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Chapter 5

Digitalisation and elections: Key lessons from South Africa

Maxwell M. Maseko

Abstract

Free and fair elections are a prerequisite for a healthy democracy, giving people the right to exercise their power to choose or change their leaders. This chapter does not suggest that a democratic system of governance is the only valid form of government. However, it is a system favoured by many countries, due to its ability to allow citizens to participate in persuading their leaders to act for the greater public good. Over the past decade, many African countries have experienced complex electoral challenges linked to failing traditional methods of voting, as well as general malpractice negatively affecting election outcomes. Furthermore, while the following list is not exhaustive, democracy in many developing countries is in crisis due to factors such as a growing lack of trust in government leaders and politicians, weak governance, and poor electoral systems marked by voter apathy, low registration numbers, and low voter turnout – especially among the youth. In a bid to improve election efficiency and bolster voter participation, African countries are slowly turning to digital technology. Building on a South African case study, this chapter argues for adopting digital technologies to boost election management on the continent, particularly technology geared towards solving country-specific challenges. During its 2021 local government elections, at the height of the COVID-19 pandemic, South Africa piloted the use of around 40 000 voter management devices (VMDs). This technology can be likened to that of the more popular Biometric Voter Registration (BVR) devices used across Africa, West Asia and Latin America to electronically verify voters while also tackling double voting and election fraud. The chapter concludes that although not perfect, and for various reasons, VMDs were a game-changer for elections in South Africa.

Keywords: Elections, democracy, Africa, digital technology, voter management devices.

Background and context

The impact of digital technologies on elections is an emerging field of research in the developing world that needs constant study and updating to be better understood. Previous studies such as Mathe (2022) and Ojakorotu et al. (2023) analysed the opportunities and challenges presented by digital technologies in elections in South Africa and Nigeria respectively but did not highlight the lessons for other emerging democracies as this chapter will do. Over the past decade, the use of technology such as Biometric Voter Registration (BVR) has risen – predominantly in Africa, West Asia, and Latin America – to meet complex electoral challenges (Garland & Iverson, 2019). These challenges arise from failing traditional methods of voting and from malpractice, which negatively affects election outcomes (Odote & Kanyinga, 2021). For instance, Ojo and Onuoha (2018) have argued that since the return of democracy to Nigeria in May 1999, the practice of vote buying has grown steadily in scale and brazenness. They refer to vote buying, simply put, as the exchange of food, money or other valuable goods by politicians and parties for votes during an election. Nwangwu (2023) reported that Nigeria's elections are prone to violence and the 'deliberate disenfranchisement' of eligible voters to influence election outcomes, by discouraging or preventing voters from voting. He argued further that the increased use of technology in Nigerian elections has reduced rigging linked to ballot box snatching and stuffing and multiple voting, among other infractions.

According to the Council of Europe (2021), digital technologies provide opportunities for online citizen engagement through debate, conversation, consultation and deliberation. In 2010 the Arab Spring was hailed as a game-changer for global politics, leading many people (including scholars) to believe that 'digital democracy' was on the rise. Cyber-optimists such as Shirky (2008) and Diamond (2010) swore by the potential of digital platforms to enhance political debate, gather a wider diversity of opinions, and bring governance closer to communities. Fast forward a few years, and due to increased polarisation and internet shutdowns, heightened censorship slowly became the norm in many African democracies (Gopaldas, 2019). Countries such as Ethiopia, for instance, have repeatedly shut down the internet since the early 2000s, and have censored online material on numerous occasions (Maseko, 2024), preventing people from organising, mobilising, or even discussing their grievances with their leaders (Odote & Kanyinga, 2021). Ngangum (2023) posited that between January 2017 and March 2018, an overt and blunt censoring practice affected internet access and use in the Anglophone regions of Cameroon. However, he also noted that

there is limited research looking at the socio-economic, political and legal contexts in which internet shutdowns occur in authoritarian and semi-authoritarian regimes. In countries such as Kenya, leveraging digital technologies in elections has become a battleground for political elites intent on influencing the outcomes of the polls (Ondiek & Onyango, 2023).

