

COVID-19, FOURTH INDUSTRIAL REVOLUTION AND THE FUTURE OF ELECTIONS IN AFRICA

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ABSTRACT

The initial focus of this study was on exploring the potential impact of the Fourth Industrial Revolution (4IR) on future elections in Africa. The Fourth Industrial Revolution is fundamentally changing the way we live, work and relate to one another. In its scale and complexity, 4IR could change humanity and human existence as we presently know it. The suddenness with which the novel coronavirus pandemic has shut down life across the globe, including the cancellation and postponement of scheduled elections, led to a realignment of the research goals. The study thus includes ways in which 4IR and unforeseen global emergencies like pandemics can impact future elections, with specific reference to Africa.

Keywords: elections, electoral management, Fourth Industrial Revolution, novel coronavirus, pandemic

BACKGROUND

The novel coronavirus, COVID-19, has significantly reshaped the way humans interact. The world as we knew it prior to the onset of this disease now seems like a period in a distant past. The resultant pandemic has reoriented people's relationships to government, the outside world, and to each other. Traditional social norms such as hugs, handshakes, and social gatherings, have become socially restricted and are frequently banned by governments attempting to contain the spread of the disease. The future of politics and politicking has also

been affected. Political parties' primaries, electoral campaigns, and elections are first and foremost about people. Given the human nature of political campaigns and elections, and with the emergence of social distancing as a new norm, it becomes pertinent to examine the implications for the future of elections, specifically in Africa.

The central focus of this article is an examination of the manner in which pandemics such as that of COVID-19, and changing advancements in technology as occasioned by 4IR, could potentially have on future elections. The last few decades have seen an upsurge in the number of elections conducted on the African continent. According to a report in 2019 by the Electoral Institute for Sustainable Democracy in Africa (EISA), elections took place in 27 African countries in 2019, confirming the point by Cheeseman and Klaas (2018) that elections have become a regular event on the continent. In 2019, the only poll postponed indefinitely was the constitutional referendum in Burkina Faso scheduled for 24 March 2019. Thirty African countries had elections planned for 2020. Some took place before the global pandemic, such as Togo's presidential election which took place on 22 February 2020, and Mali's parliamentary elections which took place on 29 March 2020. Other polls include Guinea's parliamentary election for the National Assembly which, together with a constitutional referendum, was held on 22 March 2020; the parliamentary elections in Comoros held on 19 January 2020, and elections for the National Assembly in Cameroon held on 9 February 2020 (EISA 2019).

There were 25 elections scheduled to take place on the continent before the global lockdown. It is intriguing to imagine what form the polls would take, given global adjustments in social norms, particularly regarding human gatherings. The reality of the new global regime of social distancing and limited human contact predates the study's research questions, which are: What will characterise political campaigns of future elections? What role will 4IR play in post-COVID-19 elections? What impact will adjustments in social norms and the application of 4IR have on political parties and overall electoral spending?

Unforeseen occurrences like pandemics are reminders of the limited capacity humans have to anticipate the future. In the political realm, the novel coronavirus can potentially provide opportunities for lasting policy shifts that can lead to electoral reforms. Holding elections during pandemics is not an easy task. Government and electoral officials need to balance the need to protect public health with citizens' democratic rights to vote. Some elections conducted during the pandemic have provided pointers to various challenges politicians, governments and electoral management bodies will face. For example, according to Kleinfeld and Kleinfeld (2020), Iran's COVID-19 cases surged after its February 2020 elections, while Spain's infections quadrupled four days after a political rally in March 2020.

Similarly, in Florida's March 2020 primaries, two poll workers contracted COVID-19, one of whom had handled driver's licenses. In Africa, Malawi organised a historic repeat poll after the annulment of its 2019 presidential election due to irregularities. The repeat election was a positive indication of Africa's deepening democratic values. However, in the weeks following the election, excitement dampened after the country witnessed an upsurge in COVID-19 cases. According to Masina (2020), politicians ignored COVID-19 directives and campaigned in crowded public spaces without social distancing. The new president, Lazarus Chakwera, had to scale down his inauguration after a surge in coronavirus cases and fears of increased community transmission.

