However, Africa was entirely under colonialism by the time of the 1IR, and the technological development of the 1IR did not spread to the African continent. The slave trade and colonialism killed all technological developments and extinguished all efforts that characterised the African continent before the arrival of slave traders and colonisers. The world graduated from the 1IR to the 2IR, because of the discovery of electricity to power the machines and tools, which led to increased mass productions in Western manufacturing industries. Once again, Black Africans did not benefit from the discovery of electricity in the 2IR because of colonisation. As indicated in this article, about 1.3 billion of the world's 1.7 billion who lack access to electricity globally are in sub-Saharan Africa. Because of the lack of access to electricity (and other general infrastructures), many Black Africans have not been able to benefit from the 3IR, which was characterised by automation of tasks made possible by electronic/programmable tools such as computers and the internet.

However, unlike the 2IR and the 3IR, and despite the colonial exploitative economic systems that have decimated manufacturing efforts and have turned Africa into a permanent supply of Western industrial raw material needs, there is evidence that Black Africans can contribute to the 4IR technological

innovations. As we embark on the 4IR, it will be important for Black Africans to keep in mind that anyone who consumes the products and services they do not manufacture will become the market for those who provide them. The 4IR presents the chance for Black Africans to regain the technological innovation leadership they once held in the pre-colonial era. The 4IR is different from the 1IR, 2IR, and 3IR because it uses advanced technologies that do not follow the natural evolution of its predecessors. For example, the 4IR uses sensors and AI technologies, which can be invented by anyone, anytime, and anywhere on the globe. The article presented a few examples of 4IR technological innovations which have been accomplished by Black Africans from different corners of the African continent. These include ground-breaking technological breakthroughs in almost every area of life (science, technology, medicine, farming, financial service, security, etc.).

The fact that the 4IR technological innovations can happen anywhere in the world provides ample opportunities for Black Africans to contribute to its development. However, to benefit from and contribute to the 4IR technological advancements, African leaders should encourage, nurture, and support Black African investors and innovators. Instead of spending government budgets on purchasing technologies and robots made in Western and Asian countries, they could invest in infrastructure development, providing better education, and financial support to Black African inventors and innovators. The success of Black Africans in the 4IR technological innovations, research, development, and manufacturing will depend on the abilities of African education systems and institutions to produce graduates with the necessary critical thinking, technological innovation, and manufacturing capacity, instead of producing consumers of Western manufactured goods. All of these are necessary to create a conducive environment for Black Africans to engage actively in innovation and the manufacturing of the software and hardware that drive the 4IR. Angelou's aforementioned statement that '[i]f you don't know where you've come from, you don't know where you're going' is especially pertinent for Black Africans at this moment in time. The article presented many examples to demonstrate that Black Africans occupied a leading position in technological innovations in the past and that they can become great inventors and innovators in the current 4IR and future industrial revolutions.

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The Impact of Digital-Driven Warfare on Africa

By Anthoni van Nieuwkerk | Peer Reviewed

Abstract

Modern warfare is becoming more technological and increasingly employs advanced technologies. Advances in precision location, targeting and strike, navigation, large data transmission, weapon-system range and manoeuvrability, and the growing importance of the outer space and cyber domains are collectively altering the 'spatial dimensions' of warfare. But are these rapidly evolving technologies and their use in defence and warfare relevant to developing nations and Africa in particular? There still exist high barriers to implementation, especially in countries with weak military research and development infrastructures. This article examines these 4IR-induced shifts in warfare thinking and practice, and focuses on the implications for Africa. It also probes the options open to states to prepare for the use of digital technologies in the warfare domain, in particular drones and their application. It concludes with a number of recommendations for African security decision-makers to enhance innovative, effective, and efficient security sectors [1].

Introduction

Hypersonic weapons travel five or more times the speed of sound. The Indian/Russian BrahMos is currently the fastest operational supersonic missile capable of speeds around 3,700 km/h. Technologically advanced nations are scrambling to develop a deterrence against this latest threat. Clearly, modern warfare is becoming more technological and increasingly employs advanced technologies. This phenomenon shifts the nature of conflict and the international legal context within which it takes place. The fourth industrial revolution (4IR) is being shaped by a fresh wave of innovation such as Autonomous Vehicles, Smart Robotics, Materials Engineering, Big Data, the Internet of Things (IoT), and 3D Printing. Overall, the 4IR could have a dramatic impact on operational capabilities. As Bitzinger (2021) points out, advances in precision location, targeting and strike, navigation, large data transmission and discrimination, weapon-system range and manoeuvrability, and the growing importance of the outer space and cyber domains are collectively altering the 'spatial dimensions' of warfare.

But are these rapidly evolving technologies and their use in defence and warfare relevant to developing nations and Africa in particular? There still exist high barriers to implementation, especially in countries with weak military research and development infrastructures. In fact, most militaries operate in the context of the second industrial revolution.

Is digital-driven warfare relevant for Africa? A recent survey of threats facing the Southern African region (Van Nieuwkerk, 2021) notes data fraud and theft, cyber-attacks, and risks associated with fake news and identity theft. The potential vulnerability of critical technological infrastructure is also flagged as a growing national security concern. However, given that many African militaries and national security structures suffer from capacity constraints and remain wedded to conventional warfare mindsets, how could they go about preparing and defending against such advanced technological attacks?

This article examines these 4IR-induced shifts in warfare thinking and practice, and focuses on the implications for Africa. It also probes the options open to states to prepare for the use of digital technologies in the warfare domain, in particular the implications of drones and their application and how to apply these to their benefit whilst upholding the human rights of their citizens.

The article uses secondary data sources as its main data collection method, although interviews were conducted with experts on the subject matter who provided in-depth insight. Interview requests were sent to several peace and security practitioners but few were able to elaborate on the impact of 4IR on South African and African security, which presumably speaks to a lack of focus and/or expertise regarding this area of the region and continent's defence capabilities. As a result, it is important to pay close attention to this space and identify where Africa can enhance capacity at a pace suitable for the continent. The Global South, including African countries, are not yet equipped to compete with developed nations in terms of 4IR capabilities vis a vis weapons and security apparatuses but it is in Africa's interest to develop a strategic perspective on the need for cooperation, collaboration and deployment of advanced warfare capabilities.

Global trends

The 2021 Global Risks Report of the World Economic Forum points out that Covid continues to widen inequalities and societal fragmentation. In this context, two global risk perceptions dominate current research and analysis. These are extreme weather, climate action failure, and human-led environmental damage, as well as digital power concentration, digital inequality and cybersecurity failure (WEF, 2021). Technology continues to play a profound role in shaping the global risks landscape for individuals, governments, and businesses. A previous report (WEF, 2019) identified massive data fraud, theft and cyber-attacks as high-profile threats, and noted that risks associated with fake news and identity theft increased. The potential vulnerability of critical technological infrastructure has increasingly become a national security concern. A frequently cited risk interconnection was the pairing of cyber-attacks with critical information infrastructure breakdown (WEF, 2019).

More specifically, the United States of America, which maintains one of the most powerful armies in the world, is a good demonstration of advancements in digital-driven warfare. When he took over as US President in

2016, Donald Trump loosened the reins of the US drone programme, as he lowered the standards for who could be targeted by the programme and where. As we will note later in this article, the impact on counterterrorism operations in Africa has been severe—especially in the Horn of Africa and the Sahel. In summary, the Trump rules gave the United States the right to kill virtually anyone it designates as a terrorist threat, anywhere in the world, without regard to human rights laws prohibiting extrajudicial killing (Shamsi, 2021).

In the meantime, the Pentagon has developed a plan to promote the innovation referred to as Direct Energy Weapons (DEWs), which weaponize lasers to be used against military targets. Between 2017 and 2019, the US military significantly increased its spending on DEWs, from $535 million to $1.1 billion (Cohen, 2021).

DEW systems are also being developed by other nations, such as China and Russia. According to reports, China may have used microwaves against Indian troops in 2020 (Cohen, 2021). High-energy lasers, high-power radiofrequency or microwave devices, and charged or neutral particle beam weapons are examples of DE weapons. Both microwaves and lasers are part of the electromagnetic spectrum, including light energy and radio waves (Obering, 2020).

How do global developments impact Africa?

Africa is not spared from evolving digital threats. In July 2021, Transnet—a South African state-owned enterprise that manages the nation's rail, port, and pipeline infrastructure— reported problems with its information technology networks. The disruption affected operations in several container terminals, interrupting cargo movement. Transnet eventually confirmed it had suffered a cyber-attack (Naidoo, 2021). Reva (2021) noted that following the Covid-19 pandemic, the number of cyber-attacks has been increasing worldwide and in South Africa, inflicting financial losses across the manufacturing, banking, and energy sectors. The recent incident was the first time the operational integrity of the country's critical maritime infrastructure has suffered a severe disruption (Reva, 2021).

Apart from the cyber domain, we have to point to drone warfare. Drones are formally known as unmanned aerial vehicles (UAVs) and can be described as autonomous robots, remotely controlled through software-controlled flight plans in their embedded systems, working in conjunction with onboard sensors and GPS (Lutkevich, n.d.). In addition, Underwater Unmanned Vehicles (UUVs) or Remotely Operated Vehicles (ROVs) are submersible, waterproof drones that enable users to explore marine environments remotely. The PRC seems to be at the forefront of developing this technology for military purposes (Seidel, 2020; Sutton, 2021).

Drones have long been associated with global wars, but are assuming a new role in Africa where they have played a critical role in humanitarian services such as providing medical supplies to remote areas, mapping displaced people, assisting anti-poaching rangers, and helping with precision farming (Koigi, 2019).

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However, as reported by Allen (2021), the risk of militarisation of drone technology in Africa represents a new asymmetric tool that violent nonstate groups may deploy to extend the reach of their coercion, reshaping the African battlefield.

What are the challenges with drone application?

While commercial drone usage increases in Africa, with humanitarian aid agencies and agricultural institutions using UAV technology to streamline their work, the lack of standardised regulations to ensure safety and security remains a major concern (Khanyile, 2019).

In many African nations, the civil aviation authorities are struggling to ensure that the presence of drones in the sky does not present significant risks to aircraft

as they try to integrate them into their air navigation and surveillance systems (Khanyile, 2019). Privacy is also a big concern as UAVs equipped with cameras, scanners, and sensors could be used by individuals with insidious motivations to collect and record sensitive or damaging information on civilians, businesses, and other organisations (Joshi, 2018).

A further issue is that drones are being used to kill people in war, as many African countries are in a state of protracted conflict (Allen, 2021; Krähenmann, Call and Dvaladze, 2020). In conflict zones, drones may be difficult to distinguish from the military drones that are used in battles resulting in a scenario where even a helpful drone may be perceived as a threat by local residents.

Lastly, electronic systems used by drones for navigation, data gathering, and other procedures also need to be safeguarded from hackers. Many UAVs can be easily hacked and hijacked by malevolent forces to conduct criminal activity (Yaacoub et al., 2020).

UAVs must obtain an insurance policy to cover their liability if, while operating their drones, they cause physical or bodily damage to another (Khanyile, 2019). Other important regulatory acts include requiring a permit to fly over areas where citizens reside, as well as requiring drone operators to obtain a special permit from the civilian aviation authority (South African Civil Aviation Authority, n.d.). Many African countries are still struggling to put the necessary regulations in place to support UAV operations. There are still drones in those countries, but they are operated illegally by untrained and unlicensed operators (Khanyile, 2019).

How does the African peace and security environment respond to these emerging and growing high-tech challenges and opportunities?

The African Union (AU) established the African Peace and Security Architecture (APSA) and the African Governance Architecture (AGA) in response to ongoing and deepening insecurity, but the reality is that democracy and development struggle to flourish in insecure environments.

Under such environments, conflict resolution becomes critical—but also contested. Stakes are high, especially in areas rich in minerals and other potential resources. Hence, outsiders and insiders compete amongst and between themselves with intervention logics that tend to promote narrow interests instead of advancing human security agendas. This includes the application of 'stabilisation' and 'liberal peace' logic. These are attractive options to outsiders. It tends to 'freeze' a conflict in space and time, allowing for the threat to be minimised (particularly refugees and migrants) and for economic opportunities to be pursued (arms trade, humanitarian and peacekeeping activities, access to mineral resources). Consequently, a pattern often emerges of collaboration between local actors (victorious rebels, ruling elites, business) and external forces (donors, International Cooperating Partners, business interests, arms dealers), which tends to postpone conflict resolution and therefore the achievement of human security.

The Southern African region is not spared in these dynamics. Below, we profile the region's capabilities.

Figure 1: Profile of select SADC defence forces

SADC member state	Budget in USD	Active Personnel				
	2019	Total	Army	Navy	Air	Other
Angola	1.70bn	107,000	100,000	1,000	6,000	10,000 Rapid-reaction police
South Africa	3.54bn	74,850	37,600	7,000	9,650	7,6000 Military Health Service 15,000 Reserve
Tanzania	827mn	27,000	23,000	e1,000	3,000	1400 Police Field Force inlc. Marine Unit

Source: The Military Balance, 2020

The security landscape in the SADC region in the last five years has generally been stable compared to other regions on the African continent. However, it suffers from protracted conflict in the Democratic Republic of the Congo (DRC) and Mozambique, and political instability in eSwatini, Zimbabwe, and some Indian Ocean Islands. The region's 'superpower,' South Africa, suffers from violent crime and growing poverty, aided by a toxic mix of economic stagnation, grand corruption, ruling party instability, and state fragility.

Violent extremism and cyber threats stand out as rapidly evolving trends.

Southern Africa is experiencing an upsurge in violent extremism (VE). The DRC, Mozambique, and Tanzania have all experienced attacks, with events in Cabo Delgado, Mozambique making international headlines. The Southern African Development Community (SADC) has been called on to provide support to Mozambique and has deployed a SADC Standby Force to the area. Although a force intervention limits the number of violent attacks, it cannot bring sustainable peace to the area. Lasting peace requires interventions that address the socio-political, security, and economic complexities that have enabled the rise of violent extremism.

The digital age realities tend to enhance integration (in particular, ease of communication) and act as an aggravating factor (in particular, abuse of communication). Increasingly, social media are being used to promote fake and false news and information peddling for political reasons.

Closely related is the reality of cyber threats, including cybercrime and cyber-terrorism. SADC displays little understanding of the nature and magnitude of this threat, and has little capacity to detect or prevent this rising phenomenon.

This view is supported by research that points to the changing nature of cybersecurity threats in Africa (Mills, 2020). Cybersecurity and crime are hardly unknown to Africa. But the format of African cybercrime is rapidly changing. There have been rapid changes in telephony and broadband, which have and will continue to change continental connectivity and the opportunities, thus, for cyber-malfeasance. In the mid-1990s, for example, Africa's telephone density was at just 5%. Today, one-third of African mobile users, some 250 million people, already have a smartphone, which is projected to double by 2025, when over half of the continent will subscribe to mobile services, and when one-quarter will have access to 4G or 5G.

This raises the question of how civil society, in particular, could guard against election and other national narrative manipulation, and whether heightened cyber-threats, in general, can best be countered through partnerships with commercial or state-centred agencies outside of Africa.

The state of the region's defence

SADC has produced sophisticated peace and security frameworks, but to what extent does it have the hardware and tools to implement these?

An interview with an academic expert reveals that conventional military assets are here to stay in Africa, for several reasons. As he put it:

> One, they are affordable; two, they're tried and tested. Three, our geographies are such that they require that kind of equipment. Four, our mindset, the mindset of warring parties that we know of today, are still very much embedded in their beliefs in conventional warfare.

At the same time, the size and preparedness of the SADC member states' defence and security sectors constitute a mixed bag. On the one hand, two member states maintain sizeable defence forces and budgets: Angola and South Africa. On the other hand, several member states have miniscule defence and security sectors and budgets: Lesotho and Eswatini, and Comoros and Seychelles. Many with small defence and security sectors rely on bilateral arrangements—many with India and some with NATO countries—for protection.

Indian Ocean member states focus on maritime security issues and maintain coast guards. Except for South Africa, none have a defence industry. Equipment is increasingly obsolete or poorly maintained. Few have the ability to participate meaningfully in UN or AU peacekeeping operations.

It is doubtful that the collective can mount a SADC Standby Force operation to deal with a breach of peace and security or a substantial natural disaster. International cooperation is therefore unavoidable.

In this context, one interviewee was of the view that SADC ought to capitalize on its bilateral and multilateral agreements with entities like the Brazil/Russia/India/China/South Africa alliance (BRICS) because the global powers continue to play a role on the African soil, and they have a keen interest in what is happening here. As he noted: 'now and then they (BRICS) would like to demonstrate their willingness to support regional initiatives, I think we'll have to rely on them to help us with it.' Arguably, the region's attempt to deal with violent extremism in the Cabo Delgado region of Mozambique requires such collaboration and coordination, not only from the global South but also from Africa's international cooperating partners, particularly the European Union as well as a range of UN agencies (Chingotuane et al., 2021).

Is it possible to close the gap?

How can the rapidly evolving global technologies and their use in defence and warfare be made relevant to developing nations and Africa in particular?

Until recently, the South African cybersecurity response capacity was faced with an uncoordinated 'silo' approach (fragmented policy-making and strategic responses), a lack of public-private partnerships, and the absence of an overall international cooperation framework (Gwala, 2020). To address these, in 2015, it adopted a National Cybersecurity Policy Framework (NCPF) to address national security threats in the cyberspace, create a framework for combating cybercrimes and other cyber ills, build confidence and trust in the secure use of ICTs, and create policy guidelines to steer PPP and international cooperation (SSA, 2015). However, it is unclear to what extent the policy framework allows for strategic decision-making and threat management (Sutherland, 2017). The case of a cyber-attack on Transnet in July 2021 is deserving of a fuller investigation—even though much detail remains shrouded in secrecy.

A recent feature of modern warfare—drones—deserves the focused attention of African national security decision-makers. The impact of the US drone programme on counterterrorism operations in Africa has been severe—especially in the Horn of Africa and the Sahel (Donnenfeld, 2019).

For example, in 2018, US special forces conducted airstrikes against suspected al-Shabaab militants in Somalia, killing 24 people. Drone strikes in Somalia caused about 300 casualties during Barack Obama's eight years in office. Trump nearly tripled that total in less than a quarter of that time (Donnenfeld, 2019).

To what extent can drones be regarded as effective and efficient weapons in the struggle against violent extremism and terrorism, particularly in Africa? Imagine, for example, the rise of a new breed of armed drones capable of swarmed and coordinated attacks, and able to operate in uncertain or changing combat environments. More disturbingly, imagine this tool in the hands of violent extremists. Analysts suggest an increased use of drones by nonstate actors in the Cabo Delgado theatre of conflict (Allen, 2021).

Should the South African defence industry persist in a military drone programme? Who would benefit? The advantages should be seen against the reality of a struggling defence industry, hobbled by mismanagement and corruption, and a consequent shrinking customer base (Heitman, 2021).

A useful perspective is offered by Dyer (2018) who examined the extent to which drones are able to defend African maritime sovereignty and advance ocean governance. In his analysis, the further development of a South African and African drone sector is conditional upon stakeholder user and producer requirements including cost-effectiveness, mission performance and efficiency, technologically feasible and environmentally sustainable solutions, with sufficient training, sensor capacity, appropriate autonomy, redundancy and system risk management. He points out that the most significant risks for monitoring and awareness drones include the uncertainty of climate change, and technological and business cycles influencing uncertain demand and supply (Dyer, 2018).

Indeed, if drones are to be included in future maritime security arrangements, South Africa and Africa need to consider the extent to which effective governance can be enacted and secured. A range of

emergent risks need to be resolved: climate change and environmental uncertainty, cybersecurity, social-religious/other tensions, fluctuating economic and technological cycles, AI and automation, legal risks and increased prospects of militarisation and warfare. These threaten to undermine any arising advantages and opportunities (Dyer, 2018).

Conclusions

It is true that many African militaries and national security structures suffer from capacity constraints and operate with conventional warfare mindsets. How can they go about preparing and defending against advanced technological attacks? Perhaps the question is misplaced. As described above, the African threat landscape is marked by socio-economic deprivation, corruption and poor governance, violent competition for political power, the exploitation of natural resources, transnational crime, and the emergence and spread of violent extremism and terrorism. Conventional warfare and weapons systems remain appropriate for dealing with many of the threats facing Africa. The breakthrough technologies noted in this article—from hypersonic missiles to advanced seaborne second-strike capability, military-grade spyware, to direct energy weapons—are meant to be instruments in the hands of nations striving to become global superpowers, or of those protecting its perceived image as the world's most powerful military and economy.

However, in the long run, for Africa to build and maintain effective and efficient security sectors, able to respond to human and natural disasters, terror attacks, and exploitation by foreign militaries, Africa needs to tap into the innovation brought by the fourth industrial revolution—autonomous vehicles, smart robotics, materials engineering, Big Data, IoT, and 3D Printing. Digitisation can have a dramatic impact on operational capabilities. As noted above, advances in precision location, targeting and strike, navigation, large data transmission and discrimination, weapon-system range and manoeuvrability, and the growing importance of the outer space and cyber domains are collectively altering the 'spatial dimensions' of warfare. These building and maintenance tasks are the responsibility of national security decision-makers and their personnel on the national, regional and continental level, requiring an overhaul of the APSA.

In ensuring Africa's preparedness, they may benefit from the following two proposals: one, education and training of the future soldier, starting with enabling the schooling system to be digitally-capable and ensuring defence colleges and related training and educational institutions are equally made digital-friendly; and two, accepting that the lines between hardcore military and non-military warfare from a cyberspace perspective are blurred—meaning, the military increasingly uses private sector assets in order to implement warfare as part of warfare tactics without importing them fully into their arsenal. This emerging domain of collaboration requires proper governance to prevent abuse. The relationship between civilians and military or security practitioners should be based on respect for human rights so that they don't abuse that landscape for criminal and unconstitutional purposes.

Without a paradigm shift in military thinking, the lofty ideals of the AU's Agenda 2063 will not materialise: a prosperous Africa based on inclusive growth and sustainable development.

Notes

[1] The author recognises the valuable contribution to a previous draft of this article by research intern Daisy Mbutho.

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Artificial Intelligence as a Tool of Public Diplomacy:

Communication between the United States and Iran

By Robyn Williams and Lisa Otto | Peer Reviewed

Abstract

Iran and the United States (U.S.) have had a volatile relationship for decades, with continuous threats of violence, sanctions, and internet blocks. In the last decade, we have seen a third force at play as technology becomes an integral aspect of diplomatic relations. The last three U.S. administrations have displayed mixed attempts at salvaging diplomatic relations with Iran. This article explores how artificial intelligence driven communication can be a critical tool in improving the relationship between the two states. Utilising a desktop research approach, exploring primary and secondary literature, this article explores possible artificial intelligence solutions to improve the communicational aspect in the public diplomacy between Iran and the U.S. It is evident that artificial intelligence has had negative implications on the public diplomacy between the two states as we witness the increasing use of deep-fakes and website blocks. However, processes such as natural language understanding allows governments to have more targeted foreign policy objectives and language translation creates a direct and enhanced line of communication between the state and foreign audience.

Introduction

Public diplomacy (PD), understood as communication made by governments and other diplomatic entities towards a general audience (Pigman, 2010), has become increasingly popular over the last five decades as governments attempt to influence foreign audiences, particularly through the mode of communication. Making a sudden emergence in 1965, public diplomacy has encountered numerous shifts, often influenced by technological developments, such as the establishment of the Internet, radio and the introduction of social media platforms. Now, it stands on the brink of yet another reawakening as artificial intelligence (AI) threatens to penetrate every sphere of life, presenting itself as an indefinite by-product of the Fourth Industrial Revolution (4IR). Not in itself new, AI can yield both positive and negative outcomes, many of which are yet to become clear, and this is likely to also be the case in the world of diplomacy.

This paper aims to explore how AI may impact public diplomacy and offer opportunities to improve communication in public diplomacy. Given that the U.S. has presented itself as a frontrunner of its use since the dawn of public diplomacy, it is a useful case study, notably also because it has a track record of employing new technologies in its diplomatic endeavours. Specifically, this article draws on the bilateral relationship between the U.S. and Iran, where such technologies have been used.

Using the method of comparative analysis and exploring qualitative literature such as official policy documents, journal articles, conference proceedings and newspaper articles, it may be established whether AI has already improved communication in public diplomacy and, if not, how it may do so in the future. Public diplomacy is discussed in reference to the two states, examining the relationship between them to answer questions around the role of AI as a public diplomacy tool. The limitations to the study are the fact that at the time, there is very little implementation of AI into communication processes for public diplomacy, in addition to the increasing hostility between the two states that sees their relations grow even further apart. In addition, most of the article focuses on Trump's administration as it coincides with the emergence of 4IR, and having served a full term, it is possibly to wholly focus and critique his use of PD.

This article draws on the concept of political communication, which Dahlgren (2004: 7) explains is 'a vast, sprawling social field of almost infinite variety, crisscrossed by the media and encompassing many different forms of associations and networks, actors, communicative contexts and styles, cultural frameworks, and power relationships.' The goal of the actor that produces the content is to influence, inform or persuade citizens. Debray (2007: 3) indicates that political communication encompasses 'tools of transmission', now extending far beyond traditional media to include social media and other such emerging tools. Finlayson (2019: 78) explores the continuous development of digital technologies altering the nature and idea of both political communication and political culture. This has resulted in the way people receive, interpret, and respond to information, ultimately intensifying 'culture war(s)' (Rensmann, 2017: 127).

Unfortunately, three major issues arise in the digital public sphere when it comes to political communication: 1) resource-rich individuals, or states, often have significant power and undue influence on the public sphere or foreign audiences; 2) fake news [1] that misleads public perception; and 3) the unregulated aspect of online platforms that inadvertently allow for harassment and abuse (Finlayson, 2019: 79).

Solgado (2019: 671) explains the dire imperative of avoiding generalisations in reference to studies of political communication and carefully selecting variables for comparative case studies. Therefore, the U.S. was selected as it is a developed Western country whilst Iran, a developing state, represents the Middle East and North African (MENA) region. Both states have been particularly welcoming to adopting new technologies in various spheres of society. Rubin (2019) states that although Iran has evenly partaken in the arms race within the MENA region, Iran has been the most progressive by integrating new technologies into society. In 2019, then-U.S. President Donald Trump announced that

the U.S. was a frontrunner of AI implementation and would aim to continue pursuing that status, ensuring economic and military security (White House, 2019). Another element that makes the case interesting to explore is that U.S.-Iran relations have been both tense and terse since 1979, when roughly 400 Americans were held hostage for 444 days at the U.S. embassy in Iran's capital, Tehran (Kinzer, 2008). Since then, the bilateral relationship between the states has ebbed and flowed, resulting in the dynamic use of public diplomacy from both sides.

Understanding Public Diplomacy

Berridge (2015: 198) describes PD as 'white propaganda', where a government attempts to indirectly influence foreign audiences and governments. Newspapers and photographs, in addition to radio and television broadcasting, are all historical tools of public diplomacy. However, more recently, the internet and social media applications such as Facebook and Twitter have become the typical tools of exerting public diplomacy on foreign audiences.

Pigman (2010) explains that the term public diplomacy was conceptualised by Edmund Gullion in 1965, who noted the increasing importance of public opinion to a government, not only domestically but also that of audiences abroad. Gullion further understood that the role of the media would come to mean more in diplomacy, and the relationship between journalists and diplomats would become more significant over time.

As stated by Bjola and Kornprobst (2018), the ultimate goal of public diplomacy is to influence a state's foreign policy and/or domestic politics and policies. Diplomacy is a tool used by states to execute its foreign policy (Williams, 2021). According to Zhang (2006), social influence is an integral aspect of public diplomacy, highlighting that it plays a critical role in government portraying a particular image. It requires a government in having some extent of power that is required to influence engaging citizens of a foreign state.

Pigman (2010) outlines the key factors for successful public diplomacy to occur, beginning with trust. Foreign governments deemed deceiving will be able to successfully and adequately engage in public diplomacy with a foreign audience, presently or in the future. Furthermore, he points out the importance of cultural diplomacy for effective public diplomacy. This may occur through sporting, educational and cultural exchange. Lastly, Pigman (2010) highlights the media, participation and hosting of events as integral aspects of public diplomacy. Leguey-Feilleux (2009) explores the rising forms of diplomacy that may be utilised by embassies, emphasising public diplomacy as one such mode, with the responsibility of extending the culture of its home state.

Understanding Artificial Intelligence

AI, sometimes also referred to as robotic technology, can process and analyse large amounts of information and data sets. Using robotics, it can imitate human behaviour and thought processes, aid actors in problem-solving scenarios and decision-making processes, and provide more accurate information at a far greater speed than the human brain is able to (Shabbir and Anwer, 2015). This can take place on a spectrum where on one end there is human assistance in task performance, and on the other where task performance is entirely automated.

Pagliarini and Lund (2017: 271) state that the implementation of robotics, through AI, is already demonstrated in several fields. In healthcare, for example, robotics is already playing a major role in the safe delivery of medical supplies and assisting the medical practitioner in unique cases. A further well-documented and heavily debated area of its use is in the military sector, which has steadily increased in recent years using drones, spyware, autonomous vehicles, and so on.

Whilst AI technologies are mostly praised for their expansive capabilities, Wisskerchen, Biacabe, Bormann, Muntz, Niehaus, Soler and von Brauhitsh (et al., 2017: 8) differentiate between 'weak' and 'strong' AI, by explaining that strong AI can learn from its experiences. It acts and thinks like a human and may formulate a reaction according to a specific scenario and is the variant of AI that has inspired much science fiction. On the other hand, weak AI can

merely perform as it has been programmed to do. Questions over which form of AI states should choose to integrate have also been rife due to the widespread implications for decision-making, legality based on where that decision-making lies (i.e., with humans or computers), job losses, and a plethora of other concerns.

The use of technologies in public diplomacy: the case of the contemporary US-Iran bilateral relationship

Looking back: reviewing the bilateral relationship

Public diplomacy is not at all unfamiliar in Iran. Amin (2015: 269) claims that one can trace the use of public diplomacy there to the late 1700s in the predecessor state of Qajar, where media of the time was used as a diplomatic tool, alongside the integration of new technologies, such as the radio, into diplomatic protocol. Fast-forwarding to the contemporary era, foreign governments, Iran and the U.S. included, began to use technologies, such as the radio, to persuasively project their image in the state. Radio has been a prolific tool employed in public diplomacy with McMahon (2010: 26) noting that the U.S. continued to use the radio as a method for propaganda as late as 2010, funding two popular radio stations, which were in turn often jammed by the Iranian government.

When it comes to new and emerging technologies, Iran illustrates promising prospects, ranking 14th in global AI-focused research (Pargoo, 2019). The state understands the possibilities of AI, perhaps even powerful enough to end a longstanding economic drought, with its government even considering the establishment of a Ministry of AI. The U.S., for its part, prides itself in being a leader of technological advancements and implementations, flaunting the work of Silicon Valley, which is often at the forefront of technological innovation.

The diplomatic relationship between Iran and the U.S. stems back multiple decades but was amplified following the 9/11 attacks in 2001. The brutal terrorist attacks of 9/11 saw 2,977 lives lost and rendered relations between the U.S. and Islamic states tense (CNN Editorial Research, 2019). Fitzpatrick (2011: 7) highlights that the events have required the U.S. to move from a 'message approach' to a 'relational approach' of public diplomacy. This would become a task for future administrations.

President George W. Bush, who held office between 2001 and 2009, faced dealing with the event and its aftermath. In his 2002 State of the Union address, Bush labelled Iran as a regime part of the 'axis of evil', thus implying their alignment to terrorist organisations (Bush, cited in Hamedani, 2008: pg). Their mutual disregard of the Taliban proved insufficient to restore friendly relations and served as a single point of collaboration.

Bush's public diplomacy towards Iran was mostly limited to promoting democracy in Iran, particularly due to its uranium reserves and moves toward developing nuclear capabilities (Akbarzadeh, 2011: 472). Friendly interaction with the Iranian people on the part of the U.S. was limited to congratulatory messages on the occasion of Persian New Year (Bush, 2008), but, on the whole, Bush's messaging read as conflicting given a narrative of disenchantment with the Iranian government yet deep respect for the Iranian people. Ultimately, the success of his public diplomacy may be best understood by perceptions of the Iranian people towards him, which were hardly ever fond (World Public Opinion Organisation, 2007).