As part of its aim, this chapter uses a South African case study to argue for adopting digital technologies to boost election management in Africa. It contributes to the ongoing discussion regarding the challenges and opportunities facing the digitisation of elections in developing nations. Situating the literature in a broader continental setting enables the lessons learnt from the 2021 South African election to be applied across emerging democracies in Africa. While up to 80 countries globally (including 14 from Africa) postponed their national and regional elections due to the coronavirus (International IDEA, 2022), the South African election had some unique qualities. Chief among them was the Independent Electoral Commission's (IEC) urgent application ahead of the election to the Constitutional Court – the highest court in South Africa. The case aimed to determine whether the elections should be postponed, considering the challenges posed to voters and political parties by the COVID-19 pandemic. Furthermore, Du Plessis, Kruger and Abdool Karim (2021) argued that South Africa's constitution and laws did not make provision for discretion to postpone the elections. According to Kotze (2021), the local government elections attracted huge public interest due to their magnitude and scale. Kotze pointed out that more than 10 000 councillor positions needed to be filled. Furthermore, to fill these positions, more than 95 000 candidates were required to be nominated, including more than 1 500 independent candidates.

This chapter will answer two main research questions that have emerged in this study. These are:

1. What are the lessons and insights for other African democracies stemming from the adoption of VMDs in South Africa's 2021 local government elections?
2. How did VMDs resolve some of the complex electoral challenges linked to failing traditional methods of voting?

The chapter also makes a case for countries that have successfully used digital technology in their elections and continue to flourish, despite the odds. The information gathered is relevant to scholars, researchers, government officials, political parties, civil society organisations, and anyone interested in improving online democratic processes in their countries.

In presenting the arguments, the rest of the chapter is laid out to include a brief definition of some of the key concepts under discussion, followed by the methodology used to collect data. Background on the state of governance, democracy, and elections in Africa is provided, including how digital transformation on the continent is perceived globally. This chapter also explores internet access and the digital divide in Africa to situate the South African case study appropriately. A discussion on the state of governance and democracy in South Africa follows, with a more specific focus on the local challenges of internet access and the digital divide. A case is made for VMDs being deployed in elections in South Africa, and there is a discussion regarding whether the country could be ready for e-voting. This is followed by the findings from and discussion around the digital lessons learned from the 2021 local government elections – the most innovative elections yet, according to the IEC (2021a). The chapter concludes with a discussion of recommendations for and expectations of the future of elections in South Africa.

Definition of terms

Digital technology: The definition of digital technology is broad, and can also include the use of tools, systems and devices such as personal computers and mobile phones to generate, create, store or process data (Johnston, Kervin & Wyeth, 2022; Laverty 2012). In this chapter, the term refers to the use of mobile VMDs in the South African context to achieve improved citizen engagement and increased participation in elections.

Democracy: Fombad (2021) argued that over the centuries, philosophers and students of politics have offered overlapping definitions of democracy. However, there are key elements endorsed by Bratton and Van de Walle (1997), Peters (2002), and others. These link the definition of democracy to a form of political regime in which citizens choose their leaders in competitive elections that are free and fair; there is freedom of the press, separation of powers, and so-called checks and balances related to accountability.

Elections: Freedom House (2023) argued that elections are a formal and organised choice by a vote of a person for a political office or other position. In healthy democracies, elections are held regularly and are conducted through secret ballots. The event allows the electorate to access political parties and other participants through the media and open political campaigning.

Methodology

Data for this qualitative chapter was collected from various secondary sources, including examining relevant official reports from the IEC about the 2021 local government elections such as the 2021 Municipal Elections Report looking at the challenges and successes of the local elections. The author also consulted the IEC's 2021/2022 Annual Report for perspective on spending and other important matters related to the elections, such as the deployment of VMDs. Data also came from public pronouncements regarding technologies in African and global elections, with mentions of case examples from countries such as Brazil, Estonia and Namibia.

The unit of study in South Africa is VMDs, given their labelling by the IEC as a game-changer for election management in the country. Procured at a cost of millions of rands, these hand-held touch-screen electronic devices were piloted ahead of the 2021 local government elections. The IEC has said the devices enabled the processing of more than 12.1 million voters and the capturing and registering of their addresses in the election (IEC, 2021b).