Pandemics like those triggered by COVID-19 do not last forever. Like previous pandemics, after a short while life often returns to normal, as it did after the so-called Spanish flu epidemic of 1918–1920. The sociopolitical and sociocultural effects of COVID-19 have striking similarities with the worldwide outbreak last century. Klein (2020) avers that in the years leading up to the 1920 general elections in the US, that country had to deal with recovering from the devastating effects of World War 1 which claimed the lives of 100 000 Americans, as well as the global influenza pandemic which claimed 650 000 American lives and those of an estimated 50 million people globally. There were also continual race riots and labour strikes. Despite these crises, Americans went to the polls in the 1920 general elections. Social distancing and all the new norms associated with COVID-19 were in place during the 1918 pandemic. However, in many ways elections of that period succeeded because of technological advancements occasioned by the 2nd Industrial Revolution. As with COVID-19 in 2020, in 1918 governments the world over introduced various levels of lockdown. According to Lado (2020), countries closed establishments like churches and schools. Concerts and any activities that drew large gatherings were cancelled. Thanks to the earlier emergence of printing and telecommunication in the 2nd Revolution, politicians and political parties sought coverage in newspapers or turned to direct mailing.

There are more opportunities for alternatives to the normal process of politicking today than there were in 1920. The Fourth Industrial Revolution differs from the previous three industrial revolutions in the speed with which technology diffuses globally. According to Schwab (2017), organisations across every industry (including political parties and sociopolitical organisations) have reconsidered and readjusted their traditional ways of doing things. This study argues that the confluence of emerging technological breakthroughs covering wide-ranging fields such as Artificial Intelligence (AI), robotics, autonomous vehicles, 3D printing, and quantum computing are gradually amplifying each other. Technology has given rise to a fusion of innovations across the physical, digital and biological worlds. These rapid changes portend wide-ranging possibilities for the political processes of the future, especially from an Africa perspective.

METHOD

The researchers adopted an electoral cycle approach to the study. They undertook an analysis of the potential application of 4IR to the election cycle covering pre-election, election day and the post-election phase. The electoral cycle has no fixed starting or ending points. In theory, one cycle ends when another begins. Suffice to add that some segments of the cycle such as civic education and support for political parties are ongoing, and they cut across the whole cycle. The election cycle recognises elections as continuous processes rather than isolated events.

ELECTIONS AND TECHNOLOGY

Revisiting Habermas's Structural Transformation of the Public Sphere

The world is continually evolving, and humans are continuously adapting to new ways of being and of doing things. There has always been a relationship between technology and elections. As far back as the First Industrial Revolution, technology has played significant roles in the electoral process, impacting both political office seekers and the electorates. According to Anderson (2020), technology can be an important tool for political actors such as politicians and electoral management bodies (EMBs) to identify better, engage with and rally members of the public to their cause, as well as broadcast political messaging. Office automation tools such as optical scanning and geographic information systems have significantly impacted on politicking and the electoral process.

A growing body of scholarship has explored the influence of technology on political communication and participation. This influence is even more significant in terms of what Habermas (2006) describes as the public sphere. Although Habermas' definition of the open space is widely accepted as the standard, scholars have recently challenged it because the concept of the sphere is continually expanding, especially with the advent of information technology and social media.

In *The Structural Transformation of the Public Sphere* (1991), Habermas' focus was on the seventeenth and eighteenth-century institutional changes that gave rise to the public space. Habermas opined that the public sphere was bourgeois-centric, as it excluded the poor and the uneducated. Before the weakening of monarchical powers that culminated in the French Revolution, public affairs were decided mostly at the king's court. According to Stewart and Hartmann (2020, p. 172), the advent of coffeehouses where men (and women) would gather freely to debate literary, political, and economic issues of the day, provided an institutional structure that broke down class and status barriers. It also defied the church and state monopolies on matters of concern and established the ideal inclusive public discussion that broadened public participation.