Elected in 2009, President Barack Obama signified a sense of hope that friendly bilateral relations between the U.S. and Iran may be revived under his leadership. Obama infamously announced that if Iran eased its approaches, the U.S. would extend a hand and attempt to persuade Western counterparts that Iran was not building a nuclear bomb, thus demonstrating a willingness to move the relationship to new ground (Landler and Cooper, 2009). From the onset, Obama's public diplomacy differed from that of Bush as Obama halted the promotion of public diplomacy and intervention in Iran's internal affairs. However, Obama was sure to demonstrate that he should not be considered a walkover and that if Iran failed to comply, military force remained an option before shifting his attention to sanctions (Obama, 2013). Furthermore, in several addresses Obama subtly addressed Iran and called out successive governments for their human rights offences but at all times ensured he emphasised mutual respect (Obama, 2009).

In 2011, in an attempt for the U.S. to illustrate their willingness to directly engage with the Iranian audience, it launched its first virtual embassy that remains active. The virtual embassy symbolised a rather progressive act of public diplomacy, allowing citizens to apply for visas, be notified of study and employment opportunities, in addition to it serving many diplomatic functions (Slavin, 2013). The site includes links to official U.S. social media web pages, ensuring a direct line of communication between the U.S. government and the domestic Iranian audience. However, this bold move was not received well by the Iranian government, which blocked the site just days after it launched (Reuters, 2011). Internet censorship is extremely common in Iran, with the government often blocking websites or shutting down the internet in its entirety, thus acting in rebellion towards a state or its own citizens. This was highlighted in November 2019 when Iran shut down internet services during anti-government protests (Fassihi, 2019).

The 45th U.S. President, Donald Trump, made his position on Islamic states and members of the Islamic community clear since he was elected in 2016, ordering widespread bans on Muslim people entering the U.S. (Holland and Mason, 2017). Trump has also labelled Iran as a state responsible for global extremism and, in 2018, imposed sanctions on the state and abandoned their nuclear deal (Landler, 2018).

However, Duncombe (2017: 546) states that the instantaneous nature of digital applications has allowed Iran and the U.S. to swiftly solve conflict areas and communicate the resolutions that they have reached to foreign audiences within hours of the conflict arising. Illustrated in 2016, U.S. navy patrollers were illegally patrolling in Iranian waters, where they were soon caught and detained. Then-U.S. Secretary of State John Kerry, along with Javad Zarif, Iranian Minister of Foreign Relations, swiftly addressed the conflict and later confirmed on Twitter that all was resolved, and the U.S. patrollers were released. While many argue that if any single actor had a direct influence in the swift release, perhaps multiple actors and years of relations characterised by vacillating tensions between the two states were significant contributors to the progressively quick release.

These tensions more recently came to a head after Trump ordered an airstrike on 3 January 2020 to assassinate a commander of the Islamic Revolutionary Guard Corps (IRGS), Qassem Soleimani (CRS Report, 2020), after having labelled the corps a terrorist organisation in April 2019 (Trump, 2019). Whilst Trump followed the correct protocol ahead of the 'precision drone strike' that he had ordered by notifying Congress, his actions shocked the world and resulted in a large-scale fallout between the two states (Yeung, Alfonso, Kottasova and Vera, 2020).

According to Macais and Breuninger (2020), U.S. intelligence believed that Qassem Soleimani was preparing to attack the U.S., therefore, Trump's use of public diplomacy following the strike was direct and open. Trump assured that the strike on Soleimani was not intended to start a war with Iran but rather prevent it from happening. Graff (2020) reports that after days of hostility and global tension, President Trump and Foreign Minister of Iran, Javad Zarif, turned to Twitter to ease the tensions. Both attempted to reassure their counterparts and the global audience that neither country wanted to go to war but would defend itself if necessary. This modern display of public diplomacy highlights the power of instant communication in solving real-time conflict.

Whilst technologies have come to play a critical role in communication and public diplomacy at large, the U.S.-Iran relationship demonstrates that better solutions are required. Integrating AI into public diplomacy for the improvement of communication may reduce false propaganda in the media and bring forth greater coherence and understanding between Iranian and U.S. leaders.

Breakthrough technologies

AI-driven technologies offer endless possibilities and are accessible virtually in every corner of the globe to public citizens, government officials and non-state actors such as terrorist groups. Whilst Iran and the U.S. have had a strained relationship over the years, there is yet the possibility that it could be improved through public diplomacy. Communication evolves with technological trends and AI could be the key component to such

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an improvement. Whilst communication may concern a range of subtopics, the aspects that will be discussed relevant to public diplomacy are limited to propaganda, deep-fakes [2], sentiment analysis [3], and virtual assistants. It should be noted that Natural Language Processing (NLP) is a key driver in the evolution of communication in the 21st century and is discussed in reference to all subtopics.

Verspoor and Cohen (2013) explain Natural Language Processing (NLP) as the manipulation of unstructured input texts through an integrated system of components. It can instinctively extract the relevant information from expansive datasets and draw conclusions. Each component is responsible for various aspects of the language process, such as adding structure and analysing concepts and relationships. Marr (2019) provides examples of NLP, with those particularly relevant to the field of public diplomacy including instant language translation, and the extraction and summarisation of information.

Gracie, Egger and Malik (2019) explain that it is difficult to establish patterns and draw conclusions in NLP given the unstructured nature of the data. Sorting through an unstructured dataset is time-consuming and can delay governments in finding potential threats and acting promptly. NLP comprises several tools and consists of two subsets: Natural Language Generation (NLG) and Natural Language Understanding (NLU). The tools of NLP include the recognition of human speech, understanding and interpreting natural language, and generating interpretable texts (Gracie, Egger and Malik, 2019).

According to IBM (2019), NLU includes a ‘set of analytics features’ that extracts meaning from unstructured data. Information can be extracted from different types of data such as emotions, relations, and entities. With NLU, users may learn the purpose of a sentence and once the NLU process is complete, NLG takes place by formulating a response. Sentiment analysis, information extraction and topic modelling [4] are all considered integral aspects of NLU. Latent Dirichlet Allocation (LDA), a type of topic modelling, establishes latent patterns in unstructured data. Drawing themes or topics from a vast field of information allows users to note particular patterns taking place and draw conclusions from such patterns (Li, 2018). Gracie et al. (2019) note that the U.K. government has begun utilising LDA to better understand public opinion.

Heron (2016) claims that for LDA to operate at its maximum efficiency, it should begin the process by cleaning the dataset. Unnecessary words like ‘it’, ‘and’ and ‘the’ are removed from the dataset, along with punctuation. All words are lemmatised [5] and normalised to ensure there are no minor spelling errors and ‘probabilistic spelling correction’ is applied.

Once NLU is complete and a dataset is structured, NLG can take place. Reiter and Dale (1995) describe NLG as a subset of AI, a constructed computational process that transfers non-linguistic information to interpretable texts. According to Greyling (2019), NLG transitions the structured data to a new unstructured dataset, formulating a human-like response, which he refers to as a ‘conversational output in human language.’ Sciforce (2019) explains NLG as a three-part process: 1) document planning, 2) microplanning, and 3) realisation. Two and a half decades ago, Reiter and Dale (1995) provided examples of applied NLG, referring to accounting spreadsheets and airline schedule databases. Today, however, the possibilities of applied NLG span much further than previously imaginable. Automated Insights (2017) recaps examples of NLG that humans may interact with daily such as

automatically generated summaries on mobile gym-related applications and virtual assistants.

Graefe (2016) expresses the possibilities and pitfalls of automated journalism, which is briefly summarised as news generated from structured data, a process used by infamous news sources like Forbes and The New York Times. Whilst automated journalism is only possible when algorithms consist of clean and structured datasets referring to repetitive topics, expanding the available information each time, it is hardly ever possible with limited or no information on a new topic and may result in poor results. Algorithms for automated journalism can produce multiple news reports, in different languages, focusing on varied angles and tailored to the reader's preference. In addition, automated journalism is a fast-paced process with minimal potential for error.
Graefe (2016) notes that the quality of automated news produced by algorithms may be below par compared to news produced by human writers, but may improve over time. Automated news also cannot ask questions or explain new information, illustrating a lack of journalistic support. Knight (2019) too states that concerns about the threat of fake news by automated journalism are legitimate. Jardine (2019) explains how fake news and fake accounts are used in attempts to mislead or influence a targeted group's behaviour or attitudes, recalling a similar use of fake accounts during the election period to shift voter preference. Algorithms work by being fed inordinate amounts of information and after releasing outputs they are either positively or negatively rewarded. A programme is trained over time and may produce better outputs as it learns. However, it is trained to learn what is considered right and wrong, making it difficult for the algorithm to establish fake information from authentic information, especially if targeted for misuse. Ultimately, an algorithm mimics the news source that it is fed, be this fake or not.

Sentiment analysis is a process best used to judge human opinions, attitudes and feelings towards a particular topic, commonly used in social media analytics. According to Chakraborty, Battacharyya and Hassanien (2019), sentiment analysis is a five-step algorithmic process: the reviews or gathering of information followed by the recognition of sentiments; feature selection occurs, and sentiment categorisation takes place; and lastly, sentiment dissipation is calculated.

While the terms 'sentiment analysis' and 'intent analysis' are often regarded as similar concepts, Gupta (2018) argues that intent analysis goes a step further by exploring the intent behind the user's message and distinguishes if it is a query, complaint, opinion, news or any other kind of message. Challenges that arise in sentiment analysis include identifying sarcasm and compound sentences (Farhadloo and Rolland, 2016). However, the rapid growth and continuous improvement of AI and machine learning suggests that solutions to overcome such challenges are possible.

Baldwin (2019) describes AI-driven machine translation as a 'game-changer'. While instant language translation is certainly not new and has been continuously evolving, the rapid development of AI has led to a point where it may remove the hindrance of language barriers and improve international relations as we know it.

In January 2019, Google launched its own language translator that Titcomb (2019) describes as a turning point for instant language translation. At the time of launch, the application could translate 27 languages instantly, only requiring the user to speak their native language and select the language into which translation is needed.

AI meets public diplomacy

Deep-fakes are digital audio or visual content that have been purposely manipulated to falsely portray an object, environment or individual and may take the form of facial replacement, re-enactment, generation or speech synthesis (Centre for Data Ethics and Innovation, 2019).

The Congressional Research Service Report (2019) states that with AI, deep-fakes are becoming increasingly realistic and are often used as a tool by rebellious individuals or groups against the U.S. and its allies to influence public perception, manipulate diplomats and destroy public trust. Although the U.S. Department of Defense has made continuous efforts in creating new and up-to-date technologies to combat deep-fakes, deep-fake technology has

become increasingly advanced, often outsmarting forensic tools.

Venkataramakrishnan (2019) recalls the concerns expressed by Mutale Nkonde of Harvard University, stating that Iran may utilise deep-fakes as a tool against the U.S. Whilst algorithmic advances are continuously occurring, it makes it increasingly difficult to distinguish deep-fakes from true and valid information. Stanton (2019) too expresses the implications that deep-fakes may have on international relations, potentially damaging diplomatic relations with the possibility of inciting political violence – an already visible reality for U.S.-Iran relations. Johnson (2019) cited deep-fakes as a major concern for the 2020 U.S. election, regarding Iran as a 'top threat' of deep-fakes against the U.S. government, which would naturally lead to further future hostility between Washington and Tehran. Despite those concerns, Mak and Temple-Raston (2020) state that deep-fakes were not present in the 2020 elections due to small deceptions. However, as deep-fake technologies continue to advance, it may prove to be a threat in future elections.

An example of a deep-fake is the image spread by a group named 'Iran Cyber Security Group Hackers', which depicted Trump with a bloody mouth and a bruised face, along with a message pledging the group's support for states in the MENA region. Intending to illustrate the possibilities that Trump would face if he did not stop targeting Iran, this deep-fake was only a partial indication of Iran's AI capabilities. The deep-fake illustrates how far Iran is willing to go to protect the state and the lack of concern for any potential preserved diplomatic relations between the U.S. and Iran (BBC News, 2020).

Perhaps in response to an awareness of the opportunity AI provides to manipulate content, Iran is commonly known to employ what is known as 'digital authoritarianism', where it censors websites and content around particular topics, as it did when it censored the U.S. virtual embassy in 2011 (Shahbaz, 2018). Tajdin (2019) concurs, noting that independent foreign news sources and citizens have often been censored, notably blocked from popular social media platforms like Twitter and YouTube. For U.S. public diplomacy, social media has become an increasingly crucial means of communication and it is becoming tougher for the U.S. government to directly engage with the Iranian audience. This comes partly due to Iran's government building domestic internet services and strictly securing a 'national internet' (Tajdin, 2019).

AI could, however, be used to overcome some of the hurdles to public diplomacy in this bilateral relationship, with sentiment analysis in particular showing promise. Understanding the public opinion of foreign audiences may assist the U.S. in nurturing more beneficial sentiments among the Iranian people. Thrall (2011) states that, at the time of publication, Iranians' attitudes towards the U.S. were distrustful. If the U.S. utilises sentiment analysis, it may understand a deeper reasoning as to why Iranians do not trust their government and thus tailor public diplomacy to shift such sentiment.

Elson and Nader (2011) conducted a survey via telephone with Iranians in an attempt to establish Iranian attitudes towards the U.S., among other things. The survey interviewed 1,002 citizens over an 18-day period in December 2009. It was, however, restricted to only those who have landline telephones and were willing to participate. Although 1,002 individuals participated, roughly nine per cent were comfortable with the survey. External parties were invited as the interviewers and underwent rigorous training. It was concluded that a vast majority of Iranians, mostly women and those who were less educated, were opposed to U.S.-Iran diplomatic relations but men and those of a higher social status with a greater level of education were welcoming of the revived relations. While the study provided a somewhat satisfactory outcome and allowed the U.S. to better focus their public diplomacy towards particular groups to improve foreign public perception, it remained flawed. The survey was time-consuming and excluded homeless citizens, cell phone users, and a large group due to their unwillingness to participate. In addition, telephone interviews were abruptly concluded due to Iranian lines being cut and the events at the time (the death of nine Iranians during protest clashes with the Iranian military (Tait, 2009)) may have resulted in skewed results.

Elson and Nader (2011) agree that social media observations may provide more accurate results, and that sentiment analysis may be better employed here. Senno (2018) elucidates two major benefits of sentiment analysis that may be relevant to governments. Firstly, sentiment analysis may be a measurement of the effectiveness of a campaign by the U.S. towards Iranian citizens or vice versa; secondly, it may assist in improved crisis control, by identifying negative perceptions on social media ahead of time, allowing government to respond accordingly before it escalates.

While the findings of Thrall (2011) and Elson and Nader (2011) highlight the attitudes of Iranians during Obama's administration, which mostly reflects a hardly successful display of public diplomacy, Thrilling (2017) provides a more recent idea of Iranian public perception with 72% of Iranians stating that their standard of living has not improved under the nuclear deal with the U.S. and simultaneously indicating a declining support for it. Knox, Dekeyser and Christia (2019) offer more optimistic results, highlighting that most conservative Iranians yearn to have greater ties with the U.S.

While Fouts (2006) boasts about the expansive dataset the U.S. possesses in terms of public opinion in the Middle Eastern region through survey research, he emphasises that the data is not rich enough to highlight causes for particular sentiment. Intent analysis may thus be a small step toward better understanding what lies behind sentiment or public opinion.

As stated, virtual assistants are becoming increasingly popular and may improve communication channels between governments and citizens, creating a direct communication channel with an immediate response. According to Borfitz (2019), the U.S. government illustrates a growing fondness for virtual assistants, given that they present minimal risks and low chances of failure. NLP technologies are central to the ever-improving conversation between virtual assistant and human user, becoming more personalised with each improvement and as datasets grow. The U.S. has implemented virtual assistants in the U.S. Citizenship and Immigrations Services and the U.S. General Services Administration. However, it comes as a surprise that as recently as August 2021, the U.S. is yet to add a chatbot to its virtual embassy website with Iran, a site to maintain direct contact between Iranian citizens and the U.S. government (Virtual Embassy, 2020). A chatbot feature would allow for an Iranian citizen and a U.S. staff member to have an easier and more direct channel of communication, in which one would be free to ask questions and would be able to receive information that may not be freely available on the website.

The U.S. has continually kept the virtual embassy up-to-date, providing travel warnings during hostile periods. On 10 August 2021, the embassy issued a stage four warning of American citizens to avoid travel to Iran following the kidnappings and arrests of U.S. citizens (Virtual Embassy, 2021).

While Trump illustrated minimal-to-no-use of AI to improve communication between the U.S. government and Iranian citizens, the president has used his Twitter account threatening to hack 52 Iranian websites regarded as 'important to Iran and Iranian culture' if the Iranian capital acted on their threats of airstrikes on the U.S. (BBC News, 2020: 4). Trump's firm, and public, stance displays little concern for the Iranian people and their culture and would thus do little to assuage public opinion in Iran.

Instant language translation may be extremely beneficial for public diplomacy to overcome language barriers (Baldwin, 2019). However, as

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useful as instant language translation may be, these may often be literal and lose the value and meaning of the intended message, thus subtracting the personal touch from diplomacy. Trump often chose to utilise Twitter as a form of public diplomacy, which is a less personal alternative, albeit quick and far-reaching. Two months into President Joe Biden's administration, the newly elected president illustrated no rush in going back to the nuclear deal with Iran. In addition, the new administration continued to utilise social media to extend their public diplomacy, tweeting that 'Iran is moving in the wrong direction' and reverting back to a state of compliance (Rad and Mortazavi, 2021: 4).

The virtual embassy website of the U.S. in Iran offers a 'translation' option where it speedily translates the entire website to Persian, the official language of Iran (Virtual Embassy, 2020). Whilst it may seem like a minimal feature, it illustrates the willingness of the U.S. to have a direct and understanding relationship with Iranian citizens.

On 17 November 2021, the U.S and U.K. accused Iran of ongoing government-sponsored ransomware attacks beginning March 2021, targeting critical U.S infrastructure such as transportation, healthcare and public health sectors (Murphy and Manson, 2021). The Joint Statement released by the Cybersecurity and Infrastructure Security Network (CISA, 2021) details the activities and list of malicious tools including FileZilla for file transferrals and MimiKatz for credential theft. The report and expansive list of activities illustrate the sophistication of the Iranian government and its people, further making a bold statement about how far it is willing to go to inflict damage on U.S infrastructure and further taint the diplomatic relations between the two states.

Looking forward

Over time, as AI evolves and its complexity is learned in multiple fields, it may be adapted in different forms within diplomacy. It is imperative to note that AI is considered a moving target as it continuously adapts, develops, and quickly evolves. Furthermore, it may be considered as an umbrella term for a pool of other technologies which also continue to develop over time. Moreover, this expansive set of technologies may be applied differently depending on the context and the user's intention. Therefore, the inclusion of AI into public diplomacy may yield both positive and negative implications.

States have begun integrating AI into foreign policy and international relations, utilising autonomous weapon systems, for international security and military power. As governments acknowledge the power that AI possesses and states attempt to lead in their AI capabilities, Russia has expressed that, one day, AI will rule the world (Amaresh, 2020). China, on the other hand, has applied the advanced technology to decision-making processes within foreign policy, illustrated by China's application of AI to the decision-making process of the country's Belt and Road Initiative Strategy. Choi (2019) highlights that a plethora of possibilities lay ahead as AI and diplomacy continue to intersect, citing the possible prediction of future international events, impacting geopolitics, and monitoring warfare and hostile environments.

The U.S. and Iran have often illustrated their expansive AI capabilities and intelligence but have not yet come to implement it for the betterment of communication for public diplomacy purposes. Notable trends between U.S. and Iran public diplomacy include the use of deep-fakes; the U.S. virtual embassy to Iran; censorship; and heavy reliance on social media. Deep-fakes have had indefinite implications for public diplomacy between the U.S. and Iran, demonstrating that it has the power to create a tense international environment and further becoming increasingly laborious to detect.

Over the last decade, the U.S. has continuously relied on its virtual embassy as its primary tool for public diplomacy with Iranians. Whilst its success cannot be measured, the Iranian government has been quick to block the site in times of anger or dispute. While the website offers language translation and is often up to date, it lacks a chatbot feature that can further bridge the gap between the U.S. government and Iranian citizens. Iran's continuous censorship of Western media is harmful to U.S. public diplomacy and with advanced AI capabilities, it is an easy alternative for a displeased Iranian government. Lastly, social media, and more specifically Twitter, has found a home in U.S./Iran

public diplomacy. It is now commonly used by governments to understand the general attitude of a foreign audience, using sentiment analysis, and may tailor its public diplomacy accordingly.

Moreover, President Trump often turned to Twitter to share his opinion and the stance of the U.S. and optimistically, it aids leaders in having real-time communication to solve conflict and ease tensions, an act that may comfort and reassure foreign audiences in times of hostile bilateral relations. Neither Iran nor the U.S. lack AI technologies or cyber capabilities and in fact pride themselves in being the front runners of AI advances in their respective regions and globally. However, perhaps the longstanding disdain between the U.S. and Iran illustrates little efforts of public diplomacy in recent years, apart from a desire to win over the hearts of each state's foreign audience.

Whilst the Obama administration poured a significant effort into public diplomacy with Iran, keeping it as up-to-date as possible, the Trump administration demonstrated little willingness to do the same, perhaps even tarnishing the previous administration's efforts. U.S. President Joe Biden, inaugurated in January 2021, has explicitly expressed his willingness to get the nuclear deal with Iran back on track (Rafati, 2021). The Joint Comprehensive Plan of Action (JCPOA) swindled during the Trump administration as the U.S. imposed strict sanctions on Iran, but Biden has opted for the diplomatic route. Future study may be built on from here, with the possibility of seeing a greater integration of AI into the communicational aspect of public diplomacy. It illustrates that it has the likelihood to improve communication in public diplomacy, irrespective of minimal AI-related concerns.

Notes

[1] Automated news generated by algorithmic processing from large datasets, that may be untrue and result in the spread of disinformation (Knight, 2019).

[2] Content that is purposely manipulated to falsely portray an individual, environment or object (Centre for Data Ethics and Innovation, 2019).

[3] An algorithmic process that attempts to interpret and understand the feelings or attitudes of individuals towards a particular topic (Chakraborty, Battacharyya and Hassanien, 2019).

[4] A statistical model utilised to sort through large datasets, such as a 'collection of documents' to locate particular topics (Li, 2018).

[5] Lemmatisation is a machine-learning process whereby words are grouped together to be analysed as a singular item (Srinidhi, 2020).

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The Fourth Industrial Revolution and the Political Settlement in South Africa's Mining Industry

By Xichavo Alecia Ndlovu, Zamangwane Ngwane, and Mmabatho Mongae | Peer Reviewed

Abstract

Literature on the advent of 4IR has focused on the disruptive features of 4IR for the workplace and the role 4IR will play in enhancing economic growth and productivity. However, less is written about whether and how 4IR technologies may affect and be affected by the existing political settlement, especially in developing countries like South Africa. We investigate whether and how the adoption of technological advancements associated with 4IR would affect (and be affected by) the political settlements in South Africa's mining industry. We argue that the displacement of workers can shift the balance of power against organised labour and in favour of mining companies. Nonetheless, the impact of 4IR is not predetermined. South Africa's mining industry is a contested terrain, and the existing political settlement is likely to influence the process, pace, and extent of adopting 4IR technologies.

Introduction

It is widely acknowledged that technologies associated with the Fourth Industrial Revolution (4IR) may lead to the displacement of workers. The World Economic Forum (WEF) predicts that 75 million jobs may be displaced by 2022. At the same time, technological advancements are expected to create 133 million new roles (Schwab, 2018). Literature on the advent of 4IR has focused on the disruptive features of 4IR for the workplace and the role 4IR will play in enhancing economic growth and productivity. However, less has been written about whether and how 4IR technologies may affect and be affected by the existing political settlement, especially in developing countries like South Africa.

4IR is broadly described as the era of technological progress fusing the physical, digital, and biological realms. It is also distinguished by its exponential rate of occurrence and by its far-reaching ability to reorganise systems of production, communication, and transport (Schwab, 2016: 18). Political settlements, on the other hand, describe the distribution of power across relevant organisations (Khan, 2018).

In this paper, we seek to understand what the adoption of 4IR technologies, and the resulting displacement of workers, could mean for the political settlement in South Africa's mining industry. We explore the questions of whether and how the adoption of technological advancements associated with 4IR would affect (and be affected by) the political settlements in South Africa's mining industry. We use the case of South Africa's mining industry to argue that the wide adoption of technological advancements associated with 4IR has the potential to shift the balance of power in the mining industry. The displacement of workers in the mining industry could weaken trade unions in favour of the already strong mining companies. It would also weaken the alliance between trade unions and the ANC government. Weakening the alliance has implications for mobilising electoral support nationally and maintaining political power. Nonetheless, the impact of 4IR is not predetermined. South Africa's mining industry is a contested terrain, and the existing political settlement in the mining industry is likely to influence the process, pace, and extent of adopting 4IR technologies.

Understanding the potential impact of 4IR on the political settlement in South Africa's mining industry is important for several reasons. First, mining export earnings have contributed to and shaped the country's economy (Antin, 2013). Second, the economic rents generated by the industry's large mining companies have elevated the status of these companies within South Africa's political-economic landscape, with the distribution of rents triggering contestation (Auty, 2006). Third, the mining industry is still viewed as an important tool for inclusive economic growth and directly employs half a million people in the context of a 34.4% unemployment rate (Stats SA, 2021).

The Impact of Technology on the Labour Force

Early views on technology discourse have focused on technological determinism, the idea that changes in technology primarily influence social relations and economic development (Heilbroner, 1967). Critics of technological determinism argue that the effects of any given technology on society are either mutually reinforcing or depend on how the technology is implemented, as well as on the socio-political context (Smith and Marx, 1994; Scranton, 1995; Wajcman, 2002).

The advent of 4IR has been littered with literature emphasising the potential impact of 4IR on the labour force. One school of thought relates to the displacement effect of workers by technology. In their seminal paper, Autor et al. (2003) argue that technology can displace workers, where workers are engaged in tasks that can be simplified into algorithms for computers to perform (Autor et al., 2003: 1322).

Acemoglu and Restrepo (2018), on the other hand, argue that any technological effect on workers depends on the interaction between a 'displacement effect' and 'reinstatement effect' (Acemoglu and Restrepo, 2018: 4). The 'displacement effect' describes technology taking over work previously done by human labour and the 'reinstatement effect' describes the situation where technology creates new tasks where human labour has a comparative advantage over technological applications (Acemoglu and Restrepo, 2018: 3). As such, they hold that the introduction of technology does not automatically lead to the displacement of workers but rather it is the

type and mix of technologies that determines the fate of workers and the re-organisation of the workplace.

In 2019, the World Bank produced a report, Changing Nature of Work, in which it highlighted two effects of technology on work: changing skills and the emergence of new business models (World Bank, 2019: 5). Changing skills refers to the increased demand for skilled workers and skills grounded in deep human cognition and lifelong experiences (World Bank, 2019: 3–6). Such skills include higher-order problem solving, socio-behavioural skills, and predictive adaptability skills such as reasoning (World Bank, 2019). The new business model is the creation of new industries and jobs evolving around advanced digital production technologies such as Artificial Intelligence (AI), robotics, and automation (Bughin et al., 2018: 8).

The current literature on 4IR takes it as a given that the deployment of technological innovation will be widespread, disrupting the workplace and the role of workers. There lies a gap, however, in the knowledge about how the endogenous features of society, such as the distribution of political or economic power, could shape and be shaped by the impact of 4IR. Emphasising the potentially disruptive features of 4IR for workers and the workplace should acknowledge that decisions to adopt any technology should not be left to the logic of the market but must also consider non-market conditions. Also, the 'reinstatement effect' argument should be approached with caution as any discomfort, even if temporary, to some groups in society can lead to hardship and resistance, especially in developing countries with high unemployment rates (Mokyr, 1998). For example, technological innovations may be accompanied by a social response if powerful groups in society do not receive an acceptable distribution of benefits (Khan, 2010; Frederiksen, 2017).

This paper is set out in five parts. The first part evaluates the mining industry's contribution to employment in South Africa. The second part looks at 4IR technology adoption in South Africa's mining industry. The third part defines and describes the political settlement in the mining industry, with an emphasis on four stakeholders: mining companies, the ANC-led government, trade unions, and mining communities. The fourth part assesses the potential impact of 4IR on the political settlement and argues that the displacement of workers has the potential to shift the balance of power against organised labour and in favour of mining companies. The paper concludes that the existing political settlement in the mining industry is likely to both be influenced by 4IR, as well as influence the process and extent of the adoption of 4IR technologies.

The Mining Industry's Contribution to Employment in South Africa

South Africa is one of the most resource-rich nations in the world and has attracted large foreign investments. It has also created leading global companies such as Anglo American, De Beers, and Goldfields (Antin, 2013). The country has over 52 commodities and the worlds' largest reserves of platinum, manganese, Chrome, Vanadium, and gold; as well as major coal and iron ore reserves (Lane et al., 2015). South Africa's mining industry played a pivotal role in the country's industrialisation and development. The industry also provided the impetus for the infrastructure that currently supports the more economically significant secondary and tertiary sectors (Antin, 2013; Hermanus, 2017).

The discovery of diamonds in 1867, followed by gold in 1886 on the Witwatersrand goldfields, was a turning point in South Africa's political economy that marked the start of the state-led intervention in the recruitment of Black labour for the mines (Wilson, 2001: 101). The productivity of the mining industry was defined by the employment of cheap Black labour from South Africa and neighbouring countries. Black mineworkers were recruited into physically demanding and dangerous work underground, whilst their white counterparts were organised into skilled secondary roles (Mabasa and Chinguno, 2018: 304). These

"In 2019, the World Bank produced a report, Changing Nature of Work, in which it highlighted two effects of technology on work: changing skills and the emergence of new business models (World Bank, 2019: 5). Changing skills refers to the increased demand for skilled workers and skills grounded in deep human cognition and lifelong experiences (World Bank, 2019: 3–6)."

features still define the current distribution of power in South Africa's mining industry.

The country's remaining resource base is estimated to be worth over two trillion US Dollars, with the Platinum Group Metals (PGMs), gold, coal, and iron ore providing the most revenue (Antin, 2013; Goodman et al., 2019). Although the industry is well established, it has several productivity issues. Between 2007 and 2017, the industry declined by 4% and mining employment fell from a peak of 518,000 in 2008 to 464,000 in 2017 (Goodman et al., 2019). Even after experiencing a decline, mining remains an important sector of the economy, contributing between 8% and 10% of South Africa's GDP (Vandome and Khama, 2021). In recent times, the Minerals Resources and Energy Minister, Gwede Mantashe, has indicated that the mining industry has the potential to contribute 12% to GDP (Mantashe, 2021).

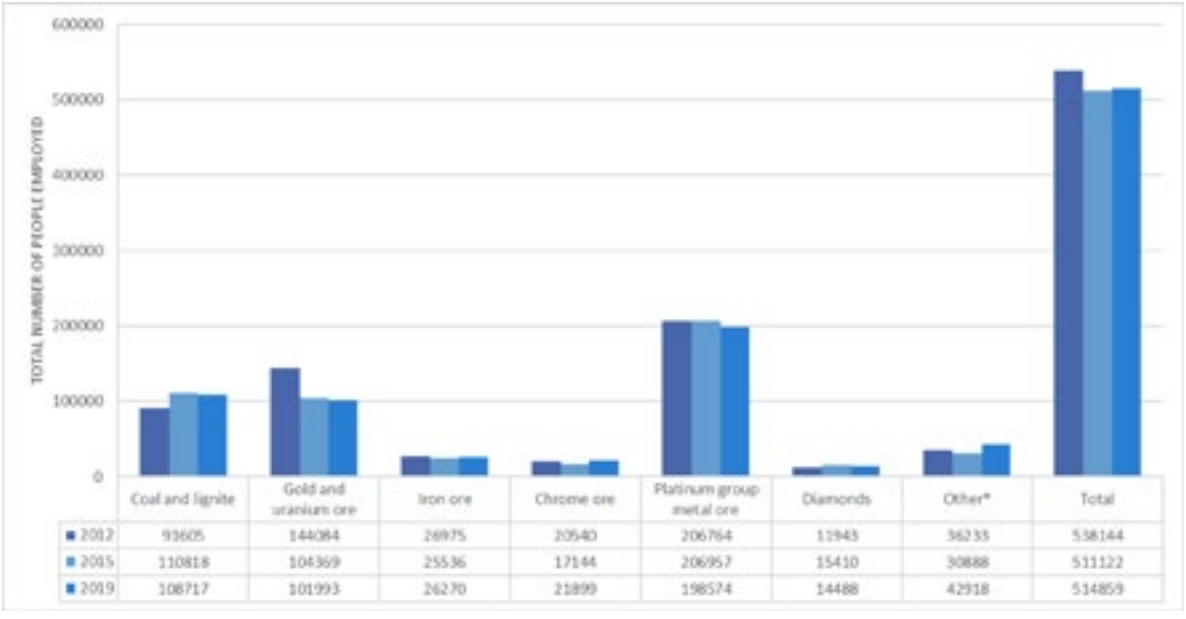
Figure 1 represents the total number of people employed in the mining industry (514,859) by June 2019. Employment changes differ by type of mine. The mining of platinum group metal ore employed the largest number of people (198,574; 38,5%), followed by coal and lignite (108,717; 21,1%) and gold and uranium ore (101,993; 19,8%) in 2019 (Stats SA, 2019a). In general, employment in the mining industry declined from 538,144 in 2012 to 514,859 in 2019 (a loss of 23,285 jobs) (Stats SA, 2019b).