Oranga and Matere (2023) argued that qualitative research is ideal for exploring and providing deeper, comprehensive and detailed descriptions of phenomena, rather than quantifying and testing hypotheses using numeric data as is the case with quantitative research. Qualitative studies are undertaken to gain insight into people's experiences, behaviour, beliefs, attitudes and motivation (Oranga & Matere, 2023). Qualitative methods are also effective in determining and identifying intangible factors such as socio-economic status, social norms, gender roles, ethnicity and religion, whose role in the research may not be readily apparent (Cleland, 2017).

The author also relied on a comprehensive literature review, focusing on the management of elections in South Africa and the rest of the African continent. This literature provided perspectives on using digital technologies and the possibility of introducing electronic voting on the continent. Textual analysis was used to arrange, describe and interpret the data in themes suited to the objectives of the study.

Governance, democracy, and elections in Africa

Background on the state of governance, democracy and elections in Africa is necessary to provide context for this study.

Governance and democracy

In its inaugural Africa Governance Report in 2019, the African Union (2019) argued that in general, the state of governance in Africa has improved compared to what it was in previous years. The report highlights marked improvements in socio-economic developments and corporate governance in member states, with some weaknesses in democracy and political governance. It links some of the failures to the weak governance of public institutions, practices, and performance. The report also highlights constitutional reforms to enable greater democracy, political freedom and pluralism in member states. From the 1990s to the present day, Africa has had a few examples highlighting the development of democracy. This includes the collapse of apartheid in Namibia and South Africa (Fombad, 2023). Fombad argued that in the case of South Africa, the new era was marked by the adoption of the Constitution Act 108 of 1996, which many constitutionalists still regard as one of the most liberal and transformative modern constitutions in the world. Furthermore, the African Union (2019) has argued that many member countries have restored multi-party politics, fixed presidential term limits, conducted regular and competitive legislative and presidential elections, improved the oversight functions of legislatures, guaranteed judicial independence, and allowed civil society organisations to function freely.

However, there are still significant challenges to realising the goals of democratic reforms, which need urgent attention. According to the African Union report, areas of conflict in Africa include the Mano Riva political and economic structure, consisting of Liberia, Sierra Leone, Guinea, and Cote d'Ivoire. The challenges here include military coups and civil wars which started in the 1990s. There is also conflict in the Great Lakes Region that straddles eastern and central Africa and has impacted countries such as Angola, Burundi, Central African Republic, the Republic of the Congo, the Democratic Republic of the Congo, Kenya, Rwanda, and the Republic of South Sudan (African Union, 2019). Other regions affected by conflict include the Horn of Africa region covering Djibouti, Eritrea, Ethiopia, Somalia and Sudan, and the Sahel and Maghreb regions composed of the countries of north, west and east Africa such as Egypt, Libya, Algeria, Tunisia, Morocco, Mauritania, Libya, Burkina Faso, Mali, Niger and Chad (African Union, 2019).

According to Fombad (2023), good governance is a critical factor in shaping the level of peace and stability in any country, as well as influencing its prospects for economic

development. He argued that three decades since many countries introduced constitutionalism, there are still concerns about the performance of their democratic institutions. The African Union (2019: 23) defines good governance as follows.

> "The concept of governance is traditionally linked to ruling and control, specifically the manner of exercise of power. Governance refers to the exercise of economic, political and administrative authority in the management of a country's affairs at all levels. 'Good governance' has the following major characteristics: legitimacy, where the government has the consent of the governed, accountability that ensures transparency and answerability for actions, respect for law and protection of human rights, and competence, which consists of effective policy-making, policy implementation and service delivery."

Fombad (2023) and Sayeh (2022) argued that widespread corruption continues to impact good governance and transparency in many African countries. In the past, incompetence, poor governance, political instability and economic mismanagement have not only resulted in conflict and poverty but also led to the spread of disease (Fombad, 2023).