Stewart and Hartman (2020, p. 174) further argue that the public sphere is no longer a single relationship where an invasive, capitalist, mass culture industry mediates citizens' interactions. They opined, instead, that a new set of organisations, networks, programmes, and institutional actors has come to constitute a new, far more multifaceted and autonomous sphere of social life, each with its own institutional logic. These new arrangements require less focus on normative conditions that support the public space than on the empirical qualities and characteristics that describe it. They further listed what they describe as the institutional infrastructure of the public sphere that supports new structural transformations as new media and technologies of communication, the proliferation of professionalisation, and the rise of new institutions dedicated to the management of the public sphere itself. For this study, the researchers focus on how new media and communication technologies have redefined the open political space and impacted on politics and politicking.

The Third Industrial Revolution, as typified by new media and technologies, have significantly transformed Habermas' conception of the public sphere. To a large extent, the transformative ability of 4IR hinges on the Internet of Things (IoT). For example, social media has replaced coffee shops and salons as venues for public discourse and engagement. They have also gradually started to replace political campaign venues, as politicians can now reach large, heterogeneous, and diverse publics through various live streaming social media platforms. Interestingly, Habermas does not seem to be excited about the potential of the internet to create an equal social sphere. In his keynote speech to the International Communication Association in 2006, Habermas spoke out about the internet in a rather unsatisfying way, especially to 'Habermasians' (Geiger 2009, p. 4), remarking:

The Internet has undoubtedly reactivated the grassroots of an impartial public of writers and readers. However, computer-mediated communication in the web can claim unequivocal democratic merits only for a specific context: It can undermine the censorship of authoritarian regimes that try to control and repress public opinion. In the context of liberal governments, the rise of millions of fragmented chat rooms across the world tends instead to lead to the fragmentation of large but politically focused mass audiences into a vast number of isolated issue publics. Within established national public spheres, the online debates of web users only promote political communication, when newsgroups crystallise around the focal points of the quality press, for example, national newspapers and political magazines.

(Habermas 2006, p. 423)

Although Habermas was not wholly dismissive of the internet as a potentially new social sphere, he suggested that the internet's role in politics and journalism is basically to act as an external reviewer of traditional sources of media. In other words, Habermas believes that the sphere is still under the control of the powerful elite. Thus, it cannot be said to be egalitarian. Geiger (2009) sums up Habermas' postulation of the internet as a public sphere, thus:

...The question, "is the internet (part of) a new public sphere?" takes the existence of the internet as a unified sociopolitical entity for granted. From a computer science standpoint, the internet is a well-defined technological infrastructure of meticulously classified and categorised computers, cables, and code. In any other context, it is a gross category error to invoke the unity of the internet. It has no more potential to become a new public sphere than do the airwaves that made possible the modern mass-mediated public sphere. A better question might be, "what is the role of the internet-based discourse communities in the constitution of the open area? When phrased this way, it becomes clear that the initial version attributes a problematic but widely assumed stability to the internet.

(Geiger 2009, p. 26)

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Thakur (2020) notes that adapting 4IR for elections will improve on speed, immediacy, and digital citizenship. This is practised in Estonia and even an almost instant democracy like Brazil through their electronic voting systems. However, he cautions that swiftness should not replace democratic integrity. He further opines that democracy is about transparency, not speed, although electoral delays can and do unintentionally create problems that heighten suspicion from the electorate, and even contestants, on possible attempts at electoral fraud.

In this section, the researchers discuss how African countries can apply the immense potential of 4IR to the conduct of future elections on the continent. Although, as earlier stated, the adoption of 4IR could potentially transform Africa's electoral management landscape, it nonetheless raises some concerns, especially in developing economies like those in Africa. According to Thakur (2020), the deployment of new technology to resolve a problem sometimes introduces new challenges – some unintended or even unexpected. Schwab (2017, p. 46) noted that past phases of the Industrial Revolution have not yet reached much of Africa. Many Africans still do not have access to electricity, clean water, sanitation and

the many necessary infrastructures taken for granted in developed economies. These challenges notwithstanding, 4IR has the potential to reverse or bridge infrastructural gaps and hasten the process of leapfrogging.