The decline in the industry and resulting unemployment are due to several factors, including: ageing mines, deeper mineral ore deposits, and declining mineral grades (Goodman et al., 2019). The industry is also facing a dual challenge of high price volatility and high currency volatility. Other factors include labour unrest, debates on resource nationalism, higher than inflation wages, escalating energy costs (from the electricity provider Eskom), infrastructural bottlenecks, and skills shortages which are driving up the cost of production (Antin, 2013). Another concern is the growth of renewable energy sources and increasing disinvestment from fossil fuels.

4IR Technology Adoption in South Africa's Mining Industry

4IR was popularised by WEF Chief Executive, Klaus Schwab, in 2016. 4IR is best understood as four broad domains encompassing biotechnology, nanotechnology, new materials technology, and advanced digital production (ADP) technology (UNIDO, 2019: 3). Within mining, digital technologies are already being utilised in the identification of new reserve ores, enhancing efficiency in extraction activities and the maintenance of sites as well as greening a historically 'dirty' industry (Bughin et al., 2018: 22).

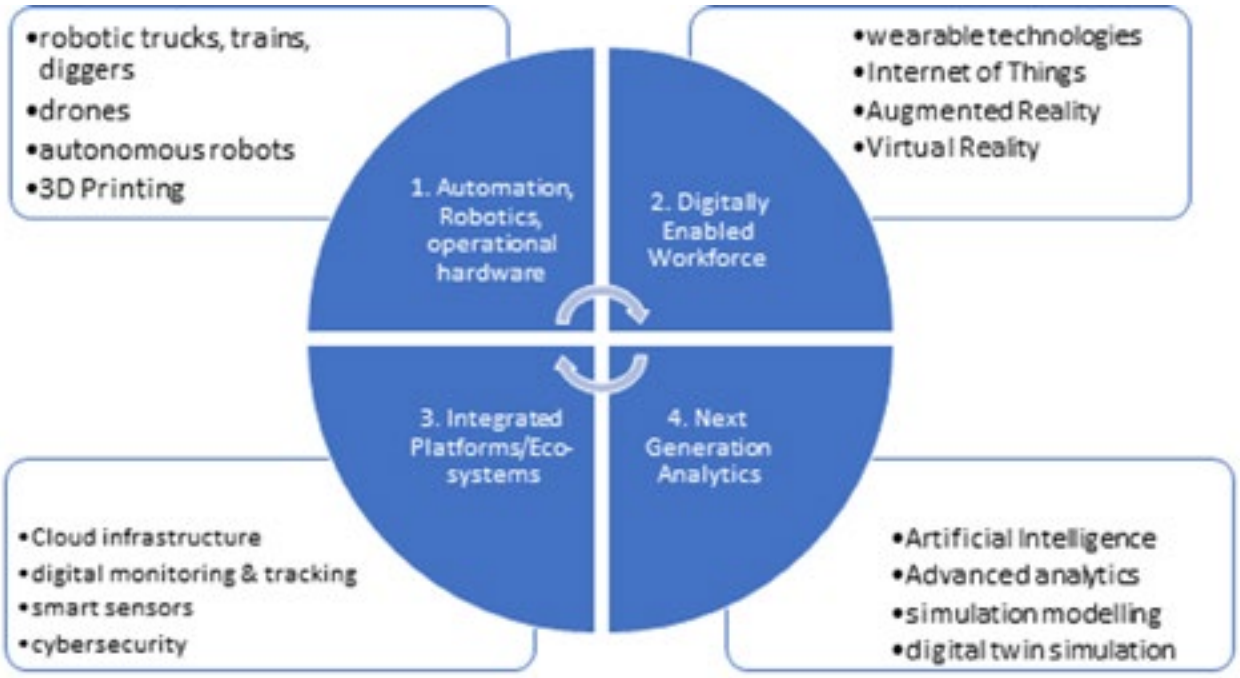
Figure 1: Employment in the mining industry, 2012–2019



[Source: Stats SA Mining Industry Report No. 20-01-03, Table C, 2019]

The World Economic Forum (WEF) white paper on digital transformation in the mining industry highlights the four themes which will characterise the digital transformation of the mine (World Economic Forum, 2017: 10).

Figure 2: Themes in the Digital Transformation of Mining



[Illustration adapted from WEF White Paper on Digital Transformation Initiative: Mining and Metals, 2017.]

South Africa's mines are less mechanised, a limitation that should intensify the need for digital transformation (Goodman et al., 2019). South Africa's mining industry has had a mixed response to digital transformation. Amongst the reasons for the variance is the fact that South Africa's mines are amongst some of the deepest in the world with complex ore bodies, therefore placing limits on the ability to digitise and automate immediately (Goodman et al., 2019). Another key obstacle is the shortage of a highly-skilled local workforce. South Africa had an average progress score of 29.9% for digital skills among the active population for 2019 and 2020 (Schwan and Zahidi, 2020).

Two separate surveys of South African mining executives revealed that mining companies were making significant investments into new mining technologies, with a focus on frontline technologies such as augmented and virtual reality (AR/VR), AI and automation (Croeser et al., 2020; Evans et al., 2021). Whilst these frontline technologies are enablers of remote work, enhance worker safety and reduce operational costs, they do not maximise the intelligence of 4IR technologies. Technologies such as advanced analytics, machine learning, and advanced analytics allow for human and computer-supported analysis, interpretation of data insights and facilitate responsive decision-making (Croeser et al., 2020: 8). South African mines are investing less in latter technologies.

Evans et al. (2021) also reveal that 69% of South African mines understand the need for digital transformation and have made investments into specific task-related innovations; however, most of their activities remain in the planning phase (Evans et al., 2021: 9). Gold Fields and Anglo American have developed digital transformation strategies and are actively investing in the research and development to realise these. In 2018, Gold Fields presented their Mine of the Future which emphasised the establishment of digital culture as the precursor to a digital transformation (Bardien, 2018). Anglo American has also developed plans for their Future Smart Mining™ aimed at integrating advanced technologies, digitalisation, and environmental sustainability

principles to mechanise their mining practices (Anglo American, 2021).

Kumba Iron Ore, majority-owned by Anglo American, is amongst South Africa's largest pit mines. In 2014, it implemented a technology roadmap to improve mine safety and productivity, extend the lifespan of its two mines, and increase shareholder value (Anglo American, 2015: 45). Their technology roadmap strategy was segmented into three horizons, spanning eight years. Under the first horizon (2015–2018), the group's Kolomela mine was fitted with an automated drill that enabled remote mine drilling (Cornish, 2016). This new technology improved safety onsite by removing operators from the drilling site and shifting work to a controlling computer screen (Cornish, 2016). The mine has also reported improvements in 'drilling efficiency and drill hole quality, and [aims] to reduce drilling costs by 15%' (Cornish, 2016).

Exarro's Belfast Coal Mine in Mpumalanga is South Africa's first fully digital mine. The mine was completed in 2019 and boasts, as its key technology, the digital twin simulation (Mining Review, 2021). Digital Twin technology duplicates physical mining infrastructure into a virtual simulation, allowing managers to view mining activities live, effect requisite decisions, and increase productivity (Mining Review, 2021). Exarro has committed to hiring locals throughout its construction phase and to investing over $20 million in developing indirect mining business opportunities. However, it is unclear if the mine will create many jobs for local miners, given that its operating activities are highly technical.

South Africa's mining industry has generally been slow to adopt digital transformation; however, mining companies consider 4IR technological advancements in their operations and strategic plans. Hitherto, South Africa's foray into digital transformation is limited to frontline technologies that complement the work of mine workers without displacing them, and there has been less implementation of advanced analytics technologies.

The Political Settlement in South Africa's Mining Industry

The Political Settlements Framework

The definition of political settlements has evolved from a narrow focus on explicit peace bargains and pacts between elites, to a broader analysis of how organisational and political power is organised, maintained, and exercised (cf. Di John and Putzel, 2009; Jones, Elgin-Cossart and Esberg, 2012; Behuria, Buur, and Gray, 2017; Khan, 2018; Kelsall, 2020). In the latter approach, the concept is commonly defined as 'a combination of power and institutions that is mutually compatible and also sustainable in terms of economic and political viability' (Khan, 2010: 4).

In this paper, political settlements describe the distribution of power across the main stakeholders in the mining industry. The distribution of power is 'the relative holding power of different groups and organisations contesting the distribution of resources' (Khan, 2010: 1). The source of holding power can be income and wealth. Holding power can also be based on the historically-rooted capabilities of groups to mobilise and organise using various resources, such as ideologies, identity politics, and other cleavages (Khan, 2018: 645). Powerful groups or organisations need to have the capacity to engage and survive conflicts and impose costs on others whilst absorbing the costs imposed on them (Khan, 2010).

Although the distribution of power can be relatively stable and reproduced over time, incremental and disruptive changes to the political settlement can occur. Autonomous processes such as new technologies, political mobilisations, and economic opportunities can shift the distribution of power in society (Khan, 2018). These processes may also trigger new mobilisations by affected groups that can reverse, modify, or embed the changes. That is, if any excluded groups have sufficient power, they can, through their ability to contest, obstruct and oppose rules, undermine the adoption of technologies or associated policies (Frederiksen, 2017; Khan, 2018).

Khan's argument is also consistent with political economy approaches to technological change. According to Mokyr (1998), decisions to adopt any technology are not only left to the logic of the market. Technology innovations will likely be resisted by those who stand to lose through non-market mechanisms, such as labour strikes (Mokyr, 1998). It is not always straightforward to identify the losers and the magnitude of their loss or to determine the outright winners. However, if powerful groups in society do not get an acceptable distribution of benefits from the technology adoption, they will resist it (Mokyr, 1998). From this explanation, it is evident

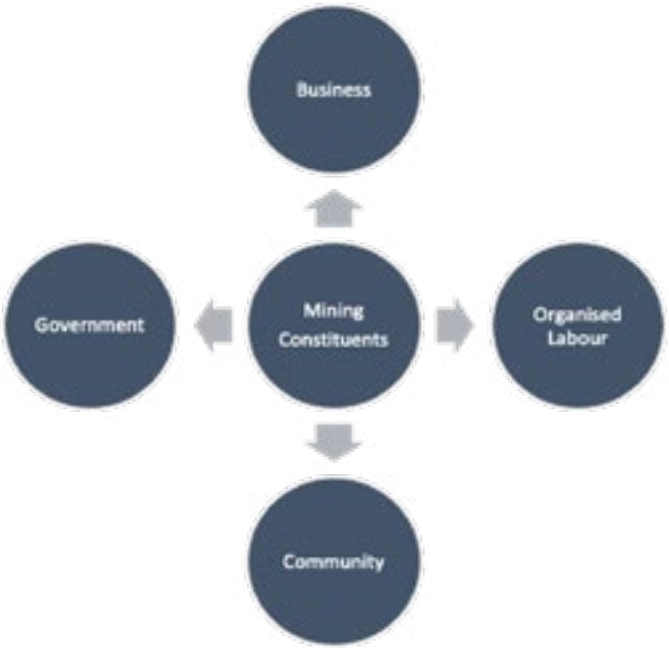
why maintaining political stability or preventing violent conflict by sustaining the dominance of powerful groups may take priority over inclusive development policies.

The Political Settlement in South Africa's Mining Industry

The political settlement in South Africa's mining industry, by and large, mimics the national political settlement. The mining industry is predominantly white and foreign-owned (Netshitendze, 2018). South Africa's transition to democracy in 1994 involved a lot of compromises that reflected the strength of big businesses at the expense of redistribution and inclusion (Mondliwa and Roberts, 2018: 2). At the end of apartheid, large businesses in South Africa successfully lobbied the government against implementing structural changes that would shift the balance of economic power. Thus, the political settlement reached in 1994, and the resulting institutional arrangements, entrenched the market power of large companies (Mondliwa and Roberts, 2018).

Figure 3, adapted from Lane et al., 2015, identifies actors considered to be key in the current political settlement of the mining industry. These actors formed part of 'Operation Mining Phakisa', a multi-stakeholder process created in 2015 to address the crisis in mining (Letsoala, 2007; Hermanus, 2017).

Figure 3: Mining Constituents



Mining companies, the ANC-led government and organised labour groups (trade unions) are key actors with bargaining power and strong incentives to influence policy processes in the mining industry. Mining communities are a stakeholder group; however, they are discussed to a lesser extent because they are less coherent, and their bargaining power is much more challenging to determine. Assessing the relative distribution of power is generally a challenging task, but historical evidence and mobilisation activities provide important clues for the relative power of the different constituents in the mining industry (Khan, 2018). Rent distribution and changing labour dynamics are key to the political settlement in the mining industry (Frederiksen, 2017). The main challenge is balancing the often-conflicting interests of the key players in the settlement to ensure that mines are productive and profitable while sharing the benefits with the rest of society.

Business: Mining Companies and their Shareholders

South Africa's mining industry is facing significant economic, financial, and operational challenges, as well as a competitive global environment. These challenges are compounded by concerns about the factional divisions within the ANC's leadership (Vandome and Khama, 2021). Resource nationalism debates, falling commodity prices, labour unrests, rising demands by the government for increased rents and revenue from mining are some of the challenges facing the companies (Lane et al., 2015). Companies must grapple with the annual 'strike season' where unions and mine workers make demands for increased wages (mostly above inflation) and improved employment conditions.

Thus far, mines are perceived to not be doing enough to benefit society (Lane et al., 2015). The mines need to retain a 'social license to operate' while grappling with various challenges such as changing government, community, and labour expectations. Mining companies constantly face demands from the government, compounded by local community demands, about the role that mining should play in national development. Mining companies have, during these demands, exercised their power to protect their interests through divestiture and legally challenging legislature. For example, mining companies took the Department of Minerals Resources and Energy

to court over the application of the ownership rule of the Mining Charter (Who Owns Whom, 2020). AngloGold Ashanti sold the Mponeng gold mine in 2020 to focus on more profitable geographies, while Anglo American moved away from thermal coal operations considering global pressure to reduce carbon emissions (Vandome and Khama, 2021).

In general, mining companies in South Africa desire digital transformation; however, they struggle to get buy-in for the transformation because they are a major employer (Manuell, 2021). From the business perspective, digitalisation and automation will 'cut operation costs, increase safety and boost productivity without shedding jobs' because profitable mines tend to expand and create new jobs (Manuell, 2021).

The ANC Government

The government has mainly positioned itself as a custodian and has been concerned with maximising revenue from mining through its various policy instruments. It is also battling years of worsening socio-economic conditions and ill-prepared public institutions in the face of civil strife. South Africa's government often faces internal challenges where the multiple arms of government are not aligned and have policy inconsistencies. Most importantly, the government has to deal with the role of organised labour in the alliance. At the same time, the government is under pressure from communities for not delivering basic services or using resource revenues as a vehicle for achieving development (Lane et al., 2015). Most worrying is corruption allegations against the Minister of Mineral Resources and Energy, Gwede Mantashe, who is also an ally of the current president Cyril Ramaphosa (Vandome and Khama, 2021).

Under apartheid, mining companies operated with little to no restrictions, and they had no responsibilities towards the health of workers, mining communities, and reducing environmental degradation (Leonard, 2018: 2). In the new dispensation, the government has power and leverage through the Mineral and Petroleum Resources Development Act 2002 (Act No.28 of 2002), a law aimed at redressing historical socio-economic inequalities and ensuring the meaningful participation of historically disadvantaged persons in the sector (Minerals and Petroleum Resources Development Act, 2002). The act empowers the minister to develop a Broad-Based Black Economic Empowerment Charter as a regulatory instrument for the industry. The controversial Mining Charter gives open-ended power to the minister to make discretionary arrangements (Mining Charter, 2018). The charter has been a point of contention by mining companies and communities. It took two years, multiple drafts, and a court case before it was approved by both the government and the mining industry (Dehm, 2019).

Despite the various accountability instruments, the mining industry continues to be criticised for its lack of Corporate Social Responsibility and violation of mining restrictions. Examples include Lonmin's failure to adhere to environmental laws and permits and African Rainbow Mineral starting mining activities without environmental authorisation on at least seven occasions (Dasnois, 2015). Also, there are no specific mechanisms in the Mining Charter to prevent the adoption of labour displacing technology, even though one of the objectives of the Charter is to advance employment and produce a skilled workforce to meet the demands of modern industry (Mining Charter, 2018).

President Cyril Ramaphosa has taken 4IR seriously. He appointed members of a Presidential Commission on the 4IR to recommend policies and strategies that would position South Africa as a competitive player in the digital space (Phakathi, 2019). The Commission reported that South Africa has not fully benefited from previous industrial revolutions, and that failure to respond to the technological changes associated with 4IR would threaten the country's industries and the well-being of its people. The Commission recommended that the country's 4IR strategy should focus on investing in human capital development, technology infrastructure, and ICT (Presidential Commission on the Fourth Industrial Revolution, 2020).

The Commission's report notes that digital technologies have the potential to enhance productivity in mining and that the emphasis should be on renewable energy, robots, and electric vehicles to reach Climate-smart Mining. Although the report does not estimate the potential job losses or gains in mining that would result from adopting 4IR technologies, it acknowledges that the labour force is a key cause for concern. The report also acknowledges that there are ideological

tensions that exist regarding redistribution and growth, especially since there is already a low growth rate, high unemployment, and job losses in several sectors such as mining (Presidential Commission on the Fourth Industrial Revolution, 2020). Finally, whilst the initiative is commendable, the Committee's recommendations do not provide a practical strategy for immediate implementation to address the realities and challenges we are already facing.

Organised Labour

President Ramaphosa often refers to a 'social compact' between government, business, and labour. This compact has thus far been dominated by organised labour and has marginalised many, causing numerous labour unrests (Vandome and Khama, 2021). Organised Labour has historically played an important role in South Africa's mining industry and transition to democracy (Buhlungu et al., 2008). The successful unionisation of Black workers under the National Union of Mineworkers in 1982 was a significant gain not only for worker rights but the broader political struggle for non-racialism in South Africa. Post-apartheid, unions have continued to play an important role in South Africa's democracy, supported by the country's progressive labour legislation which makes provisions for centralised bargaining (Buhlungu et al., 2008). Organised labour is usually concerned with increasing its membership and being able to influence government policy. Losing support, through job losses, is thus a great concern. Organised labour also has a role to play in the governing alliance, and thus their quest is to continuously fight for relevance (Lane et al., 2015).

Khan (2018) argues that the only way we can understand the distribution of power in society is to look at its history and how organisations have mobilised and won or lost power in the past. The National Union of Mineworkers (NUM) has been at the forefront of labour representation and often uses mass strikes to achieve its goals. It organised the first legal strike by black mineworkers in 1984, following a decline of global commodity prices which later resulted in 60% of the workers losing their jobs within a decade (Antin, 2013). The 2012 Marikana massacre, where violent protests led to the death of 34 miners, is an example that made visible the violent conflict over the distribution of rents in the mining industry. These protests erupted after negotiations over a substantial wage increase between protesting mineworkers and Lonmin (a multinational platinum producer) collapsed (Antin, 2013).

The Marikana tragedy was not primarily associated with NUM, which is a close ally of the ANC, but rather its rival union, the Association of Mineworkers and Construction Union (AMCU). AMCU has threatened the monopoly of NUM and has become the largest union in platinum mining (Antin, 2013). AMCU's rise was facilitated by the perception among mineworkers that NUM had become too strongly allied with the government. Another key example of the mobilising power of unions is the 2014 labour strike in the platinum industry. The strike occurred over wage disputes and dissatisfaction with working conditions. It affected the three largest platinum producers, as well as the global platinum supply chain (Bohlmann et al., 2014). The strikes lasted for five months and only found resolution when mining companies reached an agreement with the main unions. It was the largest and most expensive strike in the country's history (Bohlmann et al., 2014). More recent examples include NUM members organising a six-week strike at Gold Fields' South Deep mine, which cost the company R6 million (approximately US$370 000) per day. The strike, which ended in December 2018, began after the company announced plans to retrench 1,100 employees. AMCU also organised a five-month strike, which ended in April 2019, over wage disputes at Sibanye-Stillwater's gold mines (Who Owns Whom, 2020). Again, in 2019, Amplats reinstated

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643 employees who had taken part in a three-week unprotected strike at the Mototolo mine in Limpopo. The company reinstated the workers after an agreement was reached with the General Industrial Workers Union of South Africa (Giwusa) (Who Owns Whom, 2020). These are some significant examples of the holding power of unions in South Africa.

Organised Labour has recognised that digitalising mines is taking place globally and within South Africa. Labour seems to understand this in the context of the modernisation of older mines and addressing safety concerns for mine workers. This was expressed in an August 2019 joint parliamentary committee meeting of Mineral Resources and Energy with Trade Union Stakeholders. Trade unions agreed that technology was a critical input into the modernisation and enhanced productivity of mines and mine safety, but that this intervention must be for the overall benefit of workers (Parliamentary Monitoring Group, 2019). The challenge, however, is that trade unions do not seem to be deeply engaged in pro-active responses to address any potential worker and workplace disruption resulting from the modernisation of mining.

In an analysis of trade union responses to technologically-driven changes in South Africa's manufacturing industry, Hlatshwayo finds that trade unions have not seriously considered the potential impact of 4IR technologies on labour as a cause for deeper inquiry or research (2017: 101). In general, Hlatshwayo views organised labour as being reactive to the technology changes taking effect in the workplace and that unions are engaging with what has already been implemented by mine executives, rather than shaping which technologies should be implemented and the preparation of workers for these transitions.

Mining Communities

Communities living near mines or relocated by mining companies usually benefit the least from the industry. Mining communities contest the imposition of externalities, and these contests are usually resisted by national-level elites (Frederiksen, 2017). Yet, community influence is difficult to determine, especially since mining companies border many communities. It is equally challenging to identify key actors in the communities. Mining companies have been criticised for mostly engaging with traditional and communal authorities, further undermining the representation of communities (Dehm, 2019). Frederiksen (2017) argues that mines tend to focus their energy and investments on stakeholders that are most likely to affect them and that projects and resources are usually targeted to local elites with the understanding that they will trickle down to communities.

The Potential Impact of 4IR on the Political Settlement in South Africa's Mining Industry

The government, labour, business and community organisations use the National Economic Development and Labour Council (NEDLAC) as a vehicle to negotiate and facilitate consensus on economic, labour, and development issues facing South Africa. NEDLAC's 2019 report on the Futures of Work in South Africa concludes that 4IR is a given, that production could happen without people, and that due to a lack of appropriate skills, the labour force in South Africa could be replaced by robots and be automated (NEDLAC, 2019). The previous section on the political settlement in South Africa's mining industry showed that the three main stakeholders are aware of 4IR and agree that it will impact South Africa's socio-economic context. Thus, the question of whether 4IR will impact society is irrefutable for all stakeholders. The question, needing further elaboration, is how technological advancements associated with 4IR would affect (and be affected by) the political settlements in South Africa's mining industry.

The application of digital transformation has resulted in greater productivity in some developed nations. In Sweden, the application of new technology has not resulted in job losses (Johansson, 2021: 20). In Australia, automation technology is predicted to displace 40,000 frontline mining jobs whilst creating 69,000 new jobs (NERA and METS Ignited, 2019). NEDLAC's 2019 report highlights a set of scenarios about what work could look like in South Africa in 2030. In the worst-case scenario, termed the 'dead-end', businesses would have made minimal investments in skills development but would adopt new technologies to remain profitable and protect their interests. Organised labour would have focused on protecting existing jobs and organising strikes. The government would have focused on maintaining votes and would not have put measures to mitigate the negative outcomes of technology (NEDLAC, 2019).

The worst-case scenario is consistent with Khan's (2018) argument that in developing contexts, the most powerful organisations often have interests that constrain broad-based growth (Khan, 2018: 646).

In the best-case scenario, business, government, and labour would cooperate for the benefit of society. The skills gap would be closed, labour would be augmented by 4IR, and production would increase. In the short run, jobs would be lost. However, in the long-term, increased production would create new jobs. Though the impacts of technologies associated with 4IR will only fully unfold if these technologies are adopted widely, a description of the existing political settlement in the mining industry provides clues for a likely outcome. If the track record of union action is anything to go by—protracted and at times violent strikes that cost companies millions—then the result is likely to be more complex than any scenario could predict or capture.

In South Africa, digitisation is expected to create about 4.5 million jobs across many sectors and displace 3.3 million existing jobs by 2030 (Magwentshu et al., 2019: 4). In the mining industry, it is estimated that there could be a net loss of 87,000 jobs and that 20 percent of the mining industry would be automated by 2030 (Magwentshu et al., 2019: 4). In the context of South Africa's high unemployment, the projected job loss of 17% of the total number (514,859) employed in the industry in less than a decade is significant. The job loss would be significantly more than the 23,285 or 4.42% experienced between 2012 and 2019. If the trade unions accept the 'short-term' loss, as highlighted in the best-case scenario, there could be a shift in the distribution of power in the mining industry. Previous disruptions that range from price and exchange rate volatility and labour protests have not shifted the distribution of power, and thus the political settlement. The displacement of a large number of workers in the mining industry could weaken trade unions in favour of the mining companies. It would also weaken the alliance between trade unions and the ANC government.

Given the slow growth rate and decrease in employment in the mining industry over time, it is reasonable to conclude that unions have been weakened and that their influence is waning. However, the role of organised labour in the technology transitions taking place in the mining industry, especially as it relates to workers, remains critical. The importance of this has been recently highlighted in the inclusion of trade unions, such as AMCU and NUM, into the Department of Science and Innovation and the Mineral's Council of South Africa initiative titled the Mandela Mining Precinct (MMP). The MMP aims to improve and modernise the mining industry through research, planning, and cooperation between stakeholders (Mahomed, 2021). Organised labour also has an important role to play in the governing tripartite alliance, and must continuously fight for relevance (Lane at al., 2015). The dominance of NUM has been eroded by AMCU, bringing a spotlight to the tripartite alliance. The various strikes have demonstrated the holding power of AMCU, as its protracted strikes imposed serious costs to the mining industry. As such, the political settlement in the mining industry is evolving, and any disruptions or potential job losses will exacerbate the already existing tensions at the expense of the ruling alliance. A weakened alliance would have implications for mobilising electoral support nationally and maintaining political order in the country.

According to Khan (2010), a political settlement needs to be sustainable in terms of economic and political viability, and herein lies the dilemma. The existing settlement in the mining industry has thus far been politically viable; however, the industry is not growing. South African miners find themselves at a critical juncture, needing to accelerate the adoption of productivity-enhancing technologies to remain sustainable. Miners are confronted with the realities of an industry in decline, international competition, and the constant tension between equity and economic efficiency (Frederiksen, 2017). The existing political settlement is made up of actors with varied and often conflicting preferences. Tensions remain between mining companies, government, workers and host communities around job creation, decent wages, good working conditions, and environmental protection. And although 4IR is predicted to provide opportunities to improve worker health and safety, and reduce the environmental impact of mining activities, fundamental changes in the mining industry will not be seamless.

The brutal disputes between labour unions, the threat of escalating mass protests, excessive wage demands, and previous calls for the nationalisation of mines have

> South Africa's mining landscape is deeply complex and its actors are often at odds when it comes to the issue of 4IR and the modernisation of mines, insofar as it impacts employment. The adoption of 4IR technologies in South Africa's mines has been slow, owing to the deep and difficu geology of the country's mines and the relative expense of modernising.

hurt the industry in recent years. The tripartite alliance has yet to propose a convincing policy agenda for the mining industry, but any major crisis in South Africa's mining industry poses a great risk for the economy and the urgent need for inclusive development. Also, a further loss in employment resulting from mining digitalisation would go against what the tripartite alliance stands for in principle, which is redress for past injustices and transformation of both the mining industry and national economy towards inclusive growth and development. A loss in employment also contradicts one of the objectives of the Minerals and Petroleum Resources Development Act, which is to promote employment and advance the social and economic welfare of all South Africans.

It is likely that while the technologies associated with 4IR would certainly benefit South Africa's declining mining industry, the speed and degree of adopting these technologies may depend on the existing settlement being able to reproduce itself without excluding organised labour. There are still major opportunities that lie ahead as the industry has untapped reserves. Yet, the politics of the mining industry are likely to remain complex and heated, with continuing costs from the policy uncertainty (Butler, 2013). The main stakeholders can and have exercised agency, but the outcomes of their agency are limited by how flexible the structure of the political settlement is. Companies surveyed in the 2020 Future of Jobs report from the WEF identified several barriers to the adoption of new technologies in the mining industry, such as the skills gaps in the local labour market, lack of flexibility of the regulatory framework, and a lack of interest among the leadership (Schwab and Zahidi, 2020).

The nature of the political settlement in South Africa, and the mining industry, may have profound consequences for the process of 4IR technology adoption, and who benefits as a result. Since political losers can be a barrier to technology adoption (Acemoglu and Robinson, 2000), changes in the political settlement in the mining industry as a result of 4IR are likely to be incremental over long periods instead of sudden and disruptive as some would advocate (Khan, 2018). Thus, the impact of 4IR is not predetermined, it must be part of a vision shared by all, including the workforce that would operate the new technology and those who may be potentially displaced and excluded by it (Mondliwa and Roberts, 2018).

Conclusion

South Africa's mining landscape is deeply complex and its actors are often at odds when it comes to the issue of 4IR and the modernisation of mines, insofar as it impacts employment. The adoption of 4IR technologies in South Africa's mines has been slow, owing to the deep and difficult geology of the country's mines and the relative expense of modernising. This notwithstanding, mines are mechanising, as highlighted in the billions of investments being made by South Africa's mining executives, and through the creation of new digital mines such as Exarro. At this pace, however, it may be too early to conclude the effects of 4IR technologies on employment and workplace trends. It is possible that 4IR technologies may not diffuse widely or the technologies adopted would involve more reinstatement rather than a displacement of workers. What is evident, however, is that South Africa's mining industry is a contested terrain; organised labour can mobilise massively and wield violence through protest which hits at the economic bottom-line of mining companies. Equally, however, if South Africa's organised labour does not sufficiently start to interact with the realities of 4IR's transformative technologies proactively, it may cede its influence.

To the extent that 4IR technologies affect employment and worker stability, there may be resistance palpable enough to disrupt the implementation of such technologies. The global roll-out of 4IR technologies alone and promises of enhanced productivity and

market efficiencies is not enough to determine its adoption by societies. Rather, the endogenous features of society such as the political-economic climate need to be included within this discussion. In the context of South Africa, the existing political settlement in the mining industry is likely to be influenced by 4IR, but also to influence the process and extent of adopting 4IR technologies.

The effects of technological change, therefore, cannot be taken for granted even in best-case scenarios where capital is available and inputs such as skilled labour and infrastructure are present. Attempts to adopt or transplant technologies will run into social barriers that will be difficult to foresee and understand. Given the proliferation of new technologies in modern society, the debate about the impacts of technology on society will likely continue, but they should focus on contextual accounts that consider the complex societal forces which influence and are influenced by technological changes. The political economy of technological change must take centre stage when analysing the impact of the 4IR on developing countries such as South Africa.