Analysing citizen participation in some democratic societies, Masiko-Kambala et al. (2012) argued that citizens have lost confidence and trust in the governance system. They added that citizens view governance processes as being unresponsive to their issues, and unaccountable. According to Africanews.com (2021), there has been a rise in anti-government protests in several African countries in the past decade, often used to demand democratic reforms. In northern Africa, protests have affected countries such as Algeria and Tunisia; in West Africa, they have been reported in Mali, Burkina Faso, Senegal, and Ghana; in East Africa, protests have rocked Sudan and Ethiopia; and in Southern Africa, they have affected Eswatini, South Africa and Malawi (Africanews.com, 2021).

In the same vein, Lues (2014) and Tshuma and Zvaita (2019) argued that Africa's democracy is facing challenges because the roles of government and citizens are not properly integrated, which also impacts accountability, transparency and service delivery. Furthermore, young people especially feel disempowered by their political parties and other officials in leadership positions, and consequently withdraw from participating in governance processes.

The right to freedom of expression and citizen participation are foundational elements of any democratic society and are protected under international and African law. According to the International Institute for Democracy and Electoral Assistance (International IDEA, 2022), there has been a gradual decline in democratic quality in Africa in the past ten years, with the number of countries designated as authoritarian now outweighing those deemed to be democratic (Fombad, 2021). According to the 2022 Democracy Index, there are 23 authoritarian countries in Africa. It states that countries in this category are outright dictatorships, and political pluralism is absent or heavily circumscribed. Some formal institutions of democracy may exist, but these have little substance. Elections, if they do occur, are not free and fair, and there is disregard for abuses and infringements of civil liberties; as opposed to countries such as South Africa with flawed democracies (Democracy Index, 2022). The 2022 Democracy Index posits that in flawed democracies, elections are generally free and fair; but this does not mean that there are no problems.

The 2022 Democracy Index also shows that in authoritarian regimes, the media is typically state-owned or controlled by groups connected to the ruling regime. It also shows that democracy has stagnated, especially in West African countries affected by military coups such as Chad, Mali and Guinea, and in Burkina Faso. Failed coup attempts also occurred in Guinea Bissau, São Tomé Príncipe, and The Gambia in 2022 (Democracy Index, 2022).

The National Academies of Sciences, Engineering, and Medicine (1992) warned that democracy in Africa is still very much tied to donor aid. It argued that Africa's continuing reliance on foreign aid has increased opportunities for bilateral and multilateral aid agencies to influence policymaking in many countries. Fombad (2021) argued that while elections have become the norm in many African nations, they are increasingly being used to disguise various forms of undemocratic practice and corruption.

Elections

Elections are key in a democracy, allowing citizens to choose their leaders freely. It is also a widely held scholarly view that credible elections must reflect the will of the people. Oduro (2021) and others argue that to achieve this goal, elections must be transparent, inclusive and accountable while ensuring equitable participation in the voting process (Dahl, 2007). However, research from the last decade shows that countries such as South Africa are still facing challenges including voter apathy, especially among the youth, evidenced by low voter

turnouts and declining registration numbers in their elections. For instance, Roodt (2021) stated that about 46% of all eligible voters turned out to vote in South Africa in 2021, the lowest figure since the fall of apartheid. A worsening digital divide (to be discussed in detail below) has also cast doubt on traditional methods of participation in an election (Matsheza, 2011; Van Dijk & Hacker, 2003). To solve some of these challenges, government leaders are now looking to online platforms for answers.

The global impact of the COVID-19 pandemic on elections is well-documented; it forced many countries (including those on the African continent) to revise their strategies to protect the integrity and credibility of this key democratic process. According to the International IDEA (2022), national and regional elections in 80 countries were postponed between February 2020 and February 2022 due to the coronavirus disease.

The debate and discussion about the role of technology in improving the credibility of elections and enhancing participation is not entirely new. For instance, Tracey-Temba (2013) argued that in the lead-up to the 2014 national elections, South Africa was already facing a big change in political campaigning with the rise in the use of social media platforms such as Facebook, X (formerly Twitter), MySpace and YouTube.