THE PRE-ELECTION PHASE

The pre-election period provides opportunities for EMBs and political parties to prepare for elections. This phase allows ample time to conduct audience analysis and media mapping, as well as message testing and strategy formation. Political party candidates also embark on campaigns during this phase, and 4IR can play an important role in this regard. For example, with the new social distancing regime introduced to inhibit the spread of COVID-19, some options for political campaigns can be adopted using 4IR.

The Prospects of Virtual Electoral Campaigns

Virtual reality (VR) is the creation of a virtual environment presented in a way to allow individuals or group(s) experience as if they were there. It is a complicated technological feat that has to account for human perception and cognition. Researchers believe that VR will play significant roles in sectors such as retail (Bonetti, Warnaby, & Quinn 2018; Van Kerrebroeck, Brengman, & Willems 2017). There is also significant VR influence in education and research.

VR is already influencing elections globally. For example, the 2016 US presidential election gave a glimpse into the future of virtual reality in election campaigns. According to Rogers (2019), VR social network Altspace VR teamed up with NBC News to test the possibility of bringing users together in a positive manner in the lead-up to the election. The team hosted a presidential debate watch party, with a screen for watching live debates. They also had a map for counting states on election night. Users did not have to be physically present. VR ensured that they were able to join live VR events with virtual fireworks.

Similarly, in 2017 Donald Trump's inauguration ceremony employed VR with 360-degree cameras that recorded and live-streamed the event on YouTube. Trump's supporters were able to access the occasion as if they were there, without having to travel (Rogers 2019).

Elections in Africa are expensive. According to Adebayo (2018), Rwanda spent \$1.01 per voter in the election of 2017. Uganda spent \$4 per voter in the 2016 general elections; while Tanzania spent \$5.16 in the 2015 general elections. It cost \$12 per voter in the 2016 elections in Ghana and \$25.4 in the 2017 elections in Kenya. The Kenyan National Treasury estimated that the 2017 election cost 49.9 billion Kenyan Shillings (\$480 million), making it one of the most expensive in

the world. Similarly, the 2016 election in Ghana cost \$182 million, 35 times more than needed to conduct the 2004 elections (Ghana News Agency).

A 2019 study by EISA on political party campaign financing during South Africa's 2019 general elections, found that political parties' campaign events absorbed a substantial part of campaign spending, especially in the lead-up to the 2019 general elections. In KwaZulu-Natal, for example, Vhumbunu (2020, p. 99) reports that political parties spent an estimated R6 720 885 to conduct campaign events alone. Given that the amount is an estimate, the final figures are likely to be significantly higher. Other provinces where the study took place reported similar statistics. The costs of providing transportation for political party delegates, hiring of campaign venues, refreshments and party regalia would have been significantly lower had the process been virtual.

Table 1: Political parties' estimated campaign events expenses for KwaZulu-Natal

Political Party	Total Estimated Campaign Events Expenses (in Rands)
ANC	1 257 005
EFF	1 760 144
IFP	200 326
DA	71 012
SRWP	1 880 816
ATM	144 551
COSATU-ANC (May Day Rally)	1 407 031

Source: Vhumbunu (2020)

While the strength of VR lies in its potential to reduce political parties' campaign costs and encourage social distancing, its weakness lies ironically in the subdual of social interactions. There are concerns about the social impact that immersive environments can have on people, as well as the psychological effects of prolonged usage. According to Mealy (2020, p. 2), VR can be isolating. Social interactions are essential in the political process. Sometimes people reach decisions on the political party or candidate to vote for during face-to-face interactions and deliberations. Mealy posits that:

...the technology for making social interactivity in virtual reality seem real isn't quite there yet. The lack of eye contact and the inability to see a user's true facial expression in most social virtual reality apps

can leave the social experience of virtual reality wallowing in the awkward uncanny valley between no social interaction and real personal connection.