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The Fourth Industrial Revolution (4IR) and its Effects on Public Service Delivery in South Africa

By Samantha Layton-Matthews and Chris Landsberg | Peer Reviewed

Abstract

In recent decades, the Fourth Industrial Revolution (4IR) has added a new dimension to change and has been exponential in its development. It is important to understand its effects in various environments, particularly the opportunities and challenges it brings to public sector functioning, where there needs to be a greater drive towards innovative service delivery. This article explores 4IR within the context of public sector service delivery, focusing on South Africa as a developmental nation. It examines technological advancements of 4IR in line with some of the aims of local government, particularly in its mandate to be more responsive and effective in its service delivery. It also establishes how 4IR platforms are being adopted for effective citizen engagement, which is an essential goal of service delivery within the sphere of local government. It examines some of the gaps that need to be addressed around the essential practicalities required to integrate 4IR effectively and explores the readiness of the general public sector environment to respond to the demands of 4IR. Key factors regarding what is needed to create a more enabling environment for local government service delivery and its prevalent developmental constraints are also discussed.

Introduction

> 'We must develop a comprehensive and globally shared view of how technology is affecting our lives and reshaping our economic, social, cultural, and human environments. There has never been a time of greater promise, or greater peril.'
> —Professor Klaus Schwab

We are living in exponentially changing times where even the nature of change itself is changing. We are considered to be in a new age or revolution of change, and technological advancement is at its centre. Information and knowledge were once limited to libraries, books, and learning institutions; now, they are abundantly available, and almost any question can be addressed via internet search engines such as Google. This new industrial age of technological advancement can be perceived as a wonder, but can also appear overwhelming in its vastness and demands for rapid responsiveness. In recent times, the Covid-19 pandemic has also highlighted how critical technology is in supporting communities, and driving economic progress when standard practices are challenged. The effects of the pandemic have altered how workplaces operate, and have indicated how important it is to be responsive to technological integration in order to function, even on a basic economic level.

In many contexts, the agility factor required for creative and innovative responsiveness to this technological advancement is lacking. This is especially evident in many public sector environments, particularly in developing countries, who experience a critical shortage in resources, high levels of poverty and unemployment, a lack of education and skills, as well as limited access to technology within wider infrastructural and geographical contexts.

Within the public sector, key questions lie in how technology can be harnessed and integrated in visionary, proactive, and cost-effective ways. At the same time, one must also establish how to effectively keep pace with more immediate priority service demands and how to sustain critical developmental needs.

Advances in technology provide for opportunities to enhance institutional practices, systems, and processes; at the same time, there is the need for highly adaptive methods for the effective and resourceful implementation of these technologies. Technology is, to a large extent, shaping how growth and advancement occurs within varied contexts. Thus, service delivery practices themselves are becoming more firmly lodged within the lens of technology. Technological advancement presents opportunities in creating greater access to information, enhanced communication and networks, wider community participation, more capacity for access to goods and services, and a greater opportunity for innovation. At the same time, it also needs to be articulated and integrated into existing service delivery platforms and mechanisms in agile ways. This needs to be done in such a way that technology does not quickly become superfluous, thereby compromising the very service it is meant to support. The alignment of technology and service provision needs to be carefully considered.

Whilst technology can enhance service delivery in its innovative platforms, it also presents many challenges in its implementation. This is especially evident in the public sector environment, with its intricate bureaucracy and its complex structures.

4IR: Overview, Challenges, and Opportunities

The Fourth Industrial Revolution (4IR) is more disruptive in its innovation edges in technological advancement than that of any previous technological revolutions.

The First Industrial Revolution (circa 1760–1840) was marked by the construction of railroads and mechanical production and changed societies in how work was undertaken. The Second Industrial Revolution was marked by mass production—eliminating certain jobs, whilst creating a lot of jobs in other arenas. The Third Industrial Revolution introduced the 'electronic age', which focused more on innovations of technological systems and the integration of varied networks and the 'interoperability of ecosystems' (Mbatha, 2019: 5).

According to Schwab (2016: 37), the 4IR is seeing great strides in developing technologies from 'gene sequencing to nanotechnology, and from renewables to quantum computing.' The amalgamation of these

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technologies is what causes the 4IR to differ from earlier revolutions. We can also learn from previous revolutions that progress in this new era will be proportionate to how society integrates it, and that there is a clear interaction between society and technology (Mbatha, 2019: 4).

Just as with the previous industrial revolutions, it is essential to conceptualise a platform for technological integration for an ‘inclusive society’ (Kaesar: 2018). This requires a radical review of political, economic, and social systems. Further, there is a need to consider all critical environments, both external and internal, to the public and private sectors. This is to ensure that standards are raised and that socio-economic challenges are addressed in different and more responsive ways, and that sustainability is ensured. There also needs to be a radical review in how training and education is undertaken, as skills needs will be vastly different in the future. This in itself needs to be revolutionary (Kaesar: 2018).

The 4IR will affect every country in the world and this raises some significant concerns. According to Schwab (2016: 40), these include:

- Addressing the question of how to harness the opportunity that the 4IR offers. Evidence has shown that the required levels of leadership to understand and leverage the changes in innovative ways are not adequate. This is borne out in reviews of how leaders across the world have responded to the necessity to rethink social, political, and economic systems.
- Reviewing in what ways institutional frameworks are not currently geared for innovative reinvention, and to transition the changes necessary to accommodate such revolutionary innovations that will be brought on in 4IR.
- Reviewing the gaps in leadership and how to establish diversity in their ability to create more communal narratives essential for empowering vast and diverse communities and individuals.
- Understanding the disruptions that the radical changes of 4IR will bring and how it will affect organisations

Thus, it is essential that public sector institutions establish a set of common values and operating principles that inform policy to integrate changes. Such policy must not only create opportunity within technological advancement, but also create effective transitioning towards new systems to effectively sustain service delivery mandates.

Implementing 4IR Within the Public Sector Environment

It is essential to review 4IR within the framework of the evolving Public Sector management paradigms. Over the past two decades, public sector management has come under significant scrutiny in its modes of operation, recognising that there needs to be an evolution beyond traditional administration towards more innovative ways of managing the public sector service delivery. In an era of globalisation, serious challenges have been posed on how the public sector can become more competitive, agile, and innovative in its delivery and citizen engagement mandates.

The Public Management Paradigm, moving beyond the Traditional Administration Paradigm, evolved in response to questions on how governments could become more responsive to its increasing discriminatory citizen demands. It also served to develop a more outcomes-based service delivery approach. However, the complexity of public administration and management have rendered the definitions of what this constitutes as somewhat vague. This is leading to thinking in public sector delivery that goes beyond the New Management Paradigm (NPM), and rather a review of its relationship to ‘public value’ (Bojang, 2021: 1–2).

The concept of government reinvention has been bandied about substantially in the past few decades. It has presented a significant debate, especially within the complexity of bureaucratic government structures and the multifaceted nature of the public sector. In addition, there are also ever-increasing demands for more innovative public service delivery with a more entrepreneurial and business-like ethos. This must be considered within a new era of democracy and what is required for greater citizen engagement (Bojang, 2021: 2).

Essentially, the NPM paradigm focused on several factors deemed pertinent to the public sector environment. This included greater levels of practical management, performance management, output-based management, competitiveness, adopting typical management styles utilised within the private sector, and more effective resource management (Hood in Bojang, 2021: 4). But in recent times, the concept of what constitutes a value chain needs to be considered within the wider ecosystem of public management and 'public value'. According to Bojang (2021: 5), where before the NPM paradigm sought to integrate typical private sector management practices into public sector management, evolving theorists of 'public value' identify and consider the differences that exist between private and public sector management. This emphasises the provision of service as a primary driver in the public sector environment. Political strategies also feature significantly in the implementation of the 'Public Value Paradigm' (PVP). The three primary ingredients to this paradigm include 'legitimacy and support, operational capacity and public value account' and centre on 'services, outcomes and trust' (Bojang, 2021: 6).

It is thus essential to consider 4IR applications and innovations within the context of these paradigms. The latter value paradigm points towards the need for a more transformative and integrated approach of e-Government platforms that can support the delivery of public value. It is also essential to formulate e-Governance policies that provide for effective integrative approaches across the complex and multifaceted disciplines with the public sector institutions. This links into Mbatha's proposition in 4IR thinking on a more inclusive citizen engagement in public sector decision-making and essential functioning around technology, as well as the integration of all the various environments or 'ecosystems' within which the public sector operates (Mbatha, 2019: 4–5).

e-Government as a Driver of Public Sector Delivery and Value Outcomes in the Era of 4IR

Within South Africa, a Presidential Commission on 4IR was established in 2019, recognising the significance and urgency in integrating 4IR into its public service strategy and goals. Within this, e-Government strategies must be considered as essential platforms to support public sector service delivery. e-Government is essentially a set of multifaceted public sector technological platforms used to create and support government structures. These structures also enable service delivery to be delivered in efficient, effective, and accessible ways (Bwalya, 2018: 5). In simpler terms, e-Government is the 'provision of routine government information and transactions using electronic means' (Marche and McNiven in Mawela, 2015: 20). Building on this, e-Governance concerns the ways in which 'decision and policy-making processes may be supported by Information and Communication Technologies (ICTs)' (Mawela, 2015: 20).

In further exploring the relationship between e-Government platforms and e-Governance, it is important to understand that e-Government platforms can become ineffective without agile governance. Evidence indicates that this is a concept that still requires more definition and can be wide in its scope. According to de Oliveira Luna et al. (2014: 134), agile governance can essentially be defined as:

> 'the ability of human societies to sense, adapt and respond rapidly and sustainably to changes in its environment, by means of the coordinated combination of agile and lean capabilities with governance capabilities, in order to deliver value faster, better and cheaper to their core business.'

Within literature theory and in defining e-Government, it is perceived that there is still a lack in 'knowledge integration across disciplines' and this is limiting perspectives on the integrated public sector functioning. It is thus essential to

explore e-Government by considering the nature of government in its essential democratic need of being 'socially inclusive'. It is also necessary to establish what is required to develop a 'systems architecture to ensure the efficient delivery of government services with transparency, reliability and accountability' (Khanra and Joseph in Malodia et al., 2021: 2).

There are a variety of e-Government platforms and these are advancing all the time in the accelerated era of 4IR, building on more simplistic e-Government platforms from the previous decades. 'Intelligence applications' have been especially acquired in countries that have a developmental imperative. Such applications include Big Data to better support information processing and accessibility as a basis of an 'analysis platform'. These are especially useful, for example, in establishing land usage and spatial patterns, determining infrastructural needs, and analysing critical data that inform socio-economic developmental needs (Bwalya and Mutula, 2014 in Bwalya, 2018: 240).

The advent of 4IR has accelerated e-Government platform development and, in addition to advances in 'Big Data' computing, the internet itself has advanced to better support processes that feed into value-based service delivery and decision-making systems. Thus this serves to go beyond the New Government Paradigm and integrate the proposed Public Value Paradigm. This also adds value to intricate and multifaceted necessities in decision-making across many and varied platforms (Bwalya, 2018: 248).

Other e-Government platforms include creating advances in establishing 'Smart Cities', where the capturing of and the access to information is more effectively enabled. This is harnessed around the various socio-economic and developmental goals that need to be understood and implemented (Bwalya, 2018: 250).

Other e-Government platforms include citizen engagement tools such as 'crowdsourcing', which is key in the participative and transparent tenets of governance in its democratic aims. Other new innovations expected to gain traction in the next while to support 'socio-economic value chains' include robotics, self-controlled technologies, 'grid computing' to advance access and better integrate

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infrastructural networks and related data, open data systems around public value, engagement and transparency processes, and research platforms (Bwalya, 2018: 251–259).

Digitisation and integration of varied e-Government platforms is thus essential to supporting the Public Value Paradigm within the goals of public sector service delivery.

Strides are being taken in South Africa to integrate innovation and technology into Public Sector service delivery strategies. For example, in August 2021, the Gauteng Provincial government launched a 4IR innovation strategy within the Gauteng Centre for Excellence. This will serve to build purposeful connections in supporting new businesses with digital infrastructural technologies. It will provide for transparent procurement platforms and also look at ways in which to advance competitiveness through the adoption of technologies. It will also support research goals around 4IR, especially in the area of service. It aims to identify the skills requirements for future digitalisation in work and social innovation. Finally, it will also explore 4IR governance issues and make recommendations for better governance via digital platforms. This is a direct response to the need to understand the implications of 4IR in public sector service delivery that were identified in the Industrial Revolution SA Digital Economy Summit, hosted by the Gauteng government. The strategy will serve to better support citizens in the spheres of youth development,

small and medium businesses, and also for employees within the department (Mailoane, 2021).

A further proactive measure has been taken on the part of the Province of KwaZulu Natal, where the office of the Premier has initiated a digital transformation strategy for 2020–2025. Its strategic priorities lie in digital skilling, information and knowledge management and information security, process automation, systems integration, and government digitisation. It is extending its strategies from cities to villages, adopting a top-down and bottom-up approach, and also takes cognisance of governance structures, monitoring and evaluation, and risk management within all departments (Province of KwaZulu Natal, 2020).

Questions to Be Considered in Implementing 4IR within the Public Sector Context in South Africa

It is preferable to not focus on problems and complex layers that the 4IR presents, although these need to be carefully considered. Rather, it is essential to reframe questions that can lead to solutions for the integration of 4IR to advance service delivery. Some of the wider contextual questions that were posed in the earlier stages of 4IR are still prevalent currently and those that need to be debated include (Kemp in Balkaran, 2016: 6):

- How do we use current technology to help solve challenges?
- How do we shape 4IR and influence it towards service delivery strategies and in the favour of vision realisation?
- What are we doing to catch up and be part of this Fourth Industrial Revolution?
- How can we shift from questions focusing on minimising government failure rather to how government can leverage and maximise innovation?

According to Balkaran (2016: 3): 'in order to create and shape technologies, government must be armed with the intelligence necessary to envision and enact bold policies.' Since work is an essential tenet of human development it is also important to take on the vast socio-economic challenges in proactive ways, and governments can only achieve this effectively by transitioning towards 'techno-economic paradigms' (Zhang et al. in Balkaran, 2016: 3).

South Africa is still in a 'catch-up phase' in adopting proactive strategies and policies to move into mainstream activities in 4IR. Whilst it may seek to leverage this to gain exposure in evolving global developments, realistically the focus in the more immediate future is on achieving competitiveness and the need for inclusive growth (Arnold, 2019).

One of the key drivers in technological integration is a national strategy for competitiveness. This requires significant reviews of what it means to be innovative and a need to drive towards efficiency, without compromising quality. It is about finding shrewd and innovative ways to create value because this is where perceptions of competitiveness are formed.

4IR in the Context of Sustainable Developmental Governance in Africa

South Africa is a developing nation and has critical developmental challenges such as high levels of unemployment and poverty, which have escalated even more during the Covid-19 pandemic. Like many African countries, South Africa is also substantially dependent on developed economies. This has resulted in a majority of the population only engaging in a small proportion of economically-driven vocations (de Wet in Mamphiswana, 2020: 2). The question prevails as to how it can be responsive to the demands of 4IR within its developmental challenges. Although there is a skills shortage in meeting 4IR demands, from a global perspective, governments in developing countries are still being enticed to integrate 4IR (Shava and Hovisi in Mamphiswana, 2020: 3).

Perhaps a lesson can be learned from India, which has explored its rural challenges in 4IR integration, especially in the agricultural sector. India is facilitating citizen engagement and awareness programmes to better support rural inclusive growth more proactively (Lele and Goswami, 2017: 7–8) and has proven that digital platforms can provide for this via 'smart physical systems' and can be used to create more skilled jobs in rural areas, especially in the agriculture, energy, and infrastructure sectors (Lele and Goswami, 2017: 7–8). It is indicating that, through 'pro-rural digital policies', there needs to be a 'bottom-up and

top-down' approach in order to successfully integrate 4IR opportunities (Mamphiswana, 2020: 3).

South African public service delivery has a strong citizen engagement imperative in its local government infrastructure. An advantage of 4IR is that it can speed up services and also create greater accessibility to services. This is advantageous in that it can better influence and form economies in the future and this in itself is opening up new opportunities (Mamphiswana, 2020: 3).

Once again, 'integration' is a key factor. 4IR is affecting all economic sectors and an 'interdisciplinary approach to teaching, research and innovation is now mandatory' (Xing and Marwala in Mamphiswana, 2020: 4).

A few key factors that present challenges for the integration of 4IR and that must be considered in such developmental strategies includes job scarcity. Digitalisation can compound this and make jobs that do exist redundant. Secondly, there is a large skills shortage within the workforce and this is exacerbated in the fast-growing population and limited absorption of the population into the more effective economic sectors. This also reinforces the recent strategy of the Gauteng Provincial Government to look at digital strategies that can better support the small and medium market sector and youth development. Africa is also suffering from 'deindustrialisation', which is limiting its competitive status globally. This, along with a lack of infrastructure, as well as bias and discrimination from developed economies, is creating challenges for effective 4IR transformation and integration (Mamphiswana, 2020: 8).

South African Readiness for 4IR Integration

As mentioned, the 4IR revolution is critically hindered by existing developmental issues, especially in Africa. Within South Africa, the greatest challenge is the lack of 'adequate viable resources', not only in digital technologies and infrastructural support, but also in its digital illiteracy. This is causing inequalities where digital solutions are implemented, as it is widening the skills divide by side-lining the illiterate (Olaitan et al., 2021: 2).

However, South Africa, in questioning whether developmental realities and frameworks are reviewed and integrated, is also measuring its readiness for 4IR integration (Olaitan et al., 2021: 4). From this, it is evident that one of the greatest needs lies in the investment of skills upliftment and a 'telecommunications infrastructure' that supports transparency and openness in the 'socio-institutional component of the 4IR' (Olaitan et al., 2021: 3).

The frameworks under review have been integrated to monitor the country's capabilities for 4IR integration. This focuses on the structure of the 'drivers of production', the 'technological and social capabilities' and, thirdly, the country's 'digital capability' for greater competitive advantage (Olaitan et al., 2021: 5).

Within these readiness frameworks, it has been established that interventions such as Artificial Intelligence could stimulate 10% to 30% productivity in labour within the manufacturing sector in the next ten years. It is perceived that South Africa should transform more towards a knowledge-based economy on account of its rapid 'deindustrialisation' (Olaitan et al., 2021: 6).

The 'Viability' framework has revealed that the Covid-19 pandemic has escalated its already existing economic crisis. This means that it reduces the viability of South Africa in adopting new technologies and impacts 4IR readiness and responsiveness. This is further hindered in the lack of skills and literacy levels (Olaitan et al., 2021: 6).

Lastly, in the 'IT infrastructural' assessment framework, it has been established that South Africa still needs

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to expend much on digital platforms, even in simple 'universal broadband coverage', especially in local communities. This is also exacerbated by the Eskom infrastructural challenges that have led to continual load-shedding (Olaitan et al., 2021: 10).

Further factors that need to be considered are developing strategies that are 'context-specific', with the design of policies for innovation within the Sustainable Development Goals (SDGs) and a review of the capacity for innovation (Manda and Dhaou, 2019: 250).

Integrating 4IR Into the Local Government Context in South Africa

South Africa has a strong drive towards citizen engagement, participation, and transparency in its local government structures. This is therefore an important conduit in driving 4IR advancement. It is a space in which to integrate e-Government platforms to eradicate some of the developmental challenges that prevail.

According to Mawela et al. (2017: 149), municipalities are important in accelerating e-Government programmes for all stakeholder engagement—including, amongst others, business, local communities, non-governmental organisations, and traditional leadership structures. It thus supports a cultural ethos and systematic governance process for local government goal achievement. It can allow for more accessible and engaging governance, supporting the Indian model of the bottom-up-top-down approach and the integration of the multiple environments in values-based ways.

A recent research project was undertaken to determine the effects of 4IR on local government, serving to inform a strategy for local government to support 4IR integration. It has reinforced various other research projects undertaken in that 4IR is adding to inequalities in a digital divide within developmental challenges. Whilst it also indicated that certain job roles would likely become more automated—such as accounting, administration, ballot-voting counting, and internal auditing—other roles are anticipated to grow. Such roles include the appointment of more specialists in digital transformation, developers and facilitators of business, automation of processes, and digital security monitoring (LGSETA, 2020: 4).

It is anticipated that 4IR does create an opportunity for South Africa to better optimise socio-economic development. The primary area of significance within local government will lie in its strategy and policy formulation, its citizen engagement, and service delivery focus. Further, its organisational culture, human resources, risk and change management systems will also be important considerations for 4IR integration (LGSETA, 2020: 5). Local government is also key in supporting sustainable development goals on a very practical level and integrating e-Government is critical to achieving this.

Within its service delivery mandate, priority areas for the integration of transformative digital support systems mean a review of services such as water and electricity supply, waste management and those governance structures that require less resources, but can link up more effectively in integration (LGSETA, 2020: 83). The Integrated Development Plans (IDPs) of municipalities identified need to take cognisance of the broader strategies of the goals and objectives for 4IR integration (LGSETA, 2020: 84). To date, there is a lack of proactive integration of 4IR into IDPs, and digitalisation is still treated in isolation of other programmes, projects, and functions. The research recommendations point towards a policy-oriented focus to get municipalities to better encompass technological strategies in IDPs (LGSETA, 2020: 92). Some key priority areas that need to be more proactively addressed include the enhancement of 'revenue collection' systems and processes, Customer Relationship Management (CRM) systems, and communication technologies to expedite payment systems. Further, there is a need to improve customer-centre systems and expand fibre optics systems for more widespread and accessible communications systems (LGSETA, 2020: 85).

In line with this, the research recommendations highlight a need for local government to integrate and develop e-Government more specifically for greater service delivery efficacy and accountability. This is also needed to better business culture and practices. These need to move beyond the constraints of previous red-tape and inefficiencies. Processes such as licencing, obtaining digital data and records management

are already becoming more efficiently handled via digital platforms, although still need refinement. A greater integration of e-Government platforms at local government level will ensure a more proactive modernisation of governance, innovation, and citizen engagement. Greater stakeholder awareness and interaction must be implemented to better support effective 4IR integration (LGSETA, 2020: 91).

Conclusion

4IR has brought about disruptive and rapid technological changes that are shaping functional services, offerings, and solutions. These exponential and multifaceted changes are forcing a more competitive agility in order not only to survive, but to remain on the innovative edge of change. These changes are not only technologically-centred, but also human-centred because they prompt serious reflections about how humans are engaging and responding to the world in which they live, urging us to find new ways to integrate the changes that have happened and will still happen over the next decades.

In line with this, the public sector must allow for greater innovation in technological integration to better support its service delivery and citizen engagement. It needs to build on legislation and regulations to maximise technological advancements in the various government functions and contexts.

South Africa is still playing catch-up with the rest of the world in integrating 4IR. Whilst the implications of the changes of 4IR are unprecedented and far-reaching, South Africa's focus in integrating 4IR needs to, over the next while, be primarily driven for competitiveness and inclusive growth. This is especially the case since it is a developing country with high levels of unemployment, limited skills levels, and a struggling economy—all of which have been further exacerbated by the Covid-19 pandemic.

South Africa has in place key frameworks to evaluate its readiness for 4IR integration. These frameworks point towards it not being ready from capability, social, and infrastructural perspectives. Within local government, there is great potential and opportunity to integrate 4IR more proactively. However, it has been established that municipalities are not adequately integrating broader 4IR strategies into their IDPs. This is a concern in that digitalisation still remains isolated rather than integrated in essential local government strategies, functions, and disciplines. Since local government is a priority in 4IR transformation to support essential public service delivery, it needs to become more responsive in integrating these strategies. This is especially important when considering that governments are in a constant state of reinvention and going beyond the New Government Paradigm (NGP) towards a Value-based Paradigm that questions what value means in service delivery to citizens. Local government is especially important in addressing local economic development and is a key driver in eradicating developmental issues. Thus, it is essential to prioritise 4IR on a very practical level, looking at key programmes and projects where e-Government can better drive developmental mandates.

Delivering on 4IR strategies is not just about driving new technologies, but about creating an ethos, culture and environment to support new technologies. Agility and innovation are essential to this and transformative goals need to be carefully considered in bringing about technological change that aligns and supports broader strategic and developmental goals.

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Conclusion: Towards a General Theory of Technology and Politics?

By Bhaso Ndzendze and Tshilidzi Marwala | Opinion

Abstract

This article reviews the insights made throughout this volume by the contributors and notes the myriad ways the articles have advanced our knowledge, on their own and in the aggregate. It also reviews the potential for further incorporating 4IR technologies into the political science methodological arsenal and making a case for theory-building inquiry on account of, and through, the emerging technologies as the next frontier in this expanding discipline.

It is nearly impossible to conclude a special issue such as the present volume; one which, as it itself acknowledges throughout, is studying a phenomenon at its relative dawn and whose implications are only at an early phase. Yet this special issue presents us with many critical observations that deserve reflection, stock-taking and emphasis before, as it were, we 'proceed' as a discipline. Robyn Williams, Lisa Otto and their contributors have weaved a timely contribution to the burgeoning literature, both scholarly and practical, of the 4IR technologies in political science and IR, with all their attendant sub-disciplines, with just as many questions raised as answers provided.

Well-executed, this volume begins with Africa's history of contributing meaningfully to past technological transformations on a major scale. Going beyond some of the by-now-familiar observations and sentiments which downplay the continent's agency – for example Inikori's (2002) brilliant work, but which nonetheless notes the mainly passive contribution through African slavery and minerals for England and the Americas – this work showcases how Africans were in many ways at the forefront in the story of human ingenuity, how that is still the case today and how this can be nurtured. One encouraging feature in the preceding number of years has been the liveliness of the debate, with many positing the notion of 'leaping' and others sceptical of how possible this is. Yet both the proponents and the sceptics have one feature in common: they want an Africa acting on the basis of agency, without reliance, as was the case for much of the preceding several decades, to mimic one model or another. Though still taking inspiration from many models – as the PC4IR report notes, starting relatively late can be an epistemic advantage – the emphasis has been on homegrown approaches and purposive engagement with the outside world that is rooted in African interests. Added to this, there is scope for reflective exercises on the 4IR approaches of other states, allowing for a more nuanced African approach. Far from being the preserve of major powers (though they do certainly have the edge), the 4IR is universal in its scope, if not in its benefits. Indeed, change is inevitable, and innovation has consequences, as Williams and Otto note in their introduction to this volume: 'Throughout history we have witnessed that technological trends have often impacted domestic politics and state relations.' Many of these impacts were the result of earlier years of foundational work, whose outcome could never have been known to their originators (e.g., the nuclear bomb for early 20th century theoretical physicists, which killed hundreds of thousands in Japan, and forever endowed IR thought and parlance with the concept of 'mutually assured destruction'). Africa is readier now more than at any previous point in its history to take a seat at the table, insist on optimal outcomes and to be an active mover and beneficiary of an industrial revolution. Current efforts to ensure that the African Continental Free Trade Agreement (AfCFTA) is 'digital-ready' as well as the AU's African Digital Transformation strategy are cognizant of this, and ensure full participation not just between countries, but also within countries. One of the threatening trends is unevenness – in uptake, regulatory mechanisms, and culturation. All these require harmonisation, yet distressingly the majority of countries on the continent do not have legislation on data, blockchain, and general guidelines on AI. Elsewhere we have also written about the opportunities in the realms of culture, heritage, language and psychology (Marwala, 2020; Ndzendze and Marwala, 2021; Ndzendze and Card, 2021).

Yet there is much that the continent can both benefit from and contribute to. From an ethical standpoint, African scholars, for example, have shaped guidelines on drone warfare (Heyns, 2017: 46) and AI in healthcare (including one of the authors [Marwala]; see WHO, 2021). First and foremost, the 4IR is an ideational phenomenon. All policy and commercial activity emanates, and/or at leans gains some form of legitimacy, from how we understand society and actors within it – from the role of the government, to what merits taxation, to ideas about what is worth preserving, as well as notions of progress. Africa has as much of a role to play as any other region in this thinking through about the future (see for example JM Lamola's [2021] demonstration of the Eurocentric roots of dystopian expectations about AI and how these have found their way to Africa). This is the crucial importance of the social sciences; a point made material by this special issue.

This collection is characterised by a focus on the empirical and observable, which in turn enables a focus on the future. This is evident, for example, in the assessment of digitally-empowered warfare on Africa (whose loci of focus are normally US actions in the Middle East), AI as a tool for public diplomacy

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(using the troubled Iran-US relationship) and the impact of 4IR technologies on the mining sector, and public service delivery. They thus traverse the various levels of the political experience from the local to the national, and the international. These are matters which should have our collective and simultaneous focus as we enter into the 4IR, which, unlike previous industrial-scale changes, happens at a time of much political openness (though that too is on the decline, thanks in part to the rise of these technologies [Kaiser, 2019]).

Williams and Otto rightly observe that academic work on the intersection between 4IR and political processes, whether domestic or global in scope, is nascent and growing. Further studies are invited. There is much to be done. Some of this work begins with synthesising many of the elements touched on in the preceding articles and the literatures they touched on. These are vast, and hint at the magnitude of the task ahead for the scholarship. This includes synthesising domestic and foreign audiences, economic growth, innovation policy, and security thinking. A conscious theorisation, perhaps ambitiously driving towards constructing a general theory or typological theory (i.e., the emergence of only a handful of theories with various 'turfs') of technology and politics, is possible however far ahead it is from being achieved. The latter is more likely out of the two, as scholarship in political science and IR tends to operate in paradigms operating from different axioms and ideas about what objects or entities merit study.

It is true that political science begins in critique and is founded on dissent, but the tools for such theory-building perhaps exist in this realm (i.e., the technology-politics nexus) than on any other question. Indeed, it is true that what constitutes political science and international relations is not so clear-cut and that these are shorthand for a dozen sub-disciplines, including comparative politics and public policy (or government) studies on the one hand, and international political economy, foreign policy analysis, and security studies on the other. This is not to mention the various other terrains in which political scientists encounter scholars from other worlds, including sociology, economics and law, demography and migration studies, development studies, and international law. Our own anticipation, put forth in our upcoming book Artificial Intelligence and International Relations Theories (2022), is that the field will first experience a further splinter (including splinters within theoretical paradigms) before coalescing towards a common set of assumptions and broad conclusions on key issues. But there is much ground to be broken from the methodological standpoint. Politics and IR scholarship can embrace the 4IR technologies, if not the concept of the 4IR itself (about which there remains some much-needed hesitancy and critique [1]). Whatever name we give the phenomenon, it is undeniable that seismic changes are taking place and changing patterns of manufacturing, consuming, destroying, combatting, and other integral components of the human experience and international interaction. For political science, the opportunities lie in the areas of deep learning, natural language processing, and Big Data. This includes their incorporation into research design and analysis, for which there is some track record through the digital humanities (DH), though this has had a very modest uptake in political science. There is much on offer, from both a qualitative and quantitative approach.

NLP, for example, can be utilised for the benefit of discourse or thematic analysis at a mega scale. On the other hand, Big Data can yield insights. This goes not only for contemporary or future events, but also for the past. Indeed, the latter is the mainstay and may be termed the 'source code' of political science and IR theorisation. It is from here that case studies are drawn, and it is history which stands as a common reference point. Indeed, the field understands its proto-origins

as being marked by the text of Thucydides' History of the Peloponnesian War in which the Athenian general/historian, admirably, sought to tell the events of the conflict as they were (despite his being on the losing side) and deduce general patterns from them. Developments in historical studies, for example, have seen AI being used to unlock previously unreachable or obscure details about the past. For example, Yannis Assael, a DeepMind research scientist, in 2019 published a paper in collaboration with Oxford University historian Thea Sommerschield on a deep learning model called 'Pythia,' which they designed to 'fill in the gaps' currently missing from ancient Greek inscriptions (see Ndzendze and Marwala, 2022: 11). These developments, in addition to perhaps removing linguistic barriers and expanding collaboration horizons in research, will have a considerable impact on how we think about periods we had largely deemed 'closed'. The gaps that existed will be largely accessible and known.

With the change in the source code, there is bound to be corresponding change in the conclusions reached. What are the hypothetical implications of new discoveries affecting our fundamental understanding of the Peloponnesian War, Ancient Rome, the Sanghor Empire, the British and Dutch East India trading companies, and colonial outposts, for instance, on theory? Would the fundamentals be rethought? Is there a mechanism for doing so in a field-encompassing manner, rather than within its theoretic silos? There is some promise of this, most notably through the methodological pluralism and theoretical dialogue encouraged by Bennett (e.g., 2013) and many others in addition to the growing use of mixed methods research in the fields' most prominent periodicals and conferences [2]. This has the necessary corollary of new forms of education with the goal of training political science and IR scholars in the various fields, along with interdisciplinary collaboration. Williams, Otto and their contributors have contributed immensely to this trajectory.