Africa's digital transformation

An explosion of digital technologies in Africa and globally over the past decade has transformed the nature of elections; Dad and Khan (2023) argued that various technologies have impacted election campaigning, dissemination of information, and the formation of opinions. Omarjee (2023) and McCormack (2016) pointed out that globally, Estonia is a pioneer in this space, particularly concerning electronic voting, or e-voting. Other countries such as Brazil and India have also used e-voting for almost two decades, with Namibia being the first African country to use voting machines, in 2014 (Omarjee, 2023). In terms of this chapter's focus, Fatai (2022) argued that in Africa, nearly all recent general elections – especially since the height of COVID-19 – have used some kind of digital technology for voter registration, mobilisation, or campaigning. However, the reliability of some technological devices and online platforms has been questioned.

Ibeanu (2022) stated that two main issues lie at the heart of the debate about the quality of elections in Africa. Firstly, there is the concern about the level of human intervention in

determining the outcome of an election. He also argued that in many countries, citizens, scholars and others have their doubts about whether election managers will respect the rules, ensure that everyone will participate freely in an election, or create a level playing field for all political parties to participate freely. Secondly, in many African countries elections are poorly planned, the procurement and delivery of voting materials are slow, the casting of ballots and the tabulation of results are archaic, and the declaration of outcomes is tardy and inefficient (Ibeanu, 2022). These challenges create fresh opportunities for the promotion of digital technologies as the future of credible elections on the continent. However, Jacobsen (2020) warned against promoting any one technology system as a panacea for all challenges in Africa. For instance, the BVR system used in about 28 African countries and the VMDs used in South Africa both sit within a broader set of democracy-promotion instruments. Both systems have advantages and disadvantages; BVR, for instance, is mostly favoured because of its perceived ability to streamline and improve voter registration, especially by international organisations such as the EU and the UNDP (Jacobsen, 2020). But Jacobsen also suggests that BVR equipment and electronic voter identification have failed in the past, in countries such as Kenya and Ghana; and relying on donors to fund electoral management systems may not be in the best interests of African countries, due to the perceived influence of donor organisations.

Kolade, Obembe and Olufemi (2023) reported that the adoption of digital technologies in Africa's elections has disrupted the balance of power between citizen voters and state actors. State actors, they said, are struggling to maintain control amid an emergence of systemic loopholes in the application of digital technologies. As Fatai (2022) put it, while digitalisation holds great prospects, some political actors remain unconvinced, due to technology failure and structural and systemic problems, including the lack of funding for election management bodies. Generally, scholars such as Ibeanu (2022) have noted that the level of trust from citizens in African elections has progressively declined since the 1990s, as evidenced by the many contestations of election results. He posited that many parts of Africa are still very remote, with poor communication facilities, weak electricity connections, and weak civil society organisations that cannot promote civic engagement and civic education in election matters.

Ibeanu (2022) also argued that digital technology in Africa and its application in election management has been disadvantaged due to its production in Western countries, as opposed

to being sourced locally. Other concerns about digital transformation for many African countries include the spread of misinformation and disinformation campaigns during political and/or election campaigns, issues around the safeguarding of personal information collected during the electronic voter registration process, and cybersecurity challenges (SA Government News Agency, 2022).

Internet access in Africa

According to Runde and Bryja (2023), digitalisation has played a key role in accelerating the dissemination of information and increasing connectivity in Africa, with the number of internet users on the continent exceeding 570 million in 2022. Countries such as South Africa, Kenya, Libya, Mauritius, Nigeria, Morocco, Seychelles and Tunisia have a higher national internet penetration factor, while countries such as Somalia, South Sudan and Mozambique have often been affected by devastating wars that have destroyed digital infrastructure (Sambo, 2021). Overall, internet penetration in Africa was only 40% in 2022, compared to the global average of 66% (Anthonio, 2022). Anthonio also states that many African governments restrict access for various reasons, including their claims that they are protecting citizens from 'fake news'.