Despite VR's weaknesses, it nonetheless provides opportunities for African nations to upscale on infrastructure and jumpstart readiness for the inevitable application of 4IR in everyday life, including politics.

One of the most common challenges Africa faces regarding the adoption of 4IR is the lack of necessary infrastructure. As Schwab (2017, p. 8) notes, the Second Industrial Revolution has yet to be fully experienced by 17% of the people in the world because nearly 1.3 billion people still lack electricity. For example, Nigeria, with a population of over 200 million people, currently has an electricity generation and transmission capacity of little over 10 000 MW, which is far below the nation's average requirement. The technology required for VR and other technologies relies on the availability of regular and accessible electricity. Inadequate electricity is not just a Nigerian problem, it is a common challenge all over Africa.

Therein lies the opportunity. If the adoption of 4IR depends on an upscale in infrastructure, then it behoves governments to innovate and upscale. It is a win-win-win. According to Christensen, Ojomo and Dillon (2019, p.6), enduring prosperity for many countries will not come from fixing poverty. It will come from investing in innovation that creates new markets within these countries. Market-creating innovation, as catalysed by 4IR, serves as a foundation for creating sustained socioeconomic and sociopolitical development.

ELECTION DAY PHASE

Elections Conducted by Robots?

In the early stages of the COVID-19 pandemic, many nations grappled with the application of innovative methods to combat its spread. One such way was the deployment of robots. Rwanda was amongst the first nations in Africa to deploy robots in a bid to minimise contact between patients infected with the coronavirus and medical personnel. According to Uwiringiyimana (2020), the robots, which were donated by the United Nations Development Programme (UNDP), perform simple tasks such as taking temperatures and administering medications. Other countries, such as Nigeria, soon followed suit and deployed robots in their fight against this coronavirus.

Robotics has already gained traction in personal and commercial use. Although the science of robotics is complex, it is not uncommon to find robot

assistants in homes and fields such as manufacturing, health and safety, as well as a range of human assistance. The rise of robots could potentially change the global political landscape in the near future as robots could conduct future elections. Given the staff size of electoral management bodies in Africa (both ad-hoc and permanent staff), the protracted anxiety about technological unemployment often comes to the fore whenever the issue of a future workforce dominated by robots is discussed.

Apprehension about the possible takeover of human jobs by robots dates back to the Luddite movement in the early days of industrialisation. For example, Keynes (1930) predicted that machines would abolish work within two generations. The 21st century will usher in 'the second machine age' where Artificial Intelligence (AI) will go beyond absolving manual work, to undertaking cognitive and non-routine jobs, especially those once considered to be beyond the reach of mechanisation. The conduct and management of the electoral process is one key area where robots will play increasingly vital roles.

The strength of a robot-conducted election lies in its potential to reduce the cost of conducting elections and improving the integrity of the electoral process. In the era of social distancing as occasioned by COVID-19, it has the potential to limit the number of humans involved in the electoral process, including election observers. Nations like Ghana and Rwanda have already employed robots in the delivery of medical essentials to rural health centres. According to Murray (2019), Zipline, a California-based robotics company, estimates that robots in the form of drone technology will provide essential medical delivery service to an estimated twelve million people in Ghana when fully operational. The company plans to make 600 drone flights daily, delivering blood supplies and life-saving medicines to 2 000 health centres in remote areas around the country (Murray 2019). If robotic drones can supply medical essentials, they can potentially supply electoral materials. For example, if polling units replace health centres, the possibilities of replacing medical supplies with electoral materials become more evident.

The weakness of the application of robotics to elections lies in the possibilities of politicians using robots as tools to undermine the democratic process. Moreira (2018) posits that social media ecosystems are already awash with bots that have the potential to threaten democracies worldwide. In recent elections such as the 2016 US general election and the Chilean general election of 2017, there were claims of a significant involvement of robots in ways that undermined the process. Moreira (2018) avers that robots have the potential to inflate support for a candidate, thereby influencing the outcome of elections. Often, they give the impression that a piece of information is endorsed by many individuals, in so doing wittingly or unwittingly exerting influence on the electoral process. Given Africa's challenging technological landscape, the propensity to use bots as tools for undermining the electoral process is even higher.