Notes

[1] This concern partially arises out of the corporate interests undergirding the narrative and is justified not only because of present-day 'big tech' commercially exploiting data insights to exacerbate consumerism (though this too is important), but also for historical reasons. IBM, for example, has an uncomfortable history of contracts with Nazi Germany to use its cutting-edge data-sorting technology to systematize its campaign of Jewish extermination (Black, 2012).

[2] Our review of papers using either method in leading (high impact factor) IR journals (European Journal of International Relations, International Affairs, International Organization, Journal of East Asian Security and International Affairs, Journal of International Relations and Development, and the South African Journal of International Affairs) in recent years, for example, found that there is a greater prevalence of qualitative methods over quantitative ones, and all of these having mixed methods as their second-most common research design (Ndzendze and Marwala, 2022: 37–38).

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Beyond Sub-Imperial War, 'Blood Methane', and Climate-Debt Denialism:

South Africa's Pro-Military Lobby Risks Worsening Multiple Injustices in Northern Mozambique

By Patrick Bond | Opinion

Abstract

South Africans really must confront two conjoined crises that affect both the majority here, and the vast majority next door in Mozambique. First, the climate catastrophe's amplification due to rising dependency upon Liquefied Natural Gas (which is more than 80 times more potent than carbon dioxide in coming decades), leaving our neighbour as the world's fourth worst-affected country since 2000, at a time when South Africa is already the third-highest greenhouse gas emitter per person/GDP among major countries. Second, the deplorable trajectory of Pretoria's sub-imperialist adventurism, now represented by the army's deployment in Cabo Delgado province in order to promote gas drilling by multinational corporations. In part because of the corrupt, repressive Maputo government, many Southern African civil society organisations regularly appeal for an end to both Mozambique's 'blood methane' war and, behind it, the fossil fuel extraction that amplifies the climate crisis. The innovative demand is for Global-North payment of climate reparations to victims of extreme weather, plus financial compensation so as to leave the world's fourth-largest gas ftield unexploited. Against these arguments and movements, there is a vociferous South African lobby—which can be termed 'laptop bombardiers'—ignoring or brazenly dismissing both crises: climate and the danger of further sub-imperial mishaps. It is long overdue to confront this lobby by objecting to damaging fossil fuels and militarism, and call it to account for the vast ethical lapses in their analyses.

Introduction

On 22 December 2021, 31-year-old Tebogo Radebe's life ended in Cabo Delgado, Mozambique. He was a corporal in the SA National Defence Force, and was a tragic casualty—fighting within the regional Southern African Mission in Mozambique (SAMIM) deployment—along with a few other soldiers from the region and from the Rwandan army. Also perishing in battles involving SAMIM since mid-2021 have been scores, if not hundreds, of Mozambicans, mainly Islamicist insurgents, but also innocent bystanders caught in the cross-fire. The destruction since late 2017 has included more than 800,000 displaced people and 3,000 fatalities, plus extremely high ratios of infrastructure and crop damage.

There is a sub-imperial context to this battle ground that must be openly acknowledged, partly because all public-intellectual commentary and certainly all scholarship really should include acknowledgements of both the worsening climate catastrophe in the region, and the deplorable power relations between multinational Big Oil corporations (and allied Northern governments), South African elites (including its largest oil company, Sasol), and Mozambique's ruler on the one hand, and people and planet on the other. Yet a group of South African fossil-militarist commentators, overwhelmingly drawn from a certain generation and race group, seem to have no qualms about downplaying either the climate implications of exploiting the world's fourth largest gas field in terms of climate, or the sub-imperial ethics of regional armies intervening to prop up multinational oil companies, as they incessantly drum-beat in favour of war.

University of the Free State political science department chair Theodor Neethling (2021a) is just one of many scholars to promote both Liquefied Natural Gas (LNG) and military intervention:

> 'The LNG projects in the northern Cabo Delgado area, with major gas reserves attracting an estimated total investment of more than $50 billion, represent a silver lining of hope for this impoverished country in terms of major international investment and revenue generation. Observers often assert that this could pave the way for the country to become Africa's Qatar or even Dubai from 2024 onwards... the LNG industry in Mozambique could revolutionise the economy of the country.'

The 'revolution' is in good hands, claims Neethling (2021a):

> 'At government level, the Mozambican head of state, President Filipe Nyusi, plays a key role in the country's LNG sector. In fact, he was elected 2020 Person of the Year by Africa Oil & Power, the African continent's leading investment platform for the energy sector. This prestigious award is presented to individuals who are considered exceptional and who display true leadership and innovative thinking in the steering of their countries or organisations to the forefront of the global energy sector. Thus, a lack of political commitment to the LNG sector does not seem to be an issue or risk in the development of the LNG sector in Mozambique.'

Who will defend the fossil revolution—and especially the expensive new Cabo Delgado LNG investments by Total, ExxonMobil, ENI, Galp, and China National Petroleum Corporation—and with it, Maputo's gallant revolutionary leader against rising Islamic terror? Though Nyusi and his close allies are, in reality, a corrupt, brutal tyranny (Norbrook, 2021), Neethling is enthused about several armies marching to the rescue: 'On the positive side, an agreement was reached in June 2021 by the leaders of the Southern African Development Community (SADC) to deploy forces from the regional organisation in Cabo Delgado to assist the government of Mozambique in its fight against the insurgents.'

Questions arise:

- What assumptions of Neethling's deserve questioning, and what indeed are the roots of this way of thinking and arguing?
- Why would climate dangers to Mozambique's extremely vulnerable coastline, inland infrastructure and agricultural land be completely ignored, when reporting on the world's fourth-largest source field for LNG—made up mainly of

- methane, whose climate-destructive potency via extraction, processing, storage, transport, and combustion is more than 80 times worse than CO2 (the main cause of the climate catastrophe), in the coming (critical) two decades and 25 times worse over the coming century (Stanford University, 2022)?
- Why is the climate import of this gas identified by Neethling merely as an economic (trade-related) risk, insofar as he correctly notes that Western sanctions on imports from countries relying on high levels of greenhouse-gas-sourced energy are due to begin in 2023—but with no reference to the cyclones, floods, droughts, and other damage that have made Mozambique the world's fourth most adversely affected country from climate change this century (ReliefWeb, 2021)?
- And how, in this analysis, can the SADC leaders' own abundant military abuses—especially by South Africa's troops in the region when protecting other multinational-corporate extractive industries, but also other armies' brutal actions against citizenries in Zimbabwe, Eswatini, and Angola—simply go unremarked upon?

Neethling and others in this tradition are genuinely playing with fire, and their lack of rigour and ethics are yet more glaring—being white, apartheid-era beneficiaries of an extremely carbon-intensive economy whose military's sub-imperialist role included not just repressing local democrats, but defending a crime against humanity. That background really requires an extra level of critical introspection not apparent in their recent commentary.

Sub-Imperial Cheerleaders

An anonymous analyst at the Texas-based political consultancy Stratfor—a firm referred to by Barrons as a 'shadow Central Intelligence Agency' (Laing, 2001) and whose main database was exposed by WikiLeaks in 2012—assessed South Africa's long-term sub-imperialist fusion of economic interests and regional military prowess:

> 'South Africa's history is driven by the interplay of competition and cohabitation between domestic and foreign interests exploiting the country's mineral resources. Despite being led by a democratically-elected government, the core imperatives of South Africa remain: maintenance of a liberal regime that permits the free flow of labor and capital to and from the southern Africa region, and maintenance of a superior security capability able to project into south-central Africa.' (Stratfor, 2009)

Over the subsequent dozen years, the war-making capacities of the South African Defence Force (SANDF) deteriorated substantially, even as it was called into service in several African missions. The army's performances in south-central Africa—as well as at home—were open to various forms of criticism, not least that in a democratic society, the merits of sending troops abroad to risk their lives on behalf of opaque but plainly corrupt ruling-party players and multinational corporations should be subject to social debate. In spite of the objectionable—often self-destructive—manner in which SANDF forces were deployed in, most notably, the Central African Republic's capital Bangui in 2012–13 and the mineral-rich eastern Democratic Republic of the Congo for much longer, and in spite of continuities associated with sub-imperialist violence dating well before 1994, the regional-militarist lobby is ascendant.

This is easily observed today by considering Mozambique's 'blood methane' war. (The term recalls the Zimbabwe Defence Force's role in Manicaland's 'blood diamonds' conflict: on behalf of Chinese and Israeli capital and the Mugabe-Mnangagwa regime's generals, hundreds of local working-class troops killed hundreds of desperate artisanal miners in 2008 so as to evict them from the Marange fields they had farmed for generations [Maguwu, 2013].) South Africa's lobby includes a highly-vocal, well-connected militarist intelligentsia, some of whom are consultants to the local Military Industrial Complex—though this conflict of interest is rarely disclosed in public commentary.

Many contemporary security operatives and promoters of sub-imperial extractivism date to apartheid-era service (and indeed many are male with Afrikaner surnames, and served in the military prior to 1994). In their analyses of the 2017–21 Cabo Delgado war theatre, there was only occasional, slight hesitation by sub-imperial-inclined think tanks, journalists, and commentators when making the case for armed intervention. Some were slightly

more reserved, including the International Crisis Group and a few other NGOs which requested both military and humanitarian aid, suggesting the need for more sophisticated relations with the armed forces of ex-colonial (Portuguese and British) plus other imperialist armed forces. Most of the vocal commentariat, though, proved unable to grasp the human costs of war, were uncritical of multinational corporate arrangements with Mozambican elites, exhibited no climate consciousness (either of cause or effect) and were, finally, subtly Islamophobic.

These advocates of militarism were given an opening in mid-2020 when South African foreign minister Naledi Pandor reconfirmed Pretoria's sub-imperial agenda in no uncertain terms. Pandor (2020: 12) testified to her parliament that a 'great opportunity exists for South Africa to import natural gas from Mozambique, thus the security of Cabo Delgado is of great interest to South Africa and her energy diversification strategy. South Africa's security agencies need to enhance their capacity.' Notwithstanding her open call to fuse fossil-capital dependency with military sub-imperialism, that security strengthening wasn't likely to happen under conditions of austerity, as conditions deteriorated over the subsequent seven months. Indeed, SANDF's capacity to purchase equipment and sustain personnel fell much more rapidly as a result of Treasury's 2020–21 budget cuts, as well as a surprise mid-2021 deployment when the army had to police sites of unrest within KwaZulu-Natal and Gauteng provinces during a week of rioting, widespread looting, and police incompetence (Africa Commission, 2021).

Nevertheless, the potential that South Africa would benefit from Cabo Delgado gas allowed war-drumming to thump ever more loudly throughout the most influential local media in 2021, periodically amplified by Energy Minister Gwede Mantashe's comments favouring import of Mozambican gas (Omarjee, 2021). The beat emanated most consistently from South Africa's two main metropolitan areas, home to the Pretoria-Midrand-Johannesburg elite-regionalist intelligentsia (foreign policy specialists, scholars, journalists, and researchers), and the Stellenbosch/Saldanha-Cape Town military-strategic zone (with Potchefstroom an important Old School outlier).

This network represents South Africa's version of 'laptop bombardiers.' That phrase emerged to capture the spirit of mid-1990s U.S. intellectuals who advocated carpet-bombing Serbia. It was coined by Simon Jenkins in The Spectator but popularised most by Los Angeles Times columnist Alexander Cockburn (1994). The latter witnessed the debate about Yugoslavia's tragic dismembering becoming 'one of the most astonishing displays of high-minded warmongering since the cream of Europe's intelligentsia of the left cheered their respective nations into the carnage of World War I.' The analogy stretches today to the squad of reinvigorated sub-imperialist boosters operating from the main South African geopolitical 'think tanks' (i.e., places where people are paid to think, by the people who control the tanks).

These analysts advance the argument made by Pandor (2020), namely that if South Africa's state managers consider Mozambique's Rovuma Basin gas 'of great interest' for an 'energy diversification strategy,' then the corresponding logic is, 'security agencies need to enhance their capacity.' To that end, the most prolific pro-military commentator in Africa, Jane's Defence Weekly correspondent Helmut Heitman, made a similar nationalistic energy-security case in 2021: it is 'purely selfish self-interest for us to try and stabilise at least our region' with the SANDF intervention he favoured. This was in part because of the insurgency's potential to 'place at risk Cahora Bassa hydroelectric power station. It places at risk the gas fields from which we now draw gas. In fact if you look longer term, we need the gas fields in Cabo Delgado as well, because the gas fields we now use [i.e. Sasol's offshore central Mozambique, at Temane-Pande] are running down' (SA Broadcasting Corporation, 2021).

To illustrate the upgraded security required for transferring gas from Cabo Delgado, the proposed African Renaissance Pipeline to Johannesburg was greeted with enthusiasm in the mid-2010s, although it became a pipe dream once the insurgency began. To avoid shipping, truck and rail traffic when exploiting the Pande gas fields starting in 2004, a 900km pipeline was built, crossing into South Africa at Lebombo-Komatipoort. The route begins at the Temane LNG facility (near Vilanculos) in the middle of Mozambique and ends in Secunda, where gas is squeezed into liquid petroleum at the single highest

greenhouse gas emissions point-source in the world. Could an extension twice as long be built northwards to Palma? Even without civil war prevailing, maintenance of such pipelines is arduous, and as Bloomberg reported in October 2020, on much more secure South African terrain, 'Transnet Pipelines has had over 80 incidents of fuel theft this financial year that involve tampering with infrastructure,' mainly to bunker stolen oil (Burkhardt, 2020).

Yet South Africa's main opposition party militarist, Democratic Alliance Shadow Minister for Defence Kobus Marais, stressed precisely such direct importation (i.e. by pipeline not ship) when speaking to Cape Talk a few days after the Palma attack:

> 'South Africa most certainly do have a direct interest in what is happening in Cabo Delgado. There are South African mining companies that is operating officially with all the necessary authority in that area. It is rich in minerals and gemstones and then obviously the whole LNG industry. South Africa has got major investments in terms of construction, providing construction material, maintenance, etc there. Also remember we are already getting LNG from Mozambique to Sasol. And then there is the possibility of getting something like that directly to Gauteng from Cabo Delgado. So we have to become involved.' (Marais, 2021a)

Moreover, into a vacuum like Mozambique's war zone, there may wander other self-interested elements from the West whose oil firms are at risk. Hence for Pretoria to not intervene, Marais (2021b) continued, would be 'unsustainable, unaffordable, and indefensible from a foreign policy perspective. Although the USA, France and Portugal all currently have a presence, it is not ideal for the region not to be part of any stabilisation force.' In the same spirit, Neethling (2021b) advocated 'South African military support to stabilise Cabo Delgado and restore law and order in the short term. Wider international support might even be necessary,' in part because 'Sasol has invested heavily in gas exploration projects since 2014.' Francois Vreÿ (2021), Emeritus Professor of Strategy at Stellenbosch University's Saldanha-based war college, was even more frank about multinational corporate beneficiaries: 'The impact spilled offshore as gas companies placed extensive foreign infrastructure development for the energy sector on hold. Rebuilding the confidence needed for the gas industry to resume activities is a major incentive to get the insurgency under control.'

Suave Sub-Imperial Narratives

It is easy to follow the logic of Stratfor's (2009) vulgar-Marxist argument here, namely that the SANDF has to become involved in the blood methane struggle—ideally in explicit alliance with the West—so as to back up South African capitalists' investments. If Marx's simple dictum that the state is essentially the 'executive committee of the bourgeoisie' really does apply, then some of these commentators seem entirely comfortable with crude, profiteering self-interest as justification for such blatant sub-imperial intervention. However, there are much more suave ways of selling South African involvement in this conflict, which is where the laptop-bombardier intelligentsia becomes important.

From the same generation (and ethnicity), Armed Conflict Location & Event Data Project analyst Jasmine Opperman was hopeful the imperial-sub-imperial combination might actually work: 'a foreign/regional joined force with a streamlined command and control can shift the momentum away from the insurgents... It is an insurgency that cannot be viewed, and must not be regarded and underplayed, as not only a risk to Mozambique but also the region" (Essau, 2021). That particular part of the narrative—that the insurgency

> "Yet genuine concern about Islamic-terror contagion is just as easily a narrative to not introduce troops into northern Mozambique, so as not to kick the hornet's nest and potentially be met with a backlash elsewhere. As Opperman (2021) put it: 'The problem we are sitting with is the Islamic State threat directed at South Africa if they should get involved in Cabo Delgado, and that threat must be taken seriously. We know we have Islamic State disciple figu es on home soil' (le Roux, 2021)."

will spread, not just into Tanzania where conditions are supposedly ripe, but perhaps to Johannesburg-Pretoria, to Cape Town and to Durban (where in each there are large Muslim populations)—could be based upon paranoia or justified fear. It could also be a ruse to promote militarism.

Yet genuine concern about Islamic-terror contagion is just as easily a narrative to not introduce troops into northern Mozambique, so as not to kick the hornet's nest and potentially be met with a backlash elsewhere. As Opperman (2021) put it: 'The problem we are sitting with is the Islamic State threat directed at South Africa if they should get involved in Cabo Delgado, and that threat must be taken seriously. We know we have Islamic State disciple figures on home soil' (le Roux, 2021).

Thus, the second component of the pro-intervention narrative is that if SADC doesn't step in, then the U.S. or other foreign interests will. Opperman referred to the new administration of Joe Biden: 'There are clear foreign agendas at play... This is old wine in an old bottle with a new label... The US is merely going to aggravate the situation' (le Roux, 2021). Would the U.S. military be able to defeat Al-Shabab? To prosecute a bush war against insurgents of this sort will be difficult, as the fighters are apparently able to blend in and out of the dense Cabo Delgado terrain. After more than four years of fighting there were only a few prisoners taken, with no apparent Mozambique army successes in capturing leaders or permanently retaking guerrilla bases, though the main coastal town was wrested back from the militants' control by mid-2021.

Given the Mozambican army's appalling record, a careful but nevertheless militaristic approach was advocated by the International Crisis Group, a network established in 1995 by U.S. and British diplomats which 'aspires to be the preeminent organisation providing independent analysis and advice on how to prevent, resolve or better manage deadly conflict.' It was established by Finnish and Australian sub-imperial leaders Martti Ahtisaari and Gareth Evans after both played significant roles in the South African and Namibian elite transitions from apartheid to neoliberal democracy. With access to well-placed (always confidential) imperialist sources of information, its analysts remarked with confidence:

> 'To tame the insurrection, Maputo needs to use force, with bespoke assistance from outside partners, and to carefully address underlying grievances... Mozambique's Western partners say they want to help but their diplomats say their capitals will be reluctant to supply materiel to the military without the institution going through significant training and reforms... A heavy deployment of regional troops unfamiliar with the local terrain may not be necessary. Instead, Maputo should welcome bespoke African and international assistance to support its own special forces, who are receiving training primarily from a few Western partners. It should task these special forces to spearhead restricted military operations to contain and then degrade Al-Shabab.' (International Crisis Group, 2021)

Indeed, another narrative common to centrist research agencies and NGOs acknowledges that without addressing socio-economic grievances, the necessary military suppression of Al-Shabab will not resolve the local tensions. Diverse sources of regional power and humanitarian aid will be required, according to SA Institute for Security Studies commentators Jakkie Cilliers, Liesl Louw-Vaudran, Timothy Walker, Willem Els, and Martin Ewi (2021). For Opperman: 'We don't have a choice. We cannot let the ISIS or an international terror group direct our foreign policy, but we also have to apply caution here. We cannot simply deploy soldiers. That will not solve the problem' (le Roux, 2021).

Setting pro-intervention advocacy aside, by mid-2021 several genuine dangers associated with further armed incursions into Cabo Delgado were obvious. One was failing to incorporate the disgust that local residents had for the faraway Maputo government, especially the army and also mercenary allies. The latter include Russia's Wagner Group, and South Africa's Dyck Advisory Group and Paramount Group. The two former mercenary companies had committed countless, blatant atrocities (Sauer, 2019; Hanlon, 2021; The Economist, 2020). In turn, a related danger was an inappropriate delegitimization of the insurgents, by underestimating the degree to which socio-economic desperation and anger created genuine roots for their base-building. A third obvious danger was completely

ignoring the role of the climate crisis in exacerbating both the roles of victims (cyclone and drought victims) and villains (Big Oil) in Cabo Delgado.

The pro-intervention analysts themselves are thus guilty (in varying degrees) of denialism, defined as taking three forms by Stanley Cohen (2001): whether literal (e.g. in disputing the local factors, thus assuming that regional and Western troops can solve the problem as it were merely surgical 'degrading' the insurgent enemy); interpretive (e.g. in downplaying the socio-economic and ecological factors); and implicatory (failing to acknowledge the need to leave the fossil fuels unexploited and pay reparations for climate damage). However, the laptop bombardiers were only as serious a problem as there were real forces on the ground to activate the threat. These took the form of mercenaries, the SA army and other countries' troops, most immediately from Rwanda, as well as other SADC countries and potential Western powers, including the former Portuguese colonists. But it is the militarist analysts' faith in the SANDF that merits more attention than they dare give.

South Africa's Sub-Imperial Shame

Recall Stratfor's (2009) view that an 'imperative' of post-apartheid South Africa remained not only 'the free flow of labor and capital' intra-regionally but also, to enforce this, 'a superior security capability able to project into south-central Africa.' The latter role, however, has long given both South African militarists and anti-militarists great cause for concern, in part due to the SANDF's illegitimacy before 1994 and to its uneven competence since. There was no question that under apartheid, superior security capability permitted the SA military to conduct unrivalled regional state-terrorism during the 1970s–80s. That ended, though, with the 1987–88 Battle of Cuito Cuanavale in Angola, during which Cuban air support to the Angolan army was decisive and more than a hundred white soldiers returned to South Africa in body bags.

One immediate result was the realisation that army supply lines were too stretched both logistically and psychologically, and not only did the military struggle that Pretoria had supported since the mid-1970s fail miserably (the guerrilla movement Unita killed a million Angolans, but could not win power). In between southern Angola and the South African border was Pretoria's colony of South West Africa—whose liberation movement had by 1989 gained enough international support that the SA Defence Force (SADF) was forced to retreat, and the country won its freedom. The SADF's periodic incursions into the region also included state terror attacks against democracy proponents who were civilian members of the African National Congress, in Lesotho, Botswana, Eswatini, Zimbabwe, and Zambia. The SADF's role in Mozambique included support for the Renamo right-wing movement which like Unita in Angola, is accused of killing an estimated million civilians with nothing to show for it aside from post-1992 oppositional status.

The apartheid regime's army was also brutal when working inside South Africa—in the Black townships and rural Bantustans alike—but, after the late 1980s, also increasingly ineffectual in repressing the democratic mass movement. In the period from the 1976 Soweto youth rebellion, when soldiers became a constant presence in townships, to early-1990s 'Third Force' activity, the SADF purposively created mayhem in many areas of South Africa. Especially in its collaboration with the South African Police and the Inkatha Zulu-nationalist movement, tens of thousands of deaths of Black activists (and a few whites) were attributed to state terror, including 14,000 from 1990–94 alone (Stott, 2002: 36).

The post-apartheid era witnessed six major engagements by the SANDF, which are worth briefly revisiting to assess whether by far the largest military force in the region is capable of carrying out a long-term pacification of the Cabo Delgado insurgency: Lesotho in 1998; Burundi in 2001–09; Sudan since 2004; the Central African Republic in 2013; the eastern Democratic Republic of the Congo since 2013; and internal deployment of troops within South Africa both to fight Western Cape gangs and impose Covid-19 lockdown regulations.

- In Lesotho, a September 1998 SANDF counter-coup mission initially to the Katse Dam wall—which was meant to halt threatened (but highly unlikely) destruction of the Lesotho Highlands Water Project (supplying Gauteng Province) by mutinying Lesotho Defence Force soldiers—led to the deaths of over 50 of the latter alongside nine SANDF troops (out of 600 deployed) and 40

civilians (Ka'Nkosi, 1998). The series of fights was described by South African political scientist Philip Frankel (2000) as a 'debacle' that fulfilled 'some of the worst predictions of brutality, ill-discipline and poor leadership' in the new democratic army (though Neethling [1999] defended it).

- The Burundi mission was successful within the narrow terms of a 2001–09 mandate—in which 750 SANDF troops were deployed to help the local army halt a 1993–2005 civil war, and specifically to protect 150 formerly exiled Hutu politicians—but it was not a lasting peace. Shortly after SANDF left, dissatisfaction over the 2010 and 2015 elections led to an attempted coup and widespread civil society protest that continues into the 2020s.
- In Sudan, SANDF's deployment—through the UN-African Union Hybrid Mission in Darfur—left hundreds of troops vulnerable in mid-2015 to an (alleged) near-hostage situation. This was due to Sudanese soldiers' anger at their leader Omar Al-Bashir's potential arrest while visiting Johannesburg for an African Union conference, although that was resolved thanks to Al-Bashir's escape before the court-ordered arrest was implemented. He skipped out of South Africa surreptitiously—with president Jacob Zuma's open condonation—after an arrest warrant was issued thanks to a local legal NGO's desire to see the International Criminal Court's mandate followed, which in turn led Zuma to begin withdrawal from the ICC. On the one hand, Sudanese peace activists considered SANDF's troop withdrawal in 2016 to be dangerously premature but on the other, as Heitman remarked, 'the mission has been largely futile as a result of its forces being matched if not overmatched by the weaponry available to the various militias' (Fabricius, 2016). A small residual team was left behind, but in 2019 it suffered the temporary loss of two of their vehicles in a hijacking, although they were returned, albeit at the expense of some local fatalities (Martin, 2019).
- In the Central African Republic capital Bangui, in March 2013, the deployment of 220 SANDF troops was even more chaotic than in Lesotho, because both Presidents Thabo Mbeki and Zuma had agreed to defend the dictator Francois Bozizé following a 2006 deal for diamond market monopoly control and other commercial opportunities shared with the African National Congress' investment arm Chancellor House (AmaBhungane, 2013). But 15 SANDF fatalities resulted when Bozizé was overthrown by the rebel Séléka movement that month, leaving bitter troops to tell Sunday Times reporters: 'Our men were deployed to various parts of the city, protecting belongings of South Africans. They were the first to be attacked... outside the different buildings – the ones which belong to businesses in Jo'burg' (Hosken and Mahlangu, 2013).
- In the eastern Democratic Republic of the Congo in 2013 (shortly after the Battle of Bangui), Zuma renewed SANDF's 1,300-strong role in the UN peace-keeping mission – including deployment at Bunia, within 50km of a Lake Albert oil concession worth $10 billion that his nephew Khulubuse Zuma very dubiously acquired in 2010 from DRC president Joseph Kabila Jr. This continual redeployment has occurred notwithstanding allegations of South African troops' abuse of local residents, and indeed further scandals soon followed including drunken (and sexual) rampages, and one case in which SANDF troops ignored a 2016 massacre by warlords just a kilometre from their base (Allison, 2016). Along with other grievances, this led to intense youth protests against the UN mission in 2021, at least one of which resulted in civilian fatalities.
- Finally, the internal South African deployments of SANDF troops began in 2019 in Mitchells Plain and other Cape Town working-class townships in order to subdue gang war, and by April 2020 were amplified into enforcement of one of the world's most stringent economic lockdowns. Nearly 80,000 troops (including reserve forces) served at peak from May–September, leading to continual controversies over abuse. The main newspaper in Johannesburg editorialised: 'Many stories of brutality by SANDF members are doing the rounds among communities and on social media. The military had been found to be enforcing the Covid-19 lockdown at the expense of undermining human rights, personal dignity and common sense. A solution is needed, urgently, to deal with the mindset of the men and women in the military' (The Star, 2021). Then in mid-July 2021, the SANDF was suddenly called into service to quell rioting in two provinces, which led to more than 330 deaths and $5 billion in damages over four days. These were not the usual South African service delivery

protests, which in some periods of dissent occur thousands of times annually, nor instances of progressive advocacy pressure by unions or social movements. They were chaotic revolts, with no logic aside from consumerist looting, although the initial spark had a Zulu-ethnicist flavour in support of jailed former president Zuma. The SANDF deployment began with an initial 2,500 troops but these had so little visible presence in Durban, Pietermaritzburg, Johannesburg, Pretoria or two dozen other sites of rioting. The force was suddenly boosted to 25,000. This left reduced capacity to send the scheduled 1,500 troops to Mozambique at an anticipated cost of nearly $70 million. However, an advance SANDF team did deploy to Cabo Delgado on schedule in late July 2021.

In many such settings, SANDF troops appeared not only unwelcome but also unprepared, as several otherwise pro-intervention commentators (not just Heitman) grudgingly acknowledged. And this, then, brings home the ultimate logic of pro-war advocacy: restoring SANDF budgets.

Conclusion: SANDF-Restoration Rhetoric or Climate-Reparations Responsibilities

The pro-war commentariat will not succeed because material conditions do not favour a successful sub-imperial outcome. These conditions are not likely to change, because the regular ridicule SANDF has received for incompetence was, to some extent, because of persistent post-apartheid budget cuts, and these will worsen in the 2020s due to extreme neoliberal fiscal pressures greater than the sub-imperial counter-pressures. SANDF's operational problems were exacerbated in 2021 by the Treasury's renewed austerity drive, in the wake of a substantial budget deficit opening up due to the Covid-19 lockdown in 2020 (GDP was 6.4 percent lower than in 2019 and tax revenues had dropped even more). In April 2021, following a $1.04 billion budget cut over three years, defence minister Nosiviwe Mapisa-Nqakula (2021) complained to parliament: 'Our defence capabilities are under extreme stress. Our ability to equip and train our force appropriately has become progressively more difficult. The current threat manifestations require more boots on the ground, which is contrary to the imposed funding ceiling on personnel.'

According to Heitman:

> 'the army bluntly doesn't have enough infantry to handle the Mozambique deployment plus the one in the Congo plus the border. We don't have the air lift to move troops around quickly. We don't have enough Rooivalk attack helicopters. We don't have the naval assets to really secure the Mozambique Channel as well as our own waters... We haven't been spending money to maintain our frigates. We haven't like given them refits. They're starting to have problems. Things are starting to break. There aren't enough spares. I think only one of the three submarines is operational at the moment.' (SA Broadcasting Corporation, 2021)

As for SADC's SAMIM force, Heitman predicted it would be 'laughably too small to do the job' with 'no real reconnaissance capability, no tactical mobility. It's actually a joke in poor taste' (SA Broadcasting Corporation, 2021). After the first six months of deployment, Heitman reconfirmed that SAMIM was 'faffing around,' not 'achieving anything', because it remained 'ludicrously weak and under-armed with criminally inadequate air support' (Hanlon, 2022). Heitman's agenda has always been to beef up military spending (he is a defence industry consultant, having served in the SA military during apartheid). So, the critique above might be taken as akin to a boy crying 'Wolf!' with respect to SANDF's capacity to mobilise roughly 1,500 troops, of whom only a few hundred were hunting the Islamic terrorists at any given time.

Still, the critique of SANDF's incapacity does correspond to what, since 2019, has been a popular trope: army troops were given the derogatory nickname-meme 'Mabena,' after a soldier whose commanding officer called him out (in what became a viral clip) for being 'tall and lazy for nothing' (TimesLive, 2019). Pretoria's head of international intelligence, Robert McBride, amplified the bumbling-fighter impression in 2021 when four of his undercover security operatives from Pretoria were captured by Mozambican counterparts, and when confronted with the information by a journalist, he 'responded to City Press' query with two laughing emojis' (Stone, 2021). The following week, McBride was suspended because of the humiliation Ramaphosa and State Security Minister Ayanda

Dlodlo felt when meeting Nyusi and requesting him to release the South African spies, in the course of thorny negotiations then underway over SADC troop deployments (Felix, 2021). However, it later transpired that Dlodlo had approved the spies' mission in writing during the Palma attack in late March, reinforcing Pretoria's Keystone Cops image (Masondo, 2021).

Perhaps reflecting such weaknesses, SAMIM was kept away from the two areas with gas infrastructure (Palma and Mocimboa da Praia) from mid-2021 into 2022. Joe Hanlon (2022) observed that SANDF-led regional fighters 'failed to quell the insurgents. And both Lesotho and South Africa are having financial problems and may not be able to continue to pay for troops and supplies.'