One of the main obstacles to internet access in Africa is bad policies that are pricing people out of technology (Anthonio, 2022). For instance, Mhlungu (2022) argued that South Africa has some of the highest mobile data costs in Africa; it ranked 148th out of 228 countries on data prices in 2022. In a country classified as highly unequal by the World Bank (2022), the impact of high data costs is severe. According to Anthonio (2022), even when citizens have internet access, authorities and service providers find new ways to prevent large sections of the population from entering the digital world. Anthonio (2022) also argued that high data costs remain a barrier to widespread internet use, even for people living in spaces with sufficient connectivity. This view is shared by Bussiek (2022), who also asserted that governments – especially in sub-Saharan Africa – are renowned for restricting access to the internet to limit critics and opposition parties, especially ahead of elections.

According to the Centre for Human Rights (2022), the cost of mobile data is higher in Africa than elsewhere, and there are large price differences from country to country. For example, they say, 1GB of mobile data cost less than US$2 in Mozambique in 2020, and less than US$2.50 in Tanzania and Zambia; while in Eswatini and Namibia, 1GB cost as much as

US$10. Excessive data prices have been blamed on poor infrastructure, which necessitates costly upgrades and investments; and the low-income status of many countries is a contributing factor to the lack of affordability of mobile data (Centre for Human Rights, 2022).

Africa's digital divide

Africa's persistent and worsening digital divide presents barriers to digital access for specific demographics in both urban and rural areas, including women and children and people living with disabilities; however, The Digital Rights Landscape in SADC Report (2022) also stated that some countries have limited data on gender disparities in Information and Communications Technology (ICT), making it hard to determine the real needs of those countries. Mutsvairo and Ragnedda (2019) argued that African leaders must ensure that their solutions to the digital divide are in line with their constitutional responsibilities. According to the Centre for Human Rights (2022), there is ample data to show that women in Africa are less likely to have smartphones and internet access compared to men. However, on a positive note, countries such as Mauritius, Namibia and South Africa show increasing internet usage by women (Centre for Human Rights, 2022).

There are also major spatial inequalities in access to digital tools. For instance, fewer cities in Central Africa and West Africa are within a 10-kilometre range of fibre-optic cables enabling their inhabitants to connect online, and even fewer rural areas have any digital connectivity at all (Runde & Bryja, 2023). Regarding wireless technology, most internet users access it using mobile broadband (Galal, 2024). Furthermore, Ibeanu (2022) argued that divisions in access to technology between young and old, urban and rural, rich and poor, and men and women have led to exclusion from elections for many Africans. Many people in rural areas are also unable to buy the devices, power and data required for internet services, and there is a lack of digital skills (Sambo, 2021). Tenove (2017) warned that the digital divide could widen further, should foreign actors interfere with voting systems and election databases.

Governance and democracy in South Africa

South Africa's democracy is classified as 'flawed', according to the 2022 Democracy Index. This means that elections in the country are free and fair, and basic civil liberties are respected, even if there are problems such as infringements of media freedom. Furthermore, the 2022 Democracy Index argued that flawed democracies often have significant

weaknesses in other aspects of democracy, including problems in governance, an underdeveloped political culture, and low levels of political participation. South Africa became a democracy in 1994 after transitioning from the formal system of apartheid (Rossouw, 2019). Due to its historical past, the country has been a victim of colonialism, systematic racism, apartheid, sexism and oppressive legislation, and has one of the most unequal societies in the world (World Bank, 2022).

Almost three decades after the adoption of democracy, hopes of a better life for many – including children born *after* 1994 – are still being impacted by a range of inequalities, especially race, class and gender. Although some strides have been made to improve the lives of citizens in certain areas, the ruling African National Congress (ANC) is struggling to narrow the imbalance between the rich and the poor (Sguazzin, 2021). Sguazzin pointed out that there are still glaring inequalities regarding access to services such as education and healthcare, and to jobs. Youth unemployment is high; the youth unemployment rate stood at 62.1% in the first quarter of 2023 (StatsSA, 2023).

According to Masiko-Kambala et al. (2012) and Koma (2010), service delivery at local government level is weak, and there is growing dependence on opposition politics to ensure accountability (Schrire, 2001). There are mounting concerns about perceived widespread corruption at all levels of government, and many local municipalities have weak financial reporting systems (Coughlan, 2020). Additionally, Coughlan warns that violent service delivery protests and worsening levels of trust in government institutions could spell disaster for South Africa's already fragile democracy.