There is also a perpetual discourse on the possible takeover of human jobs by robots in the future. A robot-managed election could mean a loss of jobs for thousands of humans. A 2019 study by Oxford University projects that the global stock of robots will increase in the next 20 years, reaching as many as 20 million by 2030, with many of the robots handling service jobs hitherto performed by humans (Oxford Economics, 2019). Africa's share of global robots is, however, still relatively low, mainly due to a lack of necessary infrastructure.

Its weaknesses notwithstanding, robots present enormous opportunities for African governments and EMBs to innovate and seek new ways of conducting elections that have minimal human involvement but can still ensure electoral integrity. The threat to possible robot-conducted elections would be the usual challenge of Africa's infrastructural deficit. In addition, some presidents or heads of state would rather maintain the status quo that encourages irregularities, than effect change.

Improving Electoral Integrity through Digital Identification

In 2014, the Chinese government announced that it would set up a social ranking system to monitor the behaviour of its citizens, and rank them based on what the government referred to as 'social credit'. The goal is to reinforce the age-long Chinese principles of honesty and integrity while also curbing crime (Ma 2018). According to Chengdu and Campbell (2019), China's social credit scoring is best understood not as a single system, but as an overarching ideology of punishments and rewards aimed towards improving governance and stamping out disorder and fraud. Chengdu and Campbell (2019) further remarked:

...And some elements are indeed worthy of dystopian fiction. In certain areas of China, call a blacklisted person on the phone and you will hear a siren and recorded message saying: "Warning, this person is on the blacklist. Be careful and urge them to repay their debts." When a blacklisted person crosses certain intersections in Beijing, facial-recognition technology projects their face and ID number on massive electronic billboards.

The Chinese model uses facial recognition technology to trace, track and recognise every Chinese citizen and/or resident in the database. According to Yang and Madhumita (2019), facial recognition has already started to replace augmented human identity checks in hotels, flights and trains, and at banks and hospitals. The government of China has also put in place regulations for telecom carriers to scan the faces of users registering for mobile phone services. Gertz (2019)

avers that the system has already been tested in several major Chinese cities. Using millions of surveillance cameras linked to supercomputers containing captured biometric databases, people are easily identified through face and voice recognition technology. That way, the government can control behaviour that ranges from dissident political activity to jaywalking.

Facial recognition is part of digital identification, which employs machine learning and big data, key components of 4IR. Facial recognition can potentially reduce or eliminate the protracted challenge of multiple voting. Digital identification machines can easily detect when an individual has voted in an election, thereby eliminating the possibility of voting again, even in a different location. In circumstances where social distancing is required, digital identification can reduce human means of identifying and screening voters.

Digital identification can potentially address Africa's current voting problems such as long queues at polling venues, as well as over-reliance on paper ballots and voting machines. Data identification may possibly improve the prospects of e-voting on the continent. E-voting has the potential to speed up voting registration and ballot counting. Ultimately, e-voting systems would significantly lower the costs of elections in general. When built on a strong identity platform that is rooted in biometrics, technologies such as blockchain can significantly reduce voting issues and tackle health concerns related to human contacts associated with the electoral process. For example, India's Election Commission is considering the possibility of blockchain-based remote voting for future elections. According to Barik (2020), the commission plans to emulate the model used by the government to identify pensioners. The technology will use AI to recognise liveness — 'an AI computer system's ability to determine that it is interfacing with a physically present human being and not an inanimate spoof artifact' (liveness.com), deep learning to do image comparison, and big data to do the demographic matching. That way, voters can be easily identified using a face recognition app linked to existing biometric data banks.