But all of this requires us to consider some uncomfortable conclusions. Neethling (2021a) provides one approach in The Thinker: 'All in all, the problems in Mozambique primarily relate to what Matsinhe and Valoi describe as 'four decades of half-mast sovereignty' in Mozambique, which is evident from the fact that, since the country's independence in 1975, the central government in Maputo has lacked a monopoly over the means of violence in its territory and its long coastline.' But when Neethling and fellow laptop bombardiers advocate more violence—with the Mozambique state better backed by sub-imperial and imperial military forces—so as to solve the blood methane war, they are fantasising.

In contrast, there is a distinctly different narrative for progressive intellectuals to grapple with, which concerns the way Global North economies (including roughly the wealthiest 5% of South Africans) have overconsumed fossil fuels and run up a vast 'climate debt' in the process. One result is that in spite of so-far negligible contributions to the catastrophe (i.e. trivial per capita greenhouse gas emissions), Mozambique was from 2000–19 the world's fourth-most climate-damaged country (behind only Puerto Rico, Myanmar, and Haiti) (ReliefWeb, 2021). The unprecedented cyclones, floods and droughts, especially in 2019, were compensated only tokenistically by foreign aid.

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The case for the North—including commentators in the Pretoria-Midrand-Joburg-Potch-Stellenbosch-Saldanha-Cape Town foreign policy intelligentsia—to face up to their/our climate liabilities, simply cannot be disputed. (Unless, that is, we are climate denialists in the Donald Trump tradition, or hit-and-run-style climate-debt denialists who refuse 'polluter pays' responsibilities.) This is especially obvious in relation to the 2019 cyclones that were most damaging to Mozambique (Mikulewicz and Jafry, 2019). Frequent-flying academics and researchers have been especially frightened of admitting that climate damage should be part of our conferencing and lifestyle calculations. If 'build back better'—following the 2020–21 Covid-19 travel and in-person meetings pause—is to mean anything, then it would be logical to begin identifying how to repay Mozambicans for the vast damage, and also encourage to no further harm. One route is compensating that society for not extracting the Cabo Delgado gas, and insisting on rapid demobilisation of SAMIM and SANDF and the earliest possible exit by Big Oil.

It may sound outlandish to leave such vast fossil resources unexploited, but even the South African government acknowledged this logic in mid-2021 when its Nationally Determined Contribution offer demanded: 'The just transition in South Africa will require international cooperation and support... by the international climate and development and finance community for non-fossil-fuel development in Mpumalanga...' (Republic of South Africa, 2021: 28). Of course, to expect the Pretoria government to act consistently with such rhetoric, given its worsening methane addiction and sub-imperial proclivities, would be naïve. Instead, civil society advocates and scholars must continue to arise from within civil society with three interrelated demands: to stop

the war, to leave fossil fuels unexploited, and to use compensatory funds to pay poor people in Northern Mozambique (as an alternative to them picking up arms with Islamic guerrillas).

Most recently, political-ecologist scholar-activists Anabela Lemos (2022), Boaventura Monjane (2021), Teresa Cunha and Isabel Casimiro (2021), and Samantha Hargreaves and Lemos (2021) have made these arguments, as have many within the Alternactiva progressive activist network, the União Nacional de Camponeses (UNAC) peasant movements, the Friends of the Earth affiliate JA! (host of the "Say No to Gas!" international campaign) and the Centre for Living Earth's Territórios em Conflicto. Here in South Africa, solidarity activist groups which in 2021 commented along the same lines include the International Labour Rights Information Group and South African Federation of Trade Unions. In Harare, the Zimbabwe Coalition on Debt and Development were similarly in solidarity. Regional networks committed to leaving fossil fuels under the Mozambique Channel and solidarity payments to compensate, include Women in Mining, the Rural Women's Assembly and the Southern African People's Solidarity Network. In Lisbon, solidarity protests were organised by Climaximo, 2degrees artivism, and the youth movement's Greve Climática Estudantil. In London, Friends of the Earth UK offered support (Bond, 2022).

Linking these groups to South Africans who can expand their struggles against LNG exploration in the Indian and Atlantic Oceans is now critical. Rising anti-gas sentiments in 2021–22 were sufficient to block South Africa's two main offshore seismic-blasting explorations (by Shell, Total and local ally Johnny Copelyn). In those cases, like Mozambique, the South African state's objective has been to ensure foreign corporations—especially those from Johannesburg operating regionally—could engage in extractivist profiteering, in the process impoverishing local residents through displacement, pollution, and depletion of non-renewable resources. As refugees from such conflict spill back into South Africa (such as Congolese immigrants since the early 2000s), working-class xenophobia surges. There is little or no South African comprehension of the terror felt by those fleeing from such resource wars.

Perhaps it is unfair and incorrect to paint all the laptop bombardiers mentioned in this article with the same brush, including accusations about their self-destructive climate denialism, their desires for militarist alliance-making between Pretoria and the vicious, corrupt Maputo regime, their apparent nostalgia for cross-border war-making, and—for many, not all—their absurd faith in a declining sub-imperial army that they believe simply needs more funding. Perhaps these scholars will start considering the realities discussed here and not avoid them—and perhaps even take a progressive not utterly reactionary point of view. If not, if they stay the course, the pro-military lobbyists court the risk of extreme self-harm in Mozambique, and further harm to our own society and our species' potential for survival, too.

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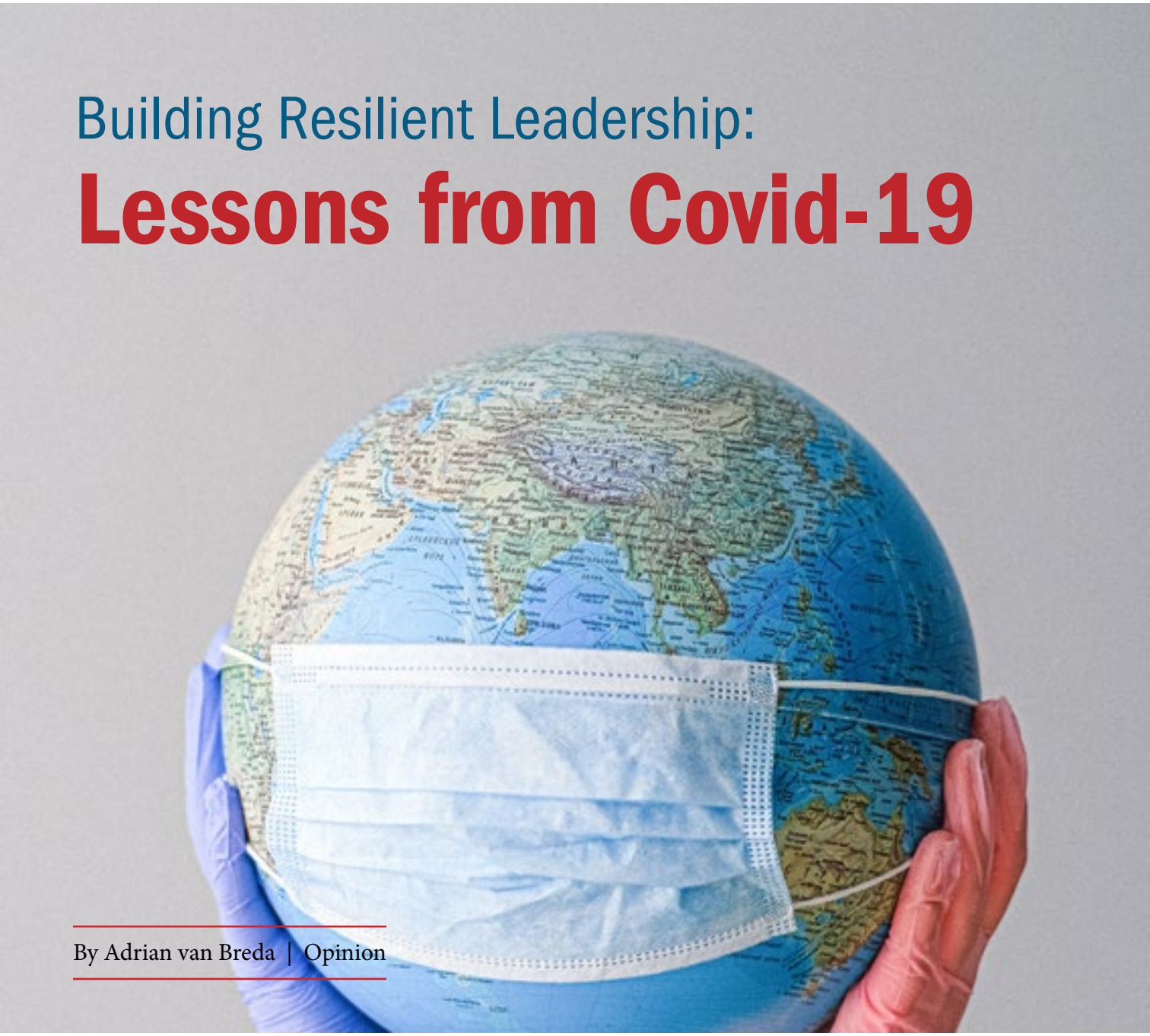
Building Resilient Leadership:
Lessons from Covid-19



By Adrian van Breda | Opinion

Abstract

Covid-19 poses the greatest challenges for effective leadership in many years. Covid-19 undermines the deepest security we feel as humans and disables people's capacity to work and create. This opinion piece argues that leaders should not merely hold on until Covid-19 passes, but rather learn the lessons Covid-19 wishes to teach us. In so doing, leaders become resilient to adversity and can facilitate the resilience of employees, teams, and organisations. This article addresses these lessons in relation to our common humanity, the centrality of relationships, the vital importance of spirituality, and the need for structure to enable productivity.

Introduction

Covid-19 has wreaked havoc with leaders and their leadership. We can all—as leaders or as people who are led—look back over the past two years and think of countless challenges that lteaders have faced, sometimes successfully, and perhaps all too often unsuccessfully. I have held formal leadership and management roles for 16 years, in government, research and academic spaces, as well as in church, as a lay person and as a priest. I cannot recall a time that was more challenging than these past two years.

There is a part of me that longs for Covid-19 to be 'over' (whatever that means) so we can 'go back to normality' (whatever that was). But, in truth, things never were 'normal'. And things never were that great in leadership. And I can as yet not envisage a post-Covid-19 society. So, I choose to regard Covid-19 as a companion to be journeyed with, rather than as an enemy to be vanquished. This shift in my construction of Covid-19 first helps me to be less adversarial about Covid-19 and more accommodating and patient. And second, it helps me to think about and even appreciate what Covid-19 has taught me about being a leader.

Leaders in general do not appear to have made radical changes in how they lead during Covid-19. My employers still have the same expectations and targets of staff as they did pre-Covid-19. There has been little or no letting up on targets and indicators; if anything, targets have continued to grow, expressing a philosophy of more rather than sufficiency. As a leader, I am trapped in much the same performative, new managerial, neo-liberal system as everyone else. I wish I could say my leadership has been transformed by Covid-19; it hasn't. But I have come to recognise and appreciate what Covid-19 has taught me about priorities and strategies for leading. I cluster these under four themes: humanity, relationships, spirituality, and structure.

Humanity

A few years ago, I wrote an academic paper titled 'Students are humans too'. In it, I unpacked the myriad personal, family, and community challenges that students face, all while striving to meet our academic expectations for grammar, referencing, and due dates. As I heard the profound challenges students faced daily, I grew to appreciate the heroism of students who pitch up and deliver. As educators, we need to better recognise and celebrate that students are humans too.

In much the same way, employees (be they academics, researchers, administrators, technicians, or labourers) are humans too. They are not just employees. The 'two-worlds myth'—that the worlds of work and life are separate and autonomous—is just that: a myth. These worlds are inextricably intertangled because employees are humans too. Leaders need to better appreciate the lives of employees outside of the workspace. This involves cultivating a holistic understanding of the people we lead. We can no longer afford to think of employees as automatons. We must recognise and engage with the whole person.

Once we know something about the 'private' life of our employees, we can no longer blithely impose our performance targets and working conditions on them. We begin to realise how deeply socially unjust such a managerialist approach is. Instead, we must begin to accommodate the holistic life of employees: their responsibilities towards their children or partner or pets, their health needs, their need for downtime, their need to go shopping or to visit a friend.

In a word, this is about compassion. Or caring. Or even love. It requires us to care not only about organisational performance and targets, but to care also and even more about our employees, their well-being, their capacity to be, to flourish, to grow, and to achieve.

Relationships

Extending from the humanity of employees is the collective experience of a shared humanity through relationships between co-workers. While we all know that teamwork and collegiality are important elements of a healthy and productive team, Covid-19 has helped us recognise that there is more to relationships than collegiality. This is not to say that everyone should become best friends; there may always be people we work with whom we don't

“My research area is resilience. One of the recurring and resounding enablers of resilience in the face of adversity is the quality of relationships with other people. Relationships characterised by affective support are particularly important, providing a foundation of belonging and the nourishment we need during difficult times.”

particularly like. But the common challenge of a disease like Covid-19, which affects almost everyone in one way or another, helps us recognise and feel compassion towards each other. Shared suffering both necessitates and enables closer and more authentic relationships than in pre-Covid-19 times.

My research area is resilience. One of the recurring and resounding enablers of resilience in the face of adversity is the quality of relationships with other people. Relationships characterised by affective support are particularly important, providing a foundation of belonging and the nourishment we need during difficult times. Relationships are also the crucible for another important resilience enabler: adaptive meaning making. This refers to the capacity to make sense of adversity in ways that enable us to move forward through or around our difficulties. Meaning making is something that is done in families, religious communities, and working environments.

Until Covid-19, I had thought of staff meetings primarily as business meetings to discuss what we need to do and how we need to do it. Covid-19 shifted my understanding to thinking of staff meetings as opportunities to build collaborative, authentic, and compassionate relationships between staff; to cultivate space for silence and reflection that enables quieter members to give voice to their thoughts and feelings; and through this relational foundation to then work on the work. In so doing, we cultivate a collective understanding of the challenges that we face and formulate collective solutions on how to move through them.

Spirituality

While my personal faith has long been central to my life and to how and why I do what I do as an educator, researcher and leader, I have not thought as much about faith and spirituality as I have since Covid-19 arrived in our lives. Some of my clergy colleagues refer to my work at the university as my ‘secular job’; implying that it is something almost dirty, compared with the lofty spiritual calling to the priesthood. I always respond that my ‘secular’ job is as sacred as my work in the church—they are all part of the same fabric.

There are moments, though, when my vocation as a pastor rises in prominence in my ‘secular’ workspace—when a colleague loses a loved one, when a colleague becomes seriously ill, when the world starts to feel like a dangerous and threatening space. In these moments, my capacity as academic-researcher-priest to hold together the sacred and secular becomes important, because Covid-19 confronts us with deeply existential and thus spiritual challenges.

Covid-19 is not merely a virus; it is a threat to our sense of self, to our humanity, to our survival, to the integrity of our family. These all speak to the deep existential fabric of life, which we may think of as the spiritual dimension of life. Priest or atheist, a leader needs to have the capacity to engage with the deep, intangible, existential layers of life, to create space for them to breathe and be given voice, and to hold and contain them like a living organism. This is the stuff of life. And a good leader needs to be a midwife.

It is within this kind of spiritually-attuned space that a leader can begin to challenge their team members to perform, to produce, to deliver. Working persistently in the midst of a prolonged crisis is an act of defiance and challenge; it is about taking back power and ownership of one’s self and one’s body, thereby disabling or peripheralizing the threat of Covid-19. This is the collective adaptive meaning-making I mentioned under relationships working to subvert the negative impact of a threat like Covid-19 on our ability to be who we deeply want to be.

Structure

Everything so far may be sounding rather touchy-feely. Some may be wondering when we actually do any work, focus on targets, accomplish goals, and meet our key performance indicators. My experience is that when we create sufficient space for humanity, relationships and spirituality, we are then able to focus on the structure of the work itself. This is not either-or; rather, it is about layering one's leadership to cultivate an environment, a group dynamic and an individual capacity to work, even in the midst of challenge.

The earliest resilience in human development occurs within the secure base established by good-enough parenting in the first year of life. The rhythm, predictability, nourishment and structure of such parenting creates a framework for the world as a manageable and safe space, even during periods of adversity.

During a profound and prolonged crisis like Covid-19, structure is necessary to cultivate a sense of safety and security to contain the many unknowns that Covid-19 presents. A good leader will thus help their team put in place boundaries, procedures, and plans (even if only short-term plans) that form guardrails to contain the anxiety of an unknown, unpredictable, and dangerous environment. My mantra over the past two years has been 'flexibility'. We don't just 'go with the flow'; instead, we plan and structure, and then when things change, we replan and restructure, and again and again, to ensure that we have boundaries that contain, reduce anxiety, and facilitate performance.

A good leader in such times will be constantly looking to the future, to anticipate the opportunities and challenges that lie around the next corner, and to capitalise on or mitigate these as required. Covid-19 has been highly unpredictable and disruptive in many ways. Understanding and anticipating where it is going, even if only a week at a time, is an important role for strong leadership. This enables staff to continue delivering work and to be creative and productive, despite the uncertainty of the world around them.

Conclusion

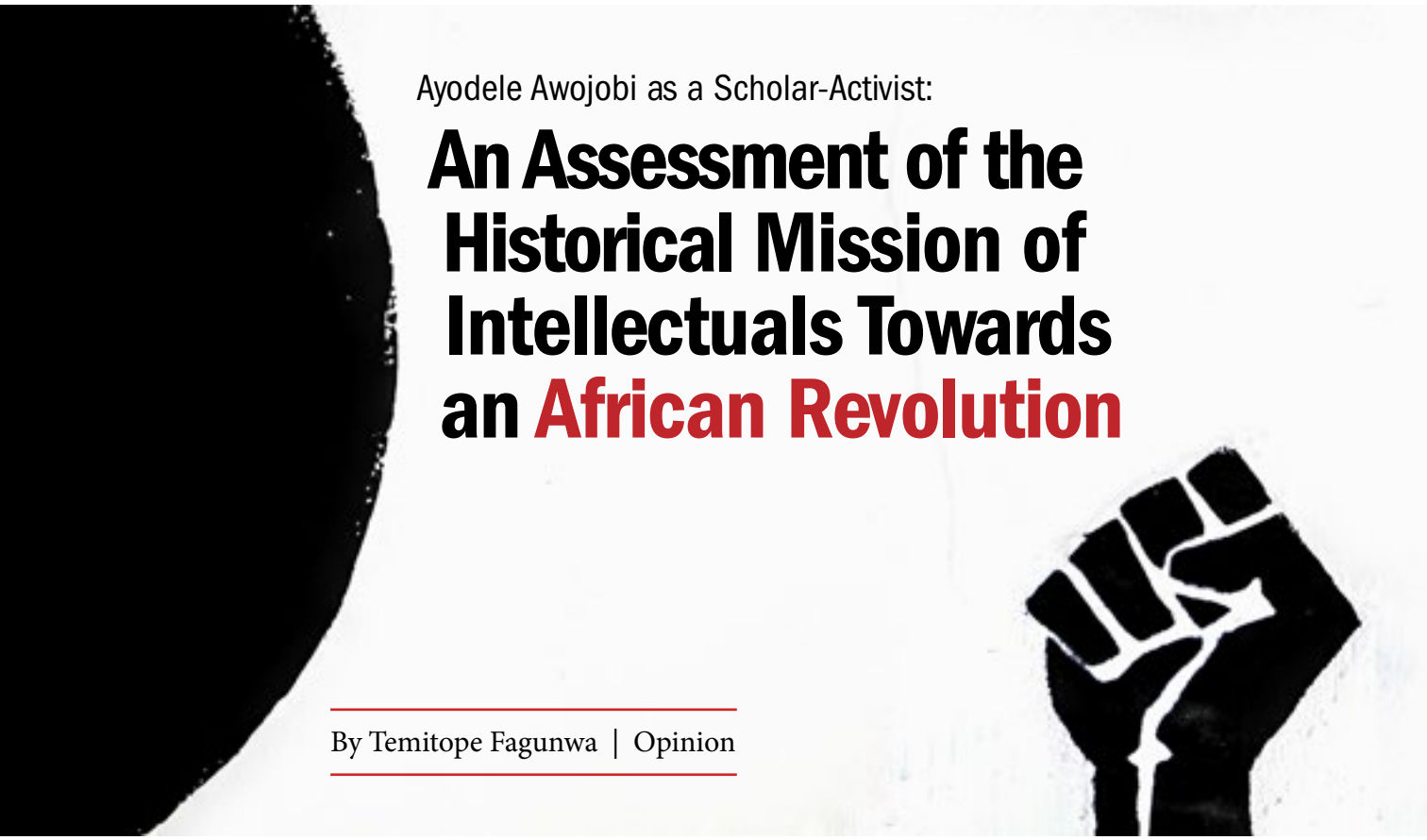
Covid-19 has wreaked havoc with leaders and their leadership. It has tested us to the limit, or at least to what we may think is our limit. We may long for life to return to 'normal'. But the reality is that life may never be that old 'normal' again. And even if it could be, we should probably not allow it to be. Covid-19 has created unique opportunities for new understandings of what it means to lead and to be a leader during unprecedented times. These lessons should not be relegated to the archives of the Covid-19 era. Rather, we should learn the important lessons Covid-19 has offered to teach us and pull these lessons forward into the world beyond Covid-19.

Fundamentally, Covid-19 has obliterated the division between work and life. For good or for bad, this boundary has been removed. The challenge for leadership going forward is how to use this shift in a way that celebrates and protects the different facets of human life (including both work and life) in a way that is mutually respectful and harmonious. In so doing, leaders in the workplace can contribute to the resilience of individuals and their families, of employees and their work teams, of places of employment and their clients and stakeholders, and of communities and societies.

Leadership is thus far more than getting the job done, or even getting the job done excellently. It is about leading people to flourish, in partnerships with each other, with a sense of the larger and sacred life and world issues around us, and in ways that are socially just and for the common good. If we can journey on this path, leaders can co-create social environments that are sufficiently resilient to handle the future challenges that will inevitably face society.

Ayodele Awojobi as a Scholar-Activist:

An Assessment of the Historical Mission of Intellectuals Towards an African Revolution



By Temitope Fagunwa | Opinion

Abstract

Intellectuals are the threads that hold societies together. They form the basis upon which the making and unmaking of the future of societies are built. In fact, it is almost impossible to assess the progression of earliest societies without considerations of the transformative roles of individuals with inimitable intellectual skills and essence. This article will attempt a preliminary study on the socio-cultural and political tasks of intellectuals in neo-colonial Africa. Since there is a nexus between colonial domination vis-à-vis the production and consumption of knowledge, the existence of neo-colonial Africa thus presents a society whose intellectuals are behind in the fulfilment of their historical task. The dominance of Western liberal epistemologies and methodologies across the purported African academy have precluded, to a reasonable extent, the existence of 'African' intellectuals whose mission ordinarily ought to be related to the actualisation of the African revolution. Nkrumah has argued that in birthing a revolutionised postcolonial Africa—a society free from all forces of capitalism and neo-colonialism—the intellectuals are destined for an important role. Chomsky has echoed this position when he posited that there has to be a connection between scholarship and activism. By exploring the socio-political activities of the 'mighty giant' Professor Ayodele Oluwatuminu Awojobi, this article examines the mandate of 'African' intellectuals as both the 'producers of ideas' and 'workers for ideas'. Through the exploration of existing primary and secondary sources, this article argues that postcolonial African intellectuals have the duty of being inspired by the revolutionary life and works of the activist-scholar Ayodele Awojobi. The ultimate submission of this article is that scholarship cannot only be an arena for rhetoric, but must also be committed to the production of pragmatic thoughts, ideas, and actions that have the capacity of transforming the prevailing repellent social conditions and realities of the vast majority of the downtrodden African masses.

Introduction

> 'The philosophers have only interpreted the world in various ways; the point however is to change it' (Marx, 1964: 647).

Although Karl Marx did not write extensively on the specific role of the intellectuals in a class society, himself and Engels in the renowned The German Ideology (1989) unambiguously attempted a theoretical explanation on the class character of knowledge production. Since the production of material objects is based on human social relations, the place of the nature and character of knowledge production in any society cannot be overemphasised. In whatever society, and at whatever point in time, the production of this knowledge has consistently been anchored by a group of individuals, now recognised as intellectuals. The progression of societies since the earliest times in fact cannot be accurately interrogated without the transformative roles of individuals with inimitable intellectual skills. This article explores the socio-cultural and political tasks of the intellectuals in the current neo-colonial state of the African continent.

By exploring the socio-political activities of the 'mighty giant' Professor Ayodele Oluwatuminu Awojobi, this work intends to examine the mandate of intellectuals as not just 'producers of ideas' but also as 'workers for ideas'. One of the most recent influential leftist thinkers in the Western world is Noam Chomsky. The scholar-activist in one of his essays argues that intellectuals have to embrace the concepts of responsibility, power and truth-seeking (Chomsky, 1967). The point was made that scholars have the ultimate duty of confronting and exposing the frequent effects of neoliberalism, inequalities, poverty, etc. Against this backdrop, the 'causes and motives, and often hidden intentions' of right-wing ideologies that have dominated the overall affairs of neo-colonial Africa have to be within the research sphere and pedagogical approach of scholars.

What the above presupposes, therefore, is that scholarship cannot simply be an arena for rhetoric, but rather for the production of pragmatic thoughts, ideas, and actions that can transform the prevailing repellent social conditions and realities of the vast majority of the masses. Scholars will have to be groomed to internalise their vanguard roles in the process of mobilising, organising and sensitising the downtrodden in any society, against their oppression. In pursuit of the African revolution – a term Kwame Nkrumah has described to mean the ultimate unity of the African continent under socialist governments, intellectuals have been charged with a pivotal role (Tunteng, 1973). The erstwhile Ghanaian president affirms that the ultimate bulwark of the African revolution is the class of genuine African intellectuals whose aspirations will have to differ from that of members of the ruling class (Nkrumah, 1970: 40). Because the chase for repressive power, primitive accumulation of wealth and social privileges are contrary to the material base of a socialist economy, the African intellectuals in the struggle for a better society cannot share alliances with members of the ruling class.

Though the above provides a guide into what ordinarily should be the mandate of contemporary African intellectuals, this path has largely been ignored. On a large scale, consequent to the infusion of neoliberalism into the entire polities of the African continent, particularly beginning with the 1980s, the consumption and reproduction of repugnant bourgeois scholarship has dominated the affairs of the intellectual circle. Unlike the era of decolonisation when African intellectuals fought, gallantly, against the racist colonial historiography, both in actions and writings, the atmosphere in more contemporary times seems to have changed greatly. Be that as it may, some scholars in their works and deeds have classified themselves as the continent's beacon of hope. In this category, radical intellectuals such as Walter Rodney, Bade Onimode, Claude Ake, Samir Amin, Bala Usman, Ngugi Wa T'iong, etc. resisted the overwhelming consequences of neoliberalism and Western bourgeois scholarship in their actions and works. Although this is a small category of scholars, their lives and works have had a significant influence across the continent and in fact beyond. Understandably, this influence has not successfully ignited the motion for the highly anticipated African revolution.

The 'bourgeoisification' of the African academy has concretely limited the space of scholar-activists in the larger society. This reality, amongst other factors, is symptomatic of the gradual isolation of the African ruling class from the mandate of adequate funding

of the educational sector. In spite of this obstacle, this paper is challenging members of the intellectual circle on the African continent to rise to the occasion of marching arm-in-arm with the hoi polloi in the journey towards the attainment of the purpose of the African revolution.

In the early 1980s, the cloud of neoliberalism had gathered across the African continent through the insidious roles of the Bretton Woods institutions. In neo-colonial Nigeria, the situation was not any different. Governments gradually began the process of underfunding the educational sector in the country. Accompanying this trend was the systemic infiltration of Western bourgeois and capitalist narratives into the African academy. Interestingly, it was during this period that Ayodele Oluwatuminu Awojobi began to develop an important profile of a consistent Nigerian scholar-activist. At a time when it was not fashionable for university intellectuals to stand with the suffering masses at the barricades of protests and demonstrations, Awojobi was a different breed. Beyond the barricades, the scholar-activist was frequently the voice of the people at important occasions and on the then-traditional media. Nigerian newspapers, radio and television stations were repeatedly interested in Awojobi's positions on numerous national issues during this period.

Though a Mechanical Engineer in the University of Lagos, Professor Awojobi was a renowned political activist during the 80s. Beyond national issues, he was convinced about the potency of the students' movement in the overall revolutionary struggles of the Nigerian masses. In his works and speeches, Awojobi had no qualms in demystifying the illusive sacredness of the Nigerian ruling class and their apparatuses. Heeding to the challenge of Nkrumah, the political activist was able to relate the relevance of theory and practice. Although Awojobi started out as a conventional 'academic' or 'intellectual', he gradually evolved into a full-grown revolutionary intellectual, consequent to his practical involvement in the daily struggles of the Nigerian masses. The value of his involvement in these struggles is a pointer to the nexus between scholarship and activism as required by the processes that are to birth the African revolution. It is against this background that this paper is convinced that the life and works of Awojobi have the wherewithal to inspire contemporary African academics into undertaking the required vanguard role in pursuit of the African revolution.

Although he was not a self-acclaimed Marxist, Ayodele would pass diligently as a student of Marxism for he understood the dialectical relationship between thoughts and actions. There is no doubt that, had he lived beyond his untimely death, he would have transcended to the point of a full-fledged Marxist intellectual. This position can be proven against the background that as far back as the late 1970s, Ayodele was in the public space denouncing the then attempt by the Shagari-led government to privatise the power sector. This denouncement was premised on the basis that the sector cannot adequately live up to expectation because of the unapologetic interest of the private sector in crude profit maximisation. This position is concretely Marxian in context. And indeed, the relevance of this position is more so visible in the odious state of the recently privatised power sector in the country. In spite of the periodic huge funds the Federal Government of Nigeria (FGN) had previously stashed in the power distributing companies, the National Bureau of Statistics (NBS) reported that Nigerian households spent N2 trillion on fuel and electricity in 2019 (The Punch Newspaper, 2020). In point of fact, Adoyele's fears have proven correct: since 2005, the sector has been fully privatised under the Electric Power Reform Act, and the activities of the private companies have shown that the ultimate focus is the accumulation of profit by all means.

The instinctive approach of Ayodele to the abovementioned crisis of the power sector is just an expression of his commitment to the struggles against social injustice and inequality in Nigeria. Another event that expressed this concrete reality was the decision of the scholar-activist, against all odds, to sue the government of Shehu Shagari to court over charges that ranged from corruption, to nepotism, to electoral violence and irregularities. It is also important to note that the political activities of Ayodele did not in any way isolate him from his responsibility as a Professor in Mechanical Engineering. Prior to his demise, the professor invented a car, now popularly known as Autonov 1, at the University of Lagos. Concretely, a lesson that can also be drawn from the life and works of Ayodele is that the academic field of any African scholar is indeed not an obstacle in the attempt to combine scholarship with practical activism.

Ayodele Awojobi and his activism

Professor Ayodele Olutuminu Awojobi was born on 12 March 1937 into the family of Chief Daniel Adekoya Awojobi and Madam Comfort Bamidele Awojobi in Oshodi, an infamous part of the modern Lagos State. His father had roots in the Ijomu area of Ikorodu, and the young Ayodele Awojobi spent his youthful days in Lagos. Ayodele went to the St. Peter's Primary School, Faji, Lagos, for his early education between the years 1942 to 1947 (Awojobi and Awojobi, 2008: 1). However, it was while he was attending the renowned CMS Grammar School, Lagos, that his academic prowess began to come into light. After passing his West African School Certificate Examinations in the year 1955 with an unprecedented record of eight distinctions, Ayodele Awojobi proceeded to sit for a General Certificate Examinations (GCE) in 1958, earning himself a federal government scholarship, owing to his exceptional performance, to study Mechanical Engineering at the defunct Nigerian College of Arts, Science and Technology, Zaria, now known as Ahmadu Bello University, Zaria (Awojobi and Awojobi, 2008: 2).

Indeed, it was another brilliant feat at Zaria that merited Ayodele another federal government scholarship in 1962 to study for a post-graduate programme in the field of Mechanical Engineering at the former Imperial College of the University of London, now known as Imperial College London. In the year 1966, he was awarded a Ph.D. in Mechanical Engineering from the institution. In the same year, Ayodele joined the Faculty of Engineering, University of Lagos, as an academic staff member. Within a short period of time, Ayodele rose to prominence across the four walls of the university and also beyond as an outstanding academic, so much so that in 1974 he became the first ever African scholar to be awarded a post-doctorate degree of Doctor of Science by the University of London. And with this achievement, within a period of just a few weeks, he was appointed a professor by the Senate of the University of Lagos at age 37.