Local internet access and the digital divide

As in the rest of the world, good internet connectivity is needed to ensure the successful implementation of digital technologies for election purposes in South Africa.

Internet access in South Africa

Access to internet connection is on the rise in South Africa, in line with global trends. However, this often happens outside the home; most access is found at workplaces, public libraries, universities and internet cafés (Maseko, 2022). At the start of January 2022, South Africa had over 40 million active internet users, most using mobile phones to go online

(Statista, 2023). This figure is among the highest numbers of internet users in Africa, together with countries such as Kenya and Nigeria.

According to Matsheza (2011), the cost of a landline connection is out of reach for most South Africans. He also states that the country is grappling with issues of lack of access to technology, especially for poor, rural and vulnerable communities. Additionally, there are issues regarding high data costs, lack of protection of personal information online, and fears about the spread of fake news (including misinformation and disinformation). According to Africanews.com (2023), the South African government aims to achieve universal web access for all its citizens' households by 2024, and to make strides in improving poor internet connectivity. Africanews.com (2023) also argued that as technology continues to evolve and internet infrastructure improves, the country is bound to undergo further transformations, affecting how citizens interact and engage with the online world.

The digital divide in South Africa

A review of the literature shows that a worsening digital divide has cast doubt on existing and often formalised methods of citizen participation in political processes in South Africa. For instance, Friedman (2006) argues that some scholars hold the view that many poor people do not participate because the government does not provide the necessary participatory spaces that would enable them to express themselves freely. Le Roux (2015) argues that the theoretical framework of formalised spaces of participation is too restrictive, and does not fully capture the reality on the ground. Furthermore, this method of participation is inadequate, lacks capacity and is unresponsive (Ballard, 2008).

According to Mlaba (2021), South Africa's past injustices such as unequal access to education, unequal pay, segregated communities and massive economic disparities have fuelled the digital divide. Gender gaps and considerable gaps between population groups and educational levels have been found in internet and computer use in South Africa (Bornman, 2015). He argues that these gaps also extend to mobile phone ownership and access to news online. The digital divide can be broken down into several factors: access to hardware and resources such as mobile phones and computers; understanding digital means of communication; internet affordability; and lack of meaningful usage opportunities (Van Dijk & Hacker, 2003). Meanwhile, Fuchs and Horak (2008) argued that the digital divide is an

issue of unequal access to and usage of new technologies. They also warned that the situation could escalate in South Africa due to a lack of digital skills and usage access.

Piloting VMDs in elections

Before piloting VMDs, the IEC had been using ageing portable devices (known as 'zip-zap machines') since 1998 (IEC, 2021b). They operated by scanning the details of a voter contained in the barcode of the voter's South African national ID, and saved the details to their internal memory. However, the IEC (2021b) says, the machines had reached their lifespan and performance capacity. VMDs were assigned several functions in the 2021 local elections, including scanning various types of barcodes; pinpointing, identifying and recording address locations of voters applying to register; storing details of the complete national voters' roll; storing substantial mapping data; capturing data during voter registration and voting, and transmitting data in real-time to a central point; and the immediate communication of a transaction to the voter (IEC, 2021a; 2021b).

The IEC argued that unlike the zip-zap machines, VMDs were built to ensure continuity and control. Additionally, the technology allowed the development of other applications which enhanced security measures during the local government elections (IEC, 2021b). These included a ballot paper tracking application that tracked and traced the ballot papers from the printer to the voting station (IEC, 2021b). While VMDs experienced technical glitches in the 2021 local elections, the IEC and some observers argued that these were not serious enough to stop the system from being used in the upcoming 2024 general elections. One media report (Du Plessis, 2021) suggested that up to 100 000 voters were disenfranchised after their details could not be uploaded into the electoral system in the municipal elections due to poor internet connections.

Plans for e-voting?