Although the potentials of data identification in the electoral process are exciting, the applications of big data carry significant risks of misuse. The Chinese government has already come under severe criticism for using the technology as part of a security crackdown that has led to the detention and torture of more than 1.8 million Uyghur Muslim minority population in the Xinjiang region (Yang & Madhumita 2019). Ahmadi, Dileepan and Wheatley (2016, p. 290) argue that the collection of big data has enormous privacy implications. They contend that in the healthcare sector, for example, healthcare providers will be under scrutiny to protect private patient data and may be at a greater risk for lawsuits as data are shared and become more readily available. There are also concerns that data that includes personal information that is not protected by legal restrictions and

oversight, can be misused or abused in the hands of state and non-state actors. Individuals and groups can be targets of political oppositions if their voting decisions are easily accessible. This problem is even more worrisome considering the prevalence of political intimidation, violence and even assassinations in Africa.

The weaknesses of adopting data identification in elections notwithstanding, it portends great opportunities for solving many of the challenges that plague the electoral process in Africa. The potential to significantly reduce incidences of multiple voting and ballot-box snatching makes the idea of digital identification a promising one.

THE POST-ELECTION PHASE

The most contentious part of the election cycle is, arguably, the post-election phase. Post-election conflicts are common in Africa, and some of the conflicts have resulted in outbreaks of ethnoreligious conflicts, and sometimes civil wars. Nigeria and Kenya were on the brink of civil war resulting from disputed elections in 2003 (Kenya) and 2011 (Nigeria). Although several sociocultural and ethnoreligious dynamics contributed to the ensuing post-election violence in both countries, disputes over election results were the main reasons (Ojwang 2009; Anyadike 2013). Adopting 4IR to the post-election phase will not only ensure electoral integrity, but can also foster societal peace.

For example, in the 2015 general elections in Nigeria, biometrics were introduced to register and verify voters. Unlike previous elections, results were digitally captured and announced at centralised positions, thereby improving trustworthiness and reliability. The election, though still marked by irregularities, is still widely regarded as one of the most credible elections in Nigeria. It may be argued that the introduction of digital technology played a significant role in the defeat of the then incumbent, President Goodluck Jonathan.

CONCLUSION

The nature and conduct of elections are changing globally and Africa should not be an exception. The conduct of elections as we know them today will significantly change in the next few years as many countries adopt new technologies in their conduct of elections. The novel coronavirus pandemic further brought to the fore the dearth of infrastructural development on the continent of Africa. Although the low number of infections and death rates have astounded global watchers and defied all scientific explanations, it nonetheless provided an opportunity for African governments to realign their national development objectives with global realities. The lack of healthcare facilities, absence of access roads, potable water and electricity should no longer be tolerated in the future.

As noted by Cheeseman and Klaas (2018), regular elections do not guarantee the entrenchment of democracy. On the contrary, in recent years elections have served as the means through which dictators or authoritarian governments legitimised illegality. Despots and dictators have found new ways of undermining democracy, and one such is by conducting regular elections. They are no longer afraid of conducting elections as they did thirty years ago, as they have devised methods of rigging elections, including the use of technology. The adoption of 4IR in the conduct and management of elections in Africa as advocated in this article is not a fix-it-all solution to the myriad of problems plaguing the electoral process in Africa. It is, however, an important part of a broader process of fostering credible and efficient management of the electoral process.

Deciding on whether using 4IR in the electoral process would reduce flawed elections and engender good governance, or whether good governance would encourage the adoption of 4IR, is like deciding on which came first – the chicken or the egg. The fact is, the Fourth Industrial Revolution is here to stay. Unlike previous industrial revolutions, there are no significant alternatives to emerging technologies. The world of the future will be near-impossible to run with the technology of today. Future elections will be conducted by 4IR-led technologies.

From the perspective of electoral management, investment in the Fourth Industrial Revolution will have a positive ripple effect on the socioeconomic and sociopolitical milieus in many African countries. Technological adoption often leads to sometimes unplanned collaborative innovations that would trigger new operating models, thereby leading to more opportunities and employment. The onus is on African leaders to develop what Schwab (2017, p. 107) calls contextual intelligence – the ability and willingness to anticipate emerging trends and connect the dots. African leaders must possess the capacity and readiness to engage with and adapt the Fourth Industrial Revolution as a mainstream national development plan, as is already the case in many countries.

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