It is pertinent to mention that Ayodele's academic feats are symptomatic of his strong decision not to be an armchair scientist – rather an inventor. In the year 1972, the federal government had announced that the country was going to change from left-hand drive to right-hand drive. Dr. Ayodele Awojobi in the same year successfully converted a family car from right-hand drive to a left-hand drive with the assistance of a group of technicians and students alike. During the same period, Ayodele was said to have invented the legendary Autonov 1. The Autonov 1 used to be a regular military jeep but its engine was reinvented by Ayodele giving the vehicle the ability to run in both the forward and backward directions, utilising all four pre-existing gears in whichever direction. In addition to this invention, the Autonov 1 also has a second steering wheel and a central revolving chair (Asoya, 2008: 13).

"The basic agenda of this paper is not to examine at length the numerous academic achievements of Ayodele Awojobi. However, it is relevant to mention that these feats were not inspired from any self-serving and opportunistic tendency. Contemporary intellectuals on the continent can be inspired by learning that in spite of several lucrative o ers, Ayodele resisted the attempt aimed at the commercialisation of his Autonov 1."

The basic agenda of this paper is not to examine at length the numerous academic achievements of Ayodele Awojobi. However, it is relevant to mention that these feats were not inspired from any self-serving and opportunistic tendency. Contemporary intellectuals on the continent can be inspired by learning that in spite of several lucrative offers, Ayodele resisted the attempt aimed at the commercialisation of his Autonov 1. Indeed, he could have accumulated substantial wealth from these offers, but the inspiration that propelled the invention was altruistic. Consequent to the unmitigated project of the bourgeosification of the African academy, the ultimate passion of an ever-increasing number of academics on the continent is not driven by ground-breaking creations for the systemic liberation of the teeming population.

Quite ahead of the general norms of the period he lived in, Ayodele was convinced that the African academy will

be moribund if acquired knowledge has no place in the overall transformation of the nefarious social realities and conditions of the oppressed people. Across all academic fields, scholars have consistently attempted to express how best societies can be transformed through their speeches and writings. A frequent lacuna that this paper has recognised in the antidotes of these scholars is the lack of understanding of the question of power – and not just any form of power but political power. Meanwhile, Ayodele was clear about the relevance of political power to scholarship. The nexus between political power and the state of societies cannot be undermined. It is in recognition of this fact that Ayodele once asserted that intellectuals must necessarily be political in their approach to scholarship. This is more so because only politics has the incomparable access to the ultimate resources that can bring about the lasting transformation any society deserves (Awojobi, 1980).

Though a mechanical engineer by training, Ayodele Awojobi was a specialist on both national and international political matters. An account reveals that he was sometimes mistaken for a political scientist at public occasions (Adebayo, 2021). His audiences were often sceptical of his area of specialisation as an academic based on his well-articulated political and economic solutions to the problems of Nigeria. This paper is convinced that this attribute is most trendy amongst consistent scholar-activists. Ayodele in fact once confirmed his strong conviction in polemics when he affirmed that: 'I do not believe in running away from debate or analysis of different and controversial subjects, since a nation cannot progress if she turns her back to those areas that manifestly recur as problem and sensitive areas' (Awojobi, 1976: 37). For Ayodele, these polemics were a call to action. He once declared that: 'At the age of 65, I will have built the infrastructure. There would be very few illiterates in Nigeria when I mount the soapbox. Then I will go into proper politics' (Asoya, 2008: 14).

The point about the relevance of the life and works of Ayodele echoes in the submission of another important scholar-activist – Patricia Hill. Hill, in one of her works, once declared that since a school cannot be isolated from the society and also since 'thinking' cannot be separated from 'doing', it will hence be fallacious to dichotomise between scholarship and activism (Hill, 2012: 12). This position, however, has consistently been under attack by governments, university managements, proponents of neoliberalism, and other bourgeois elements. With the exemptions of radical and transformative academic bodies, journals such as CODESRIA, ROAPE, etc. there are more bodies, institutions, agencies, etc. whose ultimate agenda has been to stifle radical scholarship vis-à-vis the existence of scholar-activists. Against this backdrop, contemporary African intellectuals have the historic duty of not just speaking truth to power but also hijacking power from the distractors and traitors of truth. Because the aim of the African revolution is not limited to raising consciousness alone, absolute conscious political actions for the complete transformation of society are required from members of the intellectual circle.

A further glimpse into the life of Ayodele expresses his relevance to contemporary African intellectuals. The Second Republic in Nigeria's history has traditionally been proven to be marred with issues ranging from political to economic instabilities. Maier Karl beautifully narrated the tragedy of the Second Republic in his classic work 'This House Has Fallen: Midnight in Nigeria'. In this work, Karl concluded that the errors of the republic by the political class spurred the social consciousness of the Nigerian masses against the class (Karl, 2000: 23). Whilst there was a mass opposition against the ineptitude and corrupt Shagari-led administration, Ayodele was one of the most outspoken public figures of this period. Fascinated with the solutions of Obafemi Awolowo to the problems of the Second Republic under the leadership of Shagari, Ayodele became a staunch follower of the former. As described by Sylvester, Ayodele was such a loyal apostle of Awolowo that the duo would passionately analyse the state of the nation at any given opportunity (Asoya, 2008: 13). Unsurprisingly, Awolowo wrote the foreword of a number of books and monographs authored by Awojobi.

The political instability of the Second Republic became more pronounced during the 1979 – 1983 general elections, which according to Joseph R. were marred with several irregularities and overt riggings in favour of the government of Shagari (Joseph, 1987: 36). Like thousands of Nigerians, Ayodele became a renowned critic of the government in the aftermath of the elections. He was consistently making the headlines in the newspapers for his strong views against the government of the day. And quoting Adebayo

Ninalowo on the roles of Ayodele Awojobi during this period, the former wrote:

> To be a social crusader in favour of the amelioration of the human condition is normally a courageous selfless feat. To be iconoclastic in challenging the rulership of the day for not living up to popular yearnings, that takes exceptional courage. The late Prof. Awojobi was not only exceptionally selfless and courageous, he was both an epitome and personification of encyclopaedic intellectual ingenuity. He was, therefore, a quintessential role model (PAADC, 2018).

In what can be best described as an expression of courage and vision, Ayodele eventually sued the government of Shehu Shagari in 1983 for corruption and electoral fraud. Another test of the ideological clarity of Ayodele is visible in the relationship that was built with the rank and file of the students' movement. It is pertinent to state that the fame of the political stances of Ayodele was not just resounding within the Nigerian society, but also across universities. Consequently, he was a regular lead-off speaker during students' rallies or protests. As a scholar-activist, he was convinced that the process of liberating Nigerian society was also reliant on the direct involvement of students, and generally youth. Beyond the frequent firebrand speeches, Ayodele was galvanised by a large stratum of Nigerian students of this period because of his forthrightness and uncompromising stances on issues bordering on the democratic rights of students. In the University of Lagos, he became an iconic figure owing to his consistent interventions in several cases bordering on the attacks of the rights of students by the management.

Ayodele was an unapologetic critic of intolerant university authorities. On different occasions, he was clear that one of the ways in which the administrative structures of universities can be democratised is through the unconditional integration of student representative bodies. This position indeed was publicly expressed at a time when it was not fashionable for academics to raise such. As a point of fact, it was envisaged that a time would come when presidents of students' bodies would be actively involved in the administrative mandate of the governing council of universities. He even furthered this discussion in one of his publications by demanding for a student representative in the National Universities Commission (NUC) (Awojobi, 1976: 44). And, quite interestingly, Ayodele would often urge the now defunct National Union of Nigerian Students (NUNS) to always be vocal on national issues. Leadership of the association was often urged to publish pro-student positions on national issues. This was the kind of ideological based relationship Ayodele built with the rank and file of the students' movement. There is no doubt that this tradition has not been sustained in the face of the persistent systemic repression of scholar-activists and students by management of universities. This outcome has propelled a widening gap between the labour movement and the students' movement.

In 1977, Ayodele presented his inaugural lecture at the University of Lagos. Though the lecture centred on the pragmatism of theories of engineering and mechanical vibrations, a coherent argument was stressed on the necessity of a localised theory and pragmatism for the ultimate benefit of the Nigerian masses (Awojobi, 1977). The scholar-activist further argued in his lecture that: 'There must be a conscious effort through a deliberate policy to ensure that the product of academic research is, first, of localized interest to Nigeria rather than the more popular approach of being seen as a contribution to the universal stock of knowledge' (Awojobi, 1977: 15). Needless to say, the mission of localising and Africanising the production and consumption of knowledge precluded Ayodele from jumping at numerous lucrative offers to lecture at foreign institutions. There is no doubt that this pan-Africanist aspiration has been under great attack in more recent times. Sequel to the surge of brain drain in the African academy, institutions and centres are gradually being deserted by specialists and experts. The verdict by Ayodele to lecture in a Nigerian university is understandably an unequalled sacrifice, then and now. Though a professor of mechanical engineering, Ayodele ended his inaugural lecture with a firm political statement: '...men in power succeed only when they govern firmly and fairly without double standards – this they do if, and only if, they learn to run the machinery of government – well beyond resonance (Awojobi, 1977: 23).

The social actions Ayodele Awojobi was involved in were unarguably beyond mere rhetoric. In the early 1980s, Ayodele rose to become the Chairman of the Lagos State School's Management Board. This

position not only afforded him the opportunity of revolutionising secondary school education in the state, but also brought him closer to the mass of the people. Interestingly, this position did not estrange Ayodele from the daily struggles of members of the oppressed class. From the get-go, the scholar-activist was convinced about the potent role the judiciary can play in the liberation of the downtrodden. Beyond the impeccable role the judiciary can play in the restoration of the political and socio-economic order in the country, Ayodele expressed that its formidable and functioning institutions can indeed prevent Nigeria from mismanagement. This stance is well encapsulated in one of his publications where he expressed that: 'I am of the very strong opinion that if Nigeria does not have a trusted judiciary that could be manifestly seen to stay impartial between the citizens and the government, we should all accept that Nigeria – our dear country – is still a very backward nation' (Awojobi, 1976: 36).

The conviction of Ayodele in the powerfulness of the judiciary explains why he literally became a private law student of the renowned Chief Barrister Rotimi Williams (Awobodu, 2009). The pertinence of facts and figures cannot be undermined in the judiciary. Ayodele progressively became aware of this, hence his consistent tendency of providing concrete evidence against the corrupt administration of Shagari, and any corrupt government for that matter, on any media platform during the 1980s. Oral sources show that on any of these media platforms, Ayodele would make serious effort to ascertain his charges against any members of the ruling class (Adebayo, 2021). In a way, the professor was the mouthpiece of the masses on the trail of justice, transparency, and equity. He put on the toga of the people's advocate.

"Ayodele stressed this position when he asserted that 'a constitution becomes a worthless document if it can be violated by the men in power without a reliable judiciary to ensure obedience to the constitution and put the men in power under the law' (Awojobi, 1976: 43)."

While soldiering on his mandate as the people's advocate, Ayodele encountered the event that took his life in the year 1984. In the early months of 1984, the scholar-activist had instituted a court case against Governor Akin Omoboriowo of Ondo State on the allegation of electoral fraud during the 1983 elections. In the course of one of the court appearances for the case in Ondo, reports have it that he was attacked with an amulet by a group of political thugs. Unfortunately, Ayodele did not recover from the illness caused by the attack as he died a few months later in his prime. He was 47 years old when he died on 23 September 1984. Oral sources confirm that the city of Ikorodu came to a halt during the interment of Ayodele (Adebayo, 2021). Several dignitaries also trooped into the city from far and wide to pay their respects to the renowned scholar-activist. Many eulogised him publicly for his overall great accomplishments as both a successful professor of mechanical engineering and an uncompromising activist.

From the foregoing analyses, it is clear that Ayodele's activism revolved around the struggle for the complete liberation of the oppressed masses of Nigerian society. He was most committed to the struggle against all forms of injustice, corruption, mismanagement, nepotism, and other qualities of bad governance. The disregard for the rule of law by members of the Nigerian ruling class was considered as a great anomaly. Ayodele was clear on the notion that members of this class are frequent adversaries of the constitution they formulated in the first instance. Overall, this has been a major clog in the socio-economic and political development of the country. Ayodele stressed this position when he asserted that 'a constitution becomes a worthless document if it can be violated by the men in power without a reliable judiciary to ensure obedience to the constitution and put the men in power under the law' (Awojobi, 1976: 43).

The persistent disdain for the rule of law by members of the ruling class in a way has a strong connection with electoral irregularities. It is against this backdrop that Ayodele had no qualms in relating the surge of electoral fraud in the 1980s to the internal contradictions of the judiciary. Beyond this, the scholar-activist was clear that members of the political class who rely on electoral fraud and violence are indeed saboteurs of democracy. According to Kayode, Ayodele once declared that the process of building a strong democratic base in Nigeria will continue to be a farce since the country is bereft of true democrats (Komolafe, 2005). The conviction of the activist in constitutional powers, particularly as a potent weapon in the defence of the rights of the masses, can also be predicated on the roles he played in the establishment of a renowned political movement known as the National Association for the Survival of the 1979 Constitution (Hussein, 2018). This attempt distinguishes Ayodele as not just an articulator of freedom, but also as a working or active revolutionary intellectual.

On the imperativeness of a just Nigerian society, the systems and institutions that have permitted the ownership of the vast resources of the land by a tiny minority will have to be dismantled. This intervention is germane because the majority of Nigerian people are indeed already disenchanted with the state. The outpour of youth on the streets during the 2020 #EndSARS Protests, across major cities in the country, is a strong indication of this reality. In a way, Ayodele is in accord with this position when he admitted that 'the fundamental property of a stable society is support from masses of people arising purely from their satisfaction with the policies of the government of the day' (Awojobi, 1976: 4). Based on current trends, Nigeria is unarguably an unstable society. Governments across the board have lost the support of the people. By reflecting on the limitations of the Gowon and Obasanjo regimes on the one hand, and the Shagari administration on the other hand, Ayodele would contend that the country ultimately has what it takes to develop, had it not been for the greed and insincerity of the ruling class. These erstwhile governments were further accused for inciting ethnic politics in the country as a means of distracting the oppressed from the reality of their obnoxious and inhumane state. The governments of Balewa and Ironsi, in this case, were held liable by Ayodele.

Overall, Ayodele – the fiery critic of the Nigerian state – was a believer in social justice and equity. This path he walked until his demise in 1984. In line with the injustices that characterised the state of the Second Republic, Ayodele was a frequent mobiliser of the masses. He was convinced that the masses have the duty of organising against their oppression. More often than not, the Nigerian state and her apparatuses were exposed by Ayodele, for clamping down on the natural and human rights of the people to resist the effects of bad governance. Ayodele expressed in one of his publications that: 'A nation that pretends the problem should never be discussed or does not exist is like an ostrich burying its head in the sand' (Awojobi, 1976: 37). The above presents the impactful life and works of a genuine African intellectual who was interested in the practical struggles for the complete emancipation of the oppressed people of Nigeria from the claws of their oppressive state.

Ayodele Awojobi: A Resonator for African Intellectuals

Frantz Fanon, the Algerian revolutionary thinker, posited that: 'Each generation must, out of relative obscurity, discover its mission, fulfil it or betray it' (Fanon, 1961). The continuous degeneration of neo-colonial Africa has created a massive disorder, to the extent that the intellectual class has been polarised on the question of its historical mission. On the one hand, numerous intellectuals are largely indifferent to the sufferings and disenchantment of the downtrodden. And on the other hand, an insignificant number of intellectuals have consistently displayed their interests in alleviating the social realities and conditions of the hoi polloi. In spite of this interest, the monopolisation of the public space by the African bourgeoisie has had an overwhelming effect. Neoliberalism, nepotism, corruption, etc. are just some obstacles that have precluded the chances of the rise of a determined class of African intellectuals.

In spite of these challenges, there must be a reawakening of the traditional mandate of African intellectuals. Oral sources have indicated that the socio-economic growth and development of a chunk of proto-feudal African societies chiefly rested on the gigantic roles of distinct intellectuals of that era. A case in point is how transformative the innovations of Imothep were in the emergence of the renowned Egyptian civilization. Proto-feudal African intellectuals

acted in different capacities such as artists, griots, historians, artisans, philosophers, etc. Colonialism truncated the conventional process of knowledge production and consumption in colonial Africa through the introduction of Western education. Postcolonial intellectuals have the duty of rising above this challenge. In the process of concretising the political and economic subjugation of the colonies, the European colonisers had to dominate knowledge. Through the colonial educated Africans, the racist notion of Western supremacy was not only institutionalised but successfully emerged as a model for postcolonial Africa.

The complicit roles of the colonial educated Africans in the process of European imperial control over the African continent has gained extensive scholarly attention. In the submission of Ayandele, the Western educated Africans were at best 'deluded hubris' (1974: 12) because of their over-glorification of bourgeois Western social norms and customs at the detriment of Africans. Rodney echoed this point when he posited that 'the main purpose of the colonial school system was to train Africans to help man the local administration at the lowest ranks and to staff the private capitalist firms owned by Europeans' (1976: 60). The scholar-activist in his critique against the colonial school institution also expressed that 'the colonial school system educated far too many fools and clowns, fascinated by the ideas and way of life of the European capitalist class. Some reached a point of total estrangement from African conditions and the African way of life' (Rodney, 1976: 69).

Understandably, the domination and exploitation of the African colonies was somewhat meant to be supervised by the colonial African intellectuals. While it is true that a section of members of this class were in the long run instrumental to the anti-colonial struggles, owing to the internal contradictions of the overall structures of colonialism, they really did not relinquish the Western bourgeois modus vivendi that the era had created. Extensively, the intellectuals postcolonial Africa inherited had no interest in waging any main struggle against the forces of neo-colonialism consequent to this trajectory. The intellectual class, except for in rare occasions, is not conventionally modelled for this responsibility since members were historically and mandatorily meant to alienate themselves from the social realities and conditions of their immediate societies, including the state of members of the downtrodden class.

The foregoing analysis therefore exposes why the academy within the context of the African continent is a somewhat citadel of Western neoliberal philosophies and epistemologies to a significant extent. The dominance of capitalist and bourgeois individualistic lifestyles that colonialism institutionalised are indeed apparent in the circles of intellectuals even today. It is thus relevant to state that the sense of solidarity and social responsibility that was dominant in proto-feudal African societies have to be revived today. African intellectuals in postcolonial Africa have to be encouraged and inspired by the life and works of scholar-activists such as Ayodele Awojobi, Walter Rodney, Claude Ake, etc. for the sake of fulfilling their historic mission. Postcolonial African intellectuals will have to pay attention to the submission of Wilfred and Martin on the task of educators. The scholars contended that educators have the mandate of shaping their acquired knowledge to their immediate environment and to 'make it move to the rhythms of the people and their land' (Cartey and Kilson, 1970: 121).

At this moment, the call by Chinweizu that stressed the necessity of a decolonised African educational system is especially pertinent and must be a dominant objective in the African academy. Chinweizu called for a 'Black Africa that is liberated from imperialism, neo-colonialism, powerlessness, and from the world's contempt – a Black Africa that has a technologically robust culture; is autonomous in its economy, culture and politics; and is prosperous and Afrocentric' (Chinweizu, 1987: 21).

The class of contemporary African intellectuals ultimately must rise to the occasion of being the 'articulators of freedom'. The renowned Kenyan writer, Ngugi Wa T'hiongo, also made this point when he contended that 'it is necessary for an intellectual who really wants to contribute to the liberation of the African people – that is, the liberation of their productive forces and their genius – to put his intellectual resources at the service of the people; to make sure that whatever he articulates in writing, in lectures, in essays, everywhere is in harmony with the needs of the struggling classes in Africa' (Wa Thiong'o, 1985: 20).

It is true that a number of scholars in the African academy, both in the past and now, had identified with the revolutionary methodological approach and practices of Marxism. Mayer (2016), in his classic work, has revealed the depth of the existence of Marxist intellectuals in the Nigerian academy during the post-1980s era. By providing an overview of the works of Nigerian Marxist scholars such as Edwin Madunagu, Bala Usman, Eskor Toyo, etc. the author painted the noble attempts of the circle of radical African intellectuals in birthing a better society. The point however must be made that the mandate of a Marxist scholar cannot entirely be exhausted in the literature and indeed in the four walls of the universities.

Das Raju (2013) espoused that 'a Marxist is someone who is committed to dialectical and materialist analysis of society and nature with the purpose of contributing to the creation of a better world, a world which is ecologically sustainable and which is without class exploitation and social oppression'. The scholar, by implication, argues that the defence of the basic ideals of Marxism is dialectically related to actual practices. In other words, the absolute appreciation and commitment to the tenets of Marxism requires the combination of thought and practice. Against this backdrop, African intellectuals who appear to be propagating the ideals of Marxism in the colleges, universities, etc. have the duty of playing vanguard roles in the overall struggles of the oppressed. It is germane to emphasise that contemporary African intellectuals will not be embarking on a strange journey by merging their scholarship with activism. This paper erstwhile painted the overall relevance of the intellectuals in the making of proto-feudal African societies. In fact, the renowned Nigerian academic, Ukpabi Asika, in discussing the African context, once said that intellectuals can be understood as the threads that hold society together (Chuku, 2013).

The retrogressive roles of bourgeois intellectuals in postcolonial African society therefore have to be consumed for a renaissance. The relevance of this renaissance is obvious in the submission of Soyinka when he argued that: 'The artist (intellectual) has always functioned in African society as the record of mores and experience of his (or her) society and as the voice of vision in his (or her) own time' (Cartey and Kilson, 1970: 122). It is thus an undebatable fact that, should this responsibility be ignored, such an intellectual will not just be distorting his or her traditional role but also expressing a great disservice to the postcolonial African society. Since the ultimate relevance of intellectuals can be most felt in their immediate distinct societies, the former – in the context of the social realities and conditions of postcolonial Africa – have the revolutionary duty of confronting the cruelty of neo-colonialism. The intellectual class, flowing from its historic task, as argued by Nkrumah, have to provide the necessary impetus and leadership for the African revolution in the struggle against neo-colonialism (Nkrumah, 1970: 39). In quest of the African revolution, the foregoing has painted the consequential role of the intellectuals. Since the revolution, as articulated by Nkrumah (1970: 30), can only be possible when the organic structure and conditions within the society have aroused mass disenchantment and desire for positive action to transform the society, the intellectuals will be critical in the process of not only articulating these structures and conditions, but also providing the masses with a concrete alternative. The radical life and works of Ayodele Awojobi, as discussed hitherto, is a pointer to the immense contributions that intellectuals can play in the process of birthing a better society. The conviction of the activist-scholar in the power and relevance of the nexus between scholarship and activism is exceptional and should be emulated today by intellectuals. Though a trained mechanical engineer, the works of Ayodele on socio-economic and political matters in Nigeria are outstanding. Works such as 'Nigeria: In Search of a Social Order', 'Nigeria: In Search of a Political Order', 'Where Our Oil Money Has Gone?', etc. are logical expression of the class Ayodele was loyal to – the oppressed class. Intellectuals will have to transcend the myopic pedestal for success in academic promotions, positions, etc. Concretely, the basis for any academic excellence should be reflective in the social change and transformation of the society itself. The overall quagmire that has continued to engulf the Nigerian state is indeed an indication of the exceptionality of Ayodele's intellectualism. As stressed by Kayode, the well selected titles and arguments in most works of Ayodele might confuse one into thinking he was writing about the present state of Nigeria (Komolafe, 2005). This calls for a reawakened commitment by contemporary African intellectuals in the struggle for a better society. Simply put – there is much liberation mission that is yet to be embarked upon. If Ayodele fought the Shagari-led government

in the 1970s because of a missing N 2.8billion, one cannot begin to imagine how many ministries, government agencies, institutions, and organs he would have to confront today.

Conclusion

The ultimate objective of this paper should not be misconstrued to mean a denial of the roles of the oppressed masses in their collective struggle towards liberation. The intellectuals, however, are the strong blocks that have the capacity of sustaining and enriching the people's struggle with the necessary ideology and purpose. But, as warned by Nkrumah (1970: 40): 'if they (intellectuals) are to play a part in the African revolution, they must become conscious of the class struggle in Africa, and align themselves with the oppressed masses. This involves the difficult, but not impossible task of cutting themselves free from bourgeois attitudes and ideologies imbibed as a result of colonialist education and propaganda'. What this paper has done is to expose how Ayodele Awojobi can inspire the emergence of another generation of activist-scholars. This is timely, given the current absolute repression and exploitation of the masses by members of the African ruling class. The overwhelming dominance of the forces of neo-colonialism on the African continent also bears witness to this urgency. Concretely, the continent is at a crossroads and only the intellectual class, in alliance with other strata of the oppressed, can change the tide.

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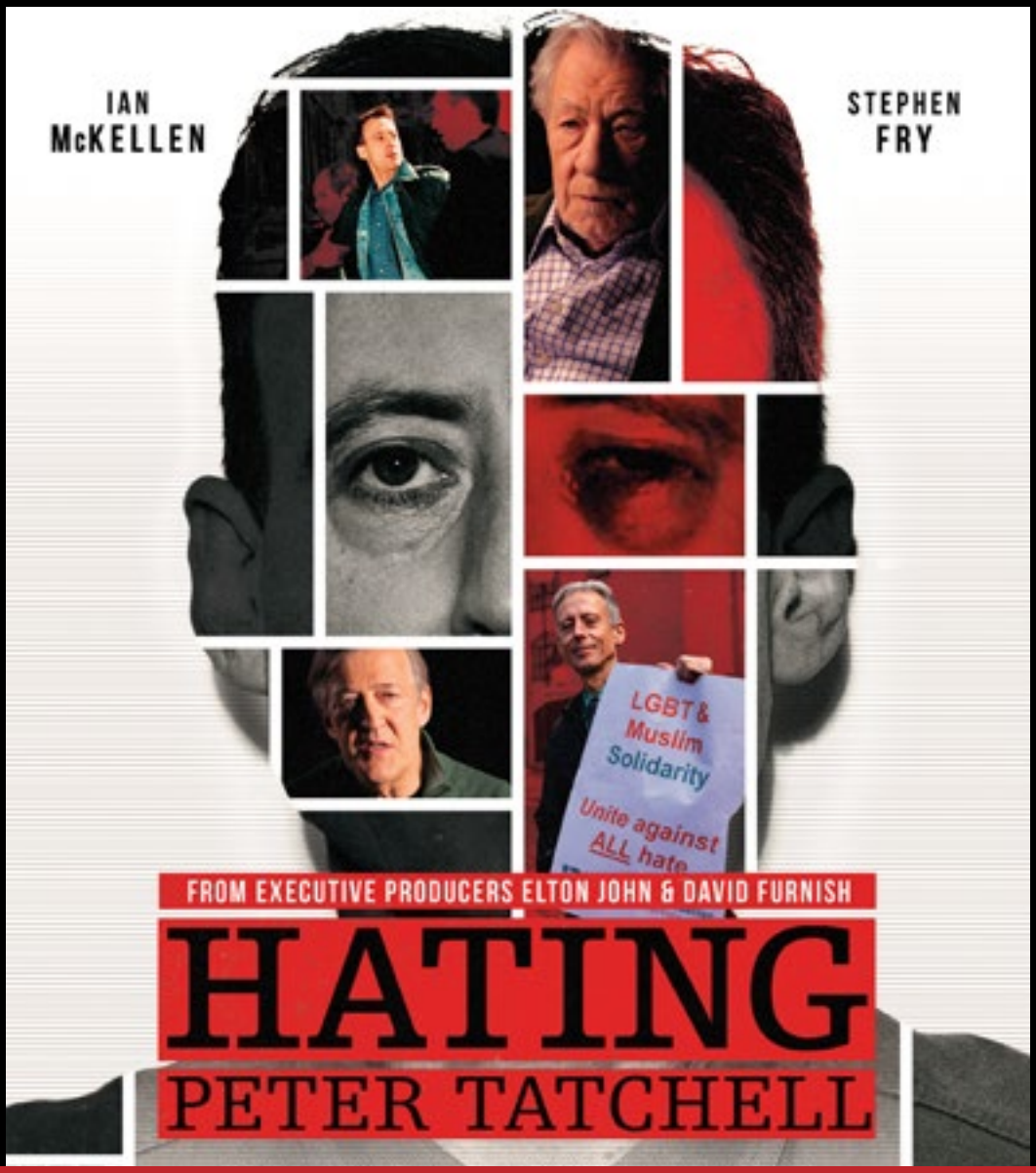
LGBT+ Rights and the Fight Against Apartheid:

An Interview With Peter Tatchell



Dr Andy Carolin—Senior Lecturer in the Faculty of Education at UJ—interviews British human rights campaigner Peter Tatchell about his role in achieving a commitment to LGBT+ rights within the anti-apartheid movement.

Andy:
My reason for initiating this discussion now is the Netflix documentary that was released in 2021 titled Hating Peter Tatchell. This documentary focuses on your human rights activism over five decades and maps a compelling history of the fight for LGBT+ rights in Britain. But our conversation today emerges in response to a glaring gap in the story that the documentary tells about you. In particular, the documentary is silent on your work in the anti-apartheid movement, and, more specifically, your work in refiguring the relationship between the anti-apartheid movement and LGBT+ rights. So, I think a good point of departure, then, given its omission from the documentary, is for me to ask you about your personal experiences of being part of the anti-apartheid movement in London in the 1970s and 1980s, and specifically being a gay activist in the movement. There have, for instance, been several accounts of homophobia.

Peter:
I wouldn't say the British anti-apartheid movement was homophobic. But I certainly think there was a failure to address the intersection between race, sexuality and the broader LGBT+ movement. The only group that made the connection meaningfully was the so-called 'renegade' City of London Anti-Apartheid Group, which broke away from the mainstream movement because the City of London Group wanted to do direct action. The official anti-apartheid movement favoured occasional set-piece mass marches and lobbying. But that was often about the extent of it. The City of London Group was very much about picketing the South African embassy, which they did for nearly five years nonstop: all day and night, through hot weather and cold. It's one of the great direct action campaigns in post-1945 British history. The official anti-apartheid movement would hold a mass march every year from Hyde Park to Trafalgar Square, often getting tens of thousands of people. They also did periodic street stalls, petitions and protests against Barclays Bank. And they lobbied political parties, members of parliament and the government. But they didn't do direct action like the City of London Group. The City of London Anti-Apartheid Group was also the only faction within the wider anti-apartheid movement in Britain that saw sexuality as being part of the struggle for a free South Africa.

So, you are suggesting that the City of London Group had a far more intersectional approach to human rights. How did the homophobia start coming into view for you across the different factions in the movement, which ultimately led to your monumental intervention in 1987?

Well, the official anti-apartheid movement did not want to engage with the LGBT+ movement here in Britain or in South Africa. They saw it as a distraction from the main fight against apartheid. I argued that engaging with the LGBT+ movement both in Britain and South Africa would draw LGBT+ people into the anti-apartheid struggle and thereby strengthen it. On a number of occasions, I also raised the point that if the alleged homophobia – well it wasn't just alleged – of some people within the African National Congress (ANC) was not challenged, post-apartheid South Africa might easily end up with the same kind of homophobic persecution that we witnessed in Cuba after the revolution there.

In South African public discourse today, the anti-apartheid movement and the ANC have almost become synonymous. But what you're describing is a far more complex set of solidarities.

Well, there are two issues here. Within South Africa, in addition to the ANC, there was, of course, the Pan Africanist Congress, Azapo, and the Black Consciousness Movement which developed around Steve Biko. So, there were really four strands to the anti-apartheid movement inside South Africa. Or you

"Well, the official an -apartheid movement did not want to engage with the LGBT+ movement here in Britain or in South Africa. They saw it as a distraction from the main figh against apartheid. I argued that engaging with the LGBT+ movement both in Britain and South Africa would draw LGBT+ people into the anti-apartheid struggle and thereby strengthen it."

could perhaps say five strands if you included the church and people like Archbishop Desmond Tutu. As it happens, I knew Robert Sobukwe of the PAC. Although he never said so publicly, privately he was broadly supportive of LGBT+ rights. But I don't think he or the PAC ever took a public stance on it.