According to Fokane (2021), South Africa's Electoral Laws Amendment Bill, introduced in September 2020, made it possible for the IEC to prescribe a different method of voting. The Bill sought to amend legislation governing national, provincial and local government elections, including the forthcoming 2021 local government elections. A proposal to test electronic voting or e-voting was rejected by Parliament's Home Affairs Committee, which stated that the matter could not be left to the IEC alone without nationwide public participation. The IEC had stated that although not signed into law, e-voting would help

increase efficiencies in the existing paper-based system, including fast-tracking the counting and capturing of election results (Fokane, 2021). Following further deliberations, the Home Affairs Committee acknowledged the benefits of technology in enhancing the electoral process, but cautioned against deploying technology without considering the necessary legal and constitutional implications. In the end, Fokane (2021) reported, the IEC was requested to return to Parliament with case studies on the implementation, challenges and successes of electronic voting in other countries. At the time of writing this chapter, South Africa had still not formally adopted e-voting. According to Nyathi (2023), after the 2021 local elections, the IEC acknowledged that budget constraints made the introduction of electronic voting difficult. This assertion was repeated ahead of the 2024 general election when the commission posited that it was not yet cost-effective to introduce new voting technology to South Africa (Nyathi, 2023).

Findings and discussion

In terms of the first research question, *What were the lessons and insights from the election?,* five key lessons emerged for the continent. Firstly, South Africa's elections were declared free and fair by both the IEC and international observers, despite the technical glitches in the use of VMDs. However, this does not negate the fact that some voters could have been disenfranchised, or that VMDs are not a requirement enforced by law but just a tool to boost election management. It is an important lesson for African countries to respect election outcomes produced by their election management bodies. Where there are complaints, these can be laid with competent bodies such as the Electoral Court.

Secondly, the use of VMDs helped to peacefully resolve the issues of restricted political mobilisation and freedom of movement and association. This suggests that the VMDs achieved their aim of upholding the credibility and integrity of the elections.

Thirdly, the new technology presented some serious challenges, including the exclusion of an estimated 100 000 people from the voters' roll due to malfunctioning devices and some elements of human error. There were also reports of poor internet connections at some voting stations. Democracy is devalued and the credibility of an election can be questioned if citizens are excluded from participating. Nevertheless, the outcome of the election was peaceful, despite these anomalies. Mzekandaba (2021) and Mare (2021) explained that the IEC did not have enough time to prepare for the elections, considering the impact of the

coronavirus pandemic and the subsequent court challenge, which led to the elections being postponed.

Fourthly, South Africa's 2021 elections highlighted the need for proper budgeting by African governments. According to the IEC (2022), budget cuts amounting to R382 million in the 2020/21 and 2021/22 financial years led to the cancellation of a planned voter registration drive ahead of the elections.

Lastly, South Africa has a robust democratic system, including mechanisms for conflict resolution such as the Electoral Court and the Constitutional Court. The court case ahead of the 2021 local government elections was reflective of a system that works well if the outcomes of the courts are respected. When many people compete in elections, there are bound to be disagreements and fighting. However, the local elections were declared free and fair by the IEC, although initially there had been disagreement between political parties and other stakeholders about whether they should be postponed due to the COVID-19 pandemic.

In terms of the second research question, *How did VMDs resolve complex electoral challenges around traditional voting methods?,* VMDs did not resolve the issues of voter apathy, low voter registration numbers and low voter turnout. This means that IEC officials and other African countries must invest more in research to find lasting solutions to these persistent problems affecting the health of Africa's democracy. A crisis looms for African governments if patterns of non-participation in elections persist.

There are also lessons for South Africa from countries such as Estonia which have been using electronic voting for a long time. In a 2019 interview with the giant Microsoft company, the Chairman of the Estonian Electronic Voting Committee, Tarvi Martens, suggested that securing internet voting required the same techniques as securing other high-importance information systems such as banking and critical infrastructure (Microsoft, 2019). Furthermore, trusted third-party service providers were required to preserve the integrity of the electronic ballot box. For instance, Martens suggested the following:

> "Votes are registered with a third party – an accredited trust service provider who issues a timestamp. These timestamps, collected from the trust service provider logs, are later compared with the electronic ballot box to make sure they coincide. That

> ensures that the administrator of