For activists such as Robert Sobukwe, did you get the sense that they were starting to warm to an intersectional human rights movement because of a deeply held ethical conceptualisation of human rights, or was it a question of strategy?

I wouldn't go as far to say that Robert Sobukwe or the PAC were warming to an intersectional anti-apartheid struggle. They were still a bit dismissive. They would say things like 'yes, of course, gay people shouldn't be persecuted', but there was no sense of urgency in integrating LGBT+ people into the anti-apartheid struggle. There were people in the ANC who said similar things: 'gay people shouldn't be criminalised', but that was not the official position of the ANC.

You've written previously that it was 'deemed betrayal to question the ANC' and that 'criticism was unwelcome'. Can you elaborate on this?

The way in which the City of London Anti-Apartheid Group was treated by the official movement was typical of a degree of sectarianism. Dissenting voices within the movement were not encouraged or welcomed. That is why the City of London Group, which was passionate about direct action against apartheid, had to effectively leave the mainstream movement and set up on their own. There wasn't a place within the official movement for them. For instance, when David Kitson was released from prison in 1984 after being imprisoned in South Africa for his anti-apartheid activities, he and his wife Norma came to live in London. They immediately engaged with the UK's official anti-apartheid movement. But the ANC was critical of David Kitson and the official movement kept him at arm's length out of deference to the ANC. David Kitson was in return critical of the official anti-apartheid movement in Britain. He therefore gravitated to the City of London Group. He and Norma were regular attendees at the 24/7 nonstop picket outside the South African embassy. I felt quite heartbroken that someone like David Kitson, who had apartheid work, was so badly treated. Even if he had had some falling out with the ANC, the British anti-apartheid movement shouldn't have treated him the way it did. Not surprisingly, the City of London Group had a somewhat antagonistic relationship with the official movement.

If we can move then to your historic engagement with the ANC in 1987, which eventually resulted in you securing the first-ever formal commitment from the ANC that gay and lesbian rights would be recognised in a then speculative post-apartheid state.

I was doing an interview for the Labour Party's weekly newspaper, Labour Weekly, with Ruth Mompati, a senior ANC official, to promote South Africa's Women's Day. As an anti-apartheid supporter, I wanted to help publicise Women's Day and the role that women had played in the struggle against apartheid. It was only at the end of the interview that I decided to ask the question about the ANC's stance on LGBT+ rights.

Ruth Mompati is quoted in your 1987 article as saying: 'I cannot even begin to understand why people want lesbian and gay rights. The gays have no problems. They have nice houses and plenty to eat. I don't see them suffering. No-one is persecuting them… We haven't heard about this problem until recently. It seems to be fashionable in the West.'

I concluded from this interview that there was clear evidence that at least one very senior member of the ANC was homophobic. The interview confirmed the allegations and rumours of homophobia that I had previously heard. I knew that if the ANC was not challenged, it could end up like Cuba, pursuing extreme policies of homophobic persecution in a post-apartheid state. Even though many people in this period were pessimistic about the chances of change in South Africa, I always took the long view that the ANC would be victorious in the end. So, I knew that having them onside for LGBT+ rights was tremendously important. If I and others could help persuade the ANC before apartheid fell and before they came to government, then that would secure the place of LGBT+ people in a free and liberated South Africa. I knew that publicity would put pressure

on the ANC to respond. I wanted to get an official response – not just from Ruth Mompati – but from the ANC leadership in exile, then based in Lusaka. I realised that unless there was a lot of publicity about what Ruth Mompati had said, they would not be motivated to respond. And although I didn't want to embarrass the ANC, I felt it was necessary to provoke change. So that is why, in addition to publicising the interview in Labour Weekly, I then got it published in LGBT+ publications in Britain and other countries. And I also sent it to the anti-apartheid movement here in the UK and in several other countries as well. The idea was to publicise what had been said and to provoke an internal debate, and that is what happened. You know, there was an outcry in the LGBT+ community about what Ruth Mompati had said. There was also quite a lot of dissension within sections of the official anti-apartheid movement in the UK. They thought 'this looks bad'. They knew this was going to damage the ANC's credibility. Some grassroots members in the official movement agreed the ANC was wrong: that they should be supporting LGBT+ rights. So there were lots of different tensions and lots of different responses that came back. Some people seemed primarily concerned about protecting the ANC's reputation, while others were genuinely concerned to ensure that LGBT+ South Africans would have a place in a post-apartheid society. It was in September 1987 that I published the full interview in London's Capital Gay newspaper, under the heading 'ANC dashes hopes for gay rights in South Africa', which included quotes from Solly Smith, the ANC's representative in the UK. He expressed very similar negative opinions to those expressed by Ruth Mompati. His response was very much that LGBT+ matters were not an issue in South Africa. They were a diversion from the struggle against apartheid. The ANC was committed to majority rule, he said. Given that LGBT+ people were a minority, by implication their rights didn't matter. I had also asked Solly Smith if the ANC had a policy, or would have a policy, about repealing the anti-gay laws that existed under the apartheid regime. His reply was quite negative and dismissive.

Your original article quotes Solly Smith as saying: 'We do not have a policy. Lesbian and gay rights do not arise in the ANC. We cannot be diverted from our struggle by these issues. We believe in the majority being equal. Those people are in the minority. The majority must rule.'

The publication of the interviews with Mompati and Smith was a bombshell. No one had ever got the ANC leaders or representatives on record as being homophobic. But here I had it in black and white. It provoked an outcry, not just within LGBT+ circles but also among liberals and progressives, including some activists in the anti-apartheid movement itself. The next phase was to spread the word internationally. My thinking was to put the ANC under sufficient embarrassment and pressure that they would have to respond, and hopefully issue a policy in support of LGBT+ rights. That was merely a hope. I can remember that the publicity I generated did lead to both the ANC and the broader anti-apartheid movement being deluged with letters of protest and condemnation. A lot of people, even those that recognised that the fight against apartheid was the main fight, still were appalled that an ANC representative could speak in that kind of language about LGBT+ people.

What was the immediate response to your publication and distribution of those interviews?

By this stage, I was persona non grata in the official anti-apartheid movement because I'd already been supporting the City of London Group. The attitude of the official movement was that if you're in the City of London Group, you're not with us. You're not one of us. You're not part of us. It was very, very sectarian. I had discussed the interviews with some members of the City of London Group, including Norma and David Kitson, who suggested that I should write personally to Thabo Mbeki, who was then the ANC Director of Information in exile in Lusaka. I remember hearing that he was the most liberal and open minded of the ANC leaders, and that he was the best placed to get the ANC to rethink its policy on LGBT+ rights.

It was Thabo Mbeki who then wrote to you directly to clarify that the ANC would support LGBT+ rights. In his letter, he is quoted as saying: 'The ANC is indeed very firmly committed to removing all forms of discrimination and oppression in a liberated South Africa. You are correct to point out that this commitment must surely extend to the protection of gay rights.' On a strategic level, it was an extraordinary success to not only get the ANC on record being homophobic but also to secure the ANC's public support for gay and lesbian rights. There was about a two-month delay in publishing

your article and then getting Thabo Mbeki's response. Can you describe this time?

I've since been told by other senior sources that it provoked a really quite heated debate within the ANC in exile. I'm told that Oliver Tambo was quite supportive of a rethink of the official ANC policy and he was broadly in agreement with Thabo Mbeki's reply to me. When I wrote to Thabo Mbeki, I made the point that lesbian and gay activists were involved with the anti-apartheid movement and specifically cited Simon Nkoli and Ivan Toms. This apparently made an impact. At Thabo Mbeki's request, I communicated his reply to LGBT+ and anti-apartheid groups and media worldwide – the same people to whom I had sent the original damning interviews. I also sent it to members of South African LGBT+ groups, such as the Organisation of Lesbian and Gay Activists (OLGA), which was based in Cape Town. I also forwarded it to members of the United Democratic Front, the quasi-legal anti-apartheid coalition inside South Africa. So, very quickly, Mbeki's declaration of ANC support for LGBT+ rights spread out all over the world and, most importantly, inside South Africa itself. My letter was the trigger that shifted the ANC's stance. But of course, what I was doing complemented and reinforced the pro-gay efforts of activists within the United Democratic Front in South Africa. The person that comes to mind most significantly in that regard is Simon Nkoli.

Simon Nkoli is an activist who appears to have divided both the anti-apartheid and LGBT+ rights movements. Do you want to speak about how he was perceived within the structures that you were working with in London?

When Simon was arrested on treason charges, I was put in touch with him through an intermediary based in Scotland. I wrote to him via his mother while he was in prison and she passed them to him. Soon after his arrest, I organised a global letter writing campaign to support him. All the letters were directed to his mother's home. I've been told that the letters arrived by the sack-full from all over the world. Simon later told me that it was a great psychological and emotional boost to know that literally thousands of people from countries all over the world knew about his imprisonment and supported his courageous stance.

There is a photograph of you protesting in London to raise awareness about Simon Nkoli, and the sign indicates this was done under the banner of the City of London Group.

There was a huge groundswell of support with the LGBT+ community in the UK towards Simon Nkoli and his two-edged fight for LGBT+ rights and an end to apartheid. But much of the official anti-apartheid movement largely ignored Simon Nkoli. Many said that our focus should be on overthrowing apartheid, not highlighting individual cases or 'side' issues like LGBT+ equality.

In as much as he was a divisive figure in parts of the anti-apartheid movement, there was also a strong feeling among parts of the white-dominated gay rights groups in South Africa, such as the Gay Association of South Africa, that the priority should be securing LGBT+ rights. Their ambivalence on apartheid can be construed as complicity with the apartheid system itself.

That ambivalence on the anti-apartheid struggle is the sort of feedback that I was getting from some South African LGBTs at the time. A lot of gay white men in South Africa were asking 'why are you supporting this black communist who will destroy our society?'

If we can move then to the final years of apartheid and the negotiations.

While Thabo Mbeki's letter in response to me was a watershed moment in the ANC's formal commitment to LGBT+ rights, securing similar support within the United Democratic Front inside South Africa would not have been possible without the tireless activism of LGBT+ campaigners within the anti-apartheid movement, like OLGA in Cape Town, and individuals such as Simon Nkoli, Ivan Toms and others. It was in 1989, about two years after the published interview and Mbeki's letter, that I learned that the ANC was beginning work on drafting a constitution for a free and democratic South Africa. Albie Sachs was a leading ANC member and a key figure in the process. I asked him whether he planned to include an anti-discrimination clause in the draft constitution and whether this would include protection against discrimination based on sexuality. I remember that Albie was originally not very sympathetic and certainly

sceptical about whether it was possible. I explained that there were already anti-discrimination laws in several European countries that could provide a model for a clause in the post-apartheid constitution. I think Albie was a bit resistant because I wasn't South African and wasn't black. But to give him his credit, he did ask me to come back with examples of anti-discrimination clauses, and that's what I did. I gathered together copies of anti-discrimination laws that existed in Denmark, France and the Netherlands. Each of these countries had comprehensive anti-discrimination laws, which in many cases included an explicit ban on discrimination on the basis of sexual orientation. I remember speaking to Albie after he'd seen the sample legal statutes and it was quite clear that his mind had changed. Not only did he seem to think it was a practical proposition, but he also thought it was a very good idea – not only that there should be an anti-discrimination clause in the post-apartheid constitution but that it should include sexual orientation and protections for other disadvantaged, discriminated communities. While I was heartened by the fact that Albie seemed to be warming to the idea, I had a nagging doubt that he might backtrack and I thought that he would probably be more convinced if the initiative came from inside South Africa itself. So, I sent copies of these anti-discrimination clauses to LGBT+ groups in South Africa: OLGA and GLOW (Gays and Lesbians of the Witwatersrand), which was formed by Simon Nkoli after his release from prison. I urged them to lobby Albie direct. Then I thought: nothing beats a face-to-face meeting. I discussed my plan with OLGA and suggested they should send a representative to London to meet Albie Sachs in person to make the case for a broad-based comprehensive anti-discrimination clause which would, among other things, include protection against discrimination based on sexual orientation. At the end of 1989, I arranged a meeting between Albie Sachs and two representatives from OLGA, Derrick Fine and Niezhaam Sampson. I calculated that a face-to-face meeting would have a much bigger impact than any letters or phone calls. They then discussed what became OLGA's constitutional proposals, because by then OLGA had adopted the ideas that I had proposed and they had become OLGA's proposal and not mine. The meeting with Sachs went well. Once Albie was on our side, he was able to use his influence and leverage to win over other key people in the ANC leadership. The next thing that happened was that OLGA held meetings with Kader Asmal and Frene Ginwala. They were very influential in the ANC. Once the formal constitutional negotiations started, several LGBT+ groups worked together and used Thabo Mbeki's 1987 letter to me to win further support for LGBT+ rights within the many constituent organisations of the United Democratic Front.

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Your discussion of this history emphasises the importance of solidarity-building and relationships among activists. If I can ask you a broader question, then: I have argued elsewhere that LGBT+ rights in South Africa were engineered by a political elite, despite the fact that the majority of people in the country were quite homophobic. This is very different to the model we have seen in Britain, Ireland and the United States, where it was popular support that forced the political actors to change laws. If we contrast these two approaches – one in which grassroots movements put pressure upwards versus political elites imposing more progressive views on sceptical publics – what does this mean for LGBT+ mobilisation and activism going forward?

Obviously, a grassroots movement with public support is the best way to win LGBT+ human rights that are lasting and durable. But in situations where public awareness and support is very weak, then those in political power still have a responsibility to protect the human rights of the vulnerable and marginalised. It's not the ideal way to do it, but the priority must be to protect people from discrimination and hate

crimes. Human rights campaigns cannot be based on majority opinions but should be rooted in certain fundamental and inalienable principles, based on equality for all and discrimination for none. In the end, the ANC ensured the world's first constitutional protection for LGBT+ people. That was a trailblazing achievement. It was particularly courageous given that there was not much public support for it. Today, although the legal protection is there, the extent of daily anti-LGBT+ discrimination and hate crime is still high. It shows that changing the law is not enough. What is required is a cultural change, as much as a legal one.

As an anti-apartheid activist based in the UK, what are your feelings about the current state of the post-apartheid project?

Let me first say that I was overjoyed when apartheid fell. I had been involved in the movement against the racist regime for two decades, since I was a teenager, and I'd always believed that the system of racial segregation would eventually come to an end. I felt so happy for non-white South Africans that they would be treated as free and equal citizens. When the post-apartheid Constitution came into force, with its protection against discrimination on the grounds of sexual orientation, I was both elated and relieved. I felt relief that the fear the ANC might back out at the last minute, and ditch sexual orientation, did not come to pass. I applaud the ANC for sticking to its guns. But like many anti-apartheid activists in the UK and South Africa, I feel badly let down by the way that the ANC seems to have strayed so far from its founding ideals. The level of corruption is truly shocking. The huge contract for weapons at a time when millions of Black South Africans were malnourished or without water or electricity was deeply, deeply distressing. If I were in South Africa today, I would find it very difficult to vote for the ANC. I feel the party has betrayed the ideals for which so many of its members fought and, in many cases, lost their lives and liberty. It is heart-breaking. There is a lack of progress on land reform and a lack of any serious attempt to institute economic democracy and uplift the very poor. In too many respects, South Africa today is run by the ANC along elitist lines very similar to how the country was run in the dark days of apartheid. The gap between the rich and poor is unacceptable, especially given that so many people suffered in order to build an equal South Africa.

Thank you so much for your time, Peter, and for sharing these perspectives and experiences.

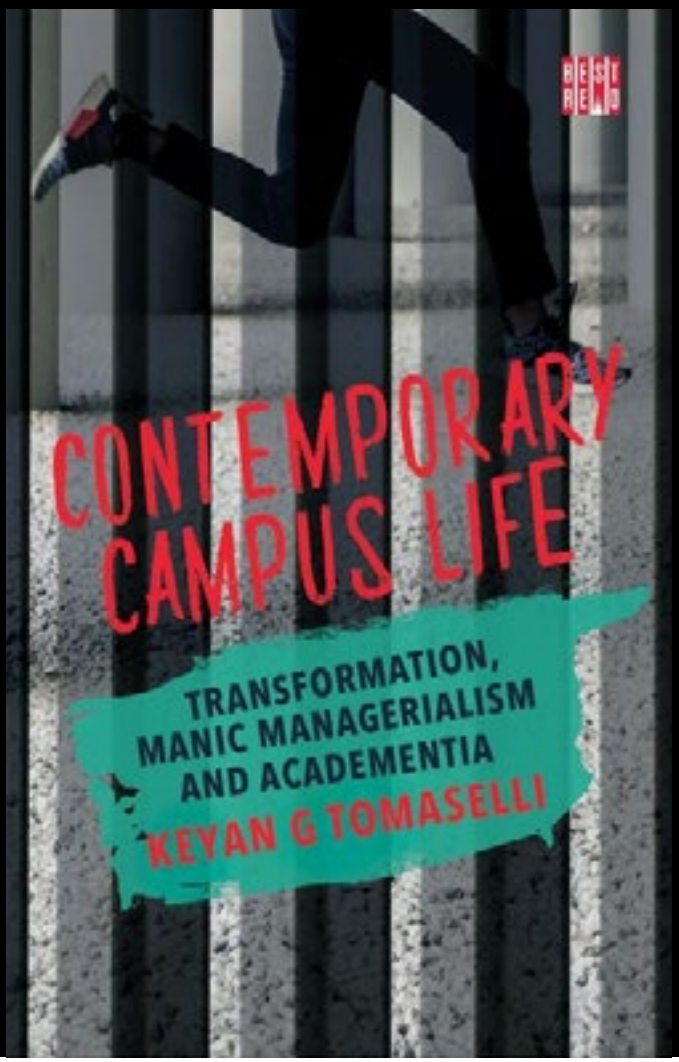
For more information about Peter Tatchell's human rights work: www.PeterTatchellFoundation.org

Dr Andy Carolin is a Senior Lecturer in the Faculty of Education at the University of Johannesburg. He is the author of Post-Apartheid Same-Sex Sexualities: Restless Identities in Literary and Visual Culture (Routledge, 2021).

Book Review:

Contemporary Campus Life: **Transformation, Manic Managerialism and Academentia**

– by Keyan G. Tomaselli



By Donal P. McCracken

[2021. BestRed (HSRC). 244pp. ISBN 978-1-928246-26-8]

It is with a certain hesitation that one opens a new book about the work experience written by a former colleague. Flicking nervously to the index I am relieved to see my name is not mentioned, only moments later to be mortified on flicking through his 244-page apologia to see my name up in lights. So, we shall start with a shoddy index. That and the 1970s drab brown cover do not speak well for a good read. Then the acknowledgements contain this ominous paragraph: 'These chapters are constituted and rewritten from columns published in UKZNdabaOnline, with others from UKZNtouch, SUBtext, Wits Review, the Sunday Times and some other published and original materials. The first of these he wrote as the Griot, the oral storyteller of African communities. The chapters have been edited, updated and the original ideas elaborated on and offered here in essay form, rather than as columns.' So, the 1970s are pushed back to the 1950s when in South Africa the common if quaintly outdated practice of selected published columns actually sold books. A quarter of a century ago I recall advising a celebrated journalist and broadcaster not to even think of such a retrograde step. And yet, like some remarkable madcap Grand Design, Tomaselli has succeeded where others have failed. The book is a success.

Contemporary Campus Life: Transformation, Manic Managerialism and Academentia is a cry of anguish against the scourge of 21st-century university managerialism, where lip service is paid to clever window dressing, endless numbing box-ticking and to, at times, sinister bean-counting, all packaged in aspirational tones which brooks opposition — producing a pastiche of former Soviet exuberance where 'this month 300 happy workers produced 400 new tractors.' The result of this sustained and intellectually suicidal approach, not just in South Africa, has been that the professoriate have been relegated to a tame and minor role in universities leading in turn to their too often abrogating their sacred trust and entering their offices, closing their collective doors, and, in the words of the statesman William Pitt, 'Tending their own gardens'.

I had another colleague once who gained a Commonwealth Scholarship and went to Edinburgh University to study for his doctorate under the eminent and daunting historian D.B. Horn (1901–1969). On entering the great man's wood-panelled study the cantankerous Scot asked what his research topic was. This was a study of an 18th-century Scottish nobleman and diplomat (not a topic that would land one a tutorship in a South African university these days). When informed, he merely said, 'Well, Laddie, you know where the archive is in High Street, then go there.' And that was the sum total of his supervision.

Though Tomaselli is noted as a meticulous supervisor, one suspects that he is not unsympathetic to the notion of self-help and minimal administration. Apart from efficiently and effectively running his own postgraduate unit for several decades, he certainly avoided the managerial rat race, and as such cannot be accused of hypocrisy in this peroration against Mammon and Byzantinism in the academy. And being at heart a theorist it is difficult to question the logic within this volume, even if the word academentia somewhat sticks in the gullet. But, unlike most of my students, Tomaselli realises that there is a nexus between theory and reality, and where, as Arthur Quiller-Couch eloquently enunciated, the imperative for the faculty of action is subordinated to the faculty of knowledge. And that is the point of the book. The system just does not work, or at least if it does, it should not be called a university.

There was a time when much of the mining industry in South Africa was run (after the days of the enigmatic and now unpopular Mr Rhodes) by historians. Fat hope of that happening in this age of tunnel-focused education and manic managerialism. In The Idea of a University, published in 1854, Cardinal Newman speaks of 'the deficiencies and the irregularities of knowledge' within leadership and 'the eccentricity of opinion and the confusion of principle which they exhibit'. What he would have written about such leadership in 2021 one shudders to think.

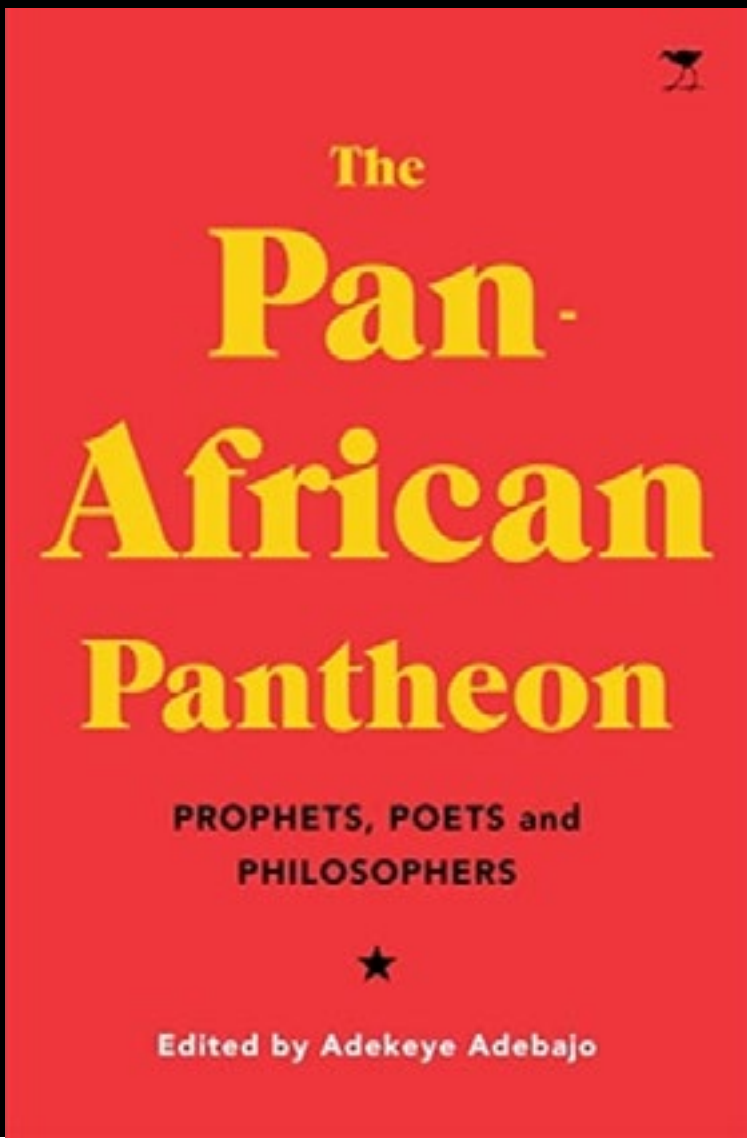
In a deceptively mild and humorous manner, Tomaselli's book systematically dissects the mindset which dominates university management practices and beliefs, and which is now self-generating and promoting. It is focused on South Africa, but it is a universal tale of bowing the knee to rankings; the mystical god Science who employs all its worshippers; political and cultural correctness (though the index being so poor I cannot definitively promise to his use of the phrase); and the regimented and monitored office regime.

It is a well-written book in somewhat satirical vein, which also flows well and makes a convincing point – one, sadly, which I fear will have no impact on the juggernaut which has relegated intellectualism (as distinct from popularism) in universities to a tame and minor role.

Book Review:

The Pan-African Pantheon: **Prophets, Poets and Philosophers**

edited by Adekeye Adebajo



By Tshepo Mvulane Moloi

[2020. Jacana Media. 655pp. ISBN 978-1-3413-3022-2]

Advocates and critics of literature on Pan-Africanism stand to studiously benefit from this contemporary book on the theme of Pan-Africanism, meticulously edited by Nigerian scholar Adekeye Adebajo. For the record, Adebajo is the incumbent Director of the Institute for Pan-African Thought and Conversation at the University of Johannesburg (UJ). When contextualised, this edited text is certainly a welcome addition to the discourse on Pan-Africanism. This book adroitly adds to contributions made by other scholars who have also addressed the theme of Pan-Africanism. A sample of preceding texts include Hakim Adi and Marika Sherwood's Pan-Africanism History: Political Figures from Africa and the Diaspora since 1787 (2003), followed by Guy Martin's African Political Thought (2012), and Marika Sherwood's Origins of Pan-Africanism: Henry Sylvester Williams, Africa, and the African Diaspora (2012). Observably, Adebajo's text shares the same publication year as African-American Reiland Rabaka's edited volume The Routledge Handbook of Pan-Africanism (2020). From this list of scholars, one may justly opine that the theme of Pan-Africanism has been addressed by scholars from around the world.

Adebajo's introductory chapter to the collection cogently points out key details about this book, and eruditely provides an array of definitions of Pan-Africanism (what 'it is' and 'is not'), while tracing the 'origins of Pan-Africanism historically to the two scourges of European slavery and colonialism' (Adebajo, 2020: 7). The collection offers 38 chapters about both pioneering and contemporary Pan-Africanists. Although Adebajo deserves to be credited for his duteous acknowledgement of the aforementioned texts, he mostly explicates how his book differs from them. Although Adebajo acknowledges that there are similarities with Hakim Adi and Marika Sherwood's text, a key difference is that while Adi and Sherwood's very useful compendium has 3-5-page biographical sketches of each Pan-African figure, Adebajo's volume has more substantive 15-20-page essays (Adebajo, 2020: 4). The latter 'go beyond the short biographies of these figures to examine the struggles in which they were involved within a broader historical and contemporary context' (Adebajo, 2020: 4). Differing from Rabaka's text, Adebajo's collection is 'organised thematically rather than biographically or regionally...We have thus not imposed any theoretical or philosophical framework on any of the authors' (Adebajo, 2020: 5). Regarding limits, he says: 'Our volume does not attempt to develop any theory or philosophy of Pan-Africanism. Instead, we set out the history of Pan-Africanism and the evolution, interaction and intellectual ideas and impact of the 36 Pan-African figures covered in this book' (Adebajo, 2020: 4–5).

What may be the flaws of this book? In sum, its omissions. Among others, in the category of 'pioneers' (in Part 2) and the 'female' Pan-Africanists (only seven were featured in stark contrast to 29 males). It is not an understatement to mention that no reason can justify such a gender bias. It is disappointing that Adebajo's text omitted chapters on some 'pioneering Pan-African pantheons' who undoubtedly laid the foundation of Pan-Africanism. In particular, this omission covers figures such as Trinidad and Tobago-born Henry Sylvester Williams (shockingly only mentioned five times) even though Adebajo mentions in his opening chapter that Williams is 'credited with having coined the terms 'Pan-African' and 'Pan-Africanism'' (2020: 22). South African Alice Victoria Kinloch or AVK is not focused on either (sparsely addressed by Aldon Morris in Chapter 4 and Colin Grant in Chapter 5). This criticism is mindful that, elsewhere, Sylvester Williams (as he is commonly called) has arguably received his fair share of attention which is quite in contrast to AVK [1]. It is with disappointing dismay that I note how AVK's marginalisation persists to date. As present scholars concerned with overcoming patriarchal hegemonies, and as part of decolonial scholarship, cases such as AVK's marginalisation challenge us to address such gaps.

It must also be noted that Adebajo's claim of Sylvester Williams having 'founded the African Association in London in September 1897 to lobby the British parliament and public opinion to oppose the violence of European colonial rule in Africa' (2020: 22) is deceptive. To be clear, what is refuted is not the action taken by Sylvester Williams but the false claim about him having been the 'founder' of The African Association. What is even more concerning is that Adebajo is not alone in making such a misleading claim, as other contributors in the book under discussion, such as Aldon Morris (2020: 96), are just as guilty of the same misrepresentation. The following primary source ought to assist in arresting any existing doubts that Sylvester Williams was contextually only one individual of the three who count as the co-founders of The African Association. The following words are quite telling: 'In presenting this the first Annual Report of the African Association to our

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friends, it is well to mention that the founders were Mr. H.S. Williams, Mr. T.J. Thompson, and Mrs. A.V. Kinloch’ (Williams, 1898: 1). Even if it was never Adebajo’s intention to do so, his and Morris et al.’s aforesaid claim(s) unfortunately centre patriarchal views.

With poignant concerns around patriarchy in mind, I cannot downplay how worrisome it is that such lacunae persist in Adebajo’s text in similar ways to others which preceded it, and even the one which was republished just after it, which continue to centre men such as Edward Wilmot Blyden and WEB Du Bois as ‘father(s) of Pan-Africanism’ (Adebajo, 2020: 21; Morris, 2020: 88). Not once in this text is there a reference to ‘mother(s) of Pan-Africanism’. My lamentation therefore about the marginalisation of female pioneers such as Alice Kinloch, who may arguably serve as the ‘founding mother of Pan-Africanism’, deserves attention. With all things being even, however, Sylvester Williams and Alice Kinloch should have topped Adebajo’s ‘Part 2’, as part of the key organisers in the leading up to the founding Pan-African conference in 1900. And finally, reading this text from South Africa, I was curious why hardly any reference was made towards the Pan African Congress (PAC) of Azania? For this reason, a ‘false postcolonial’ ontological existence could not escape me.

In the final analysis, prospective readers of Adebajo’s book should advisably consider assessing it according to the following three key points:

> There are unique features about this volume. Firstly, as the 38 essays are written by African, Caribbean and African-American scholars largely based in their regions, the book contributes substantively to efforts to transform curricula in all three regions and across the globe; secondly the book covers 36 major Pan-African figures in a bid to build a contemporary Pan-African canon; and thirdly, the volume encourages a cross-general dialogue between scholars, as well as between past figures of Pan-Africanism and more contemporary ones with whom current students would already be familiar (Adebajo, 2020: 6–7).

Ultimately, besides this book’s shortcomings, it is a timely and valuable text on Pan-Africanism. I agree that ‘It comes at a time of increasing interest in Pan-African thought and Africa’s International Relations’ (Adebajo, 2020: 6). Only time will tell, however, if indeed the editor’s claim is realised of ‘seeking to ensure that Pan-African knowledge forms part of knowledge production [and] forms part of, and influences, mainstream global thinking’ (Adebajo, 2020: 6). The overall richness of Pan-Africanist insights from this book compels it to be considered as ‘a must read’.

Notes

[1] In addition to the earlier mentioned Marika Sherwood’s Origins of Pan-Africanism: Henry Sylvester Williams, Africa, and the African Diaspora (2012), there are full-length biographies about Sylvester Williams. A sample list may at least commence from the American biographer and alleged former Central Intelligence Agency (CIA) agent James R. Hooker’s Henry Sylvester Williams: Imperial Pan-Africanist (1975), fellow Trinidadian Owen Charles Mathurin’s Henry Sylvester Williams and the Origins of the Pan-African Movement, 1869-1911 (1976) and alas another Trinidadian scholar Dr. Ronald Noel wrote his Masters in Philosophy (MPhil) Thesis entitled Henry Sylvester-Williams: a new enquiry into the old hero (2006).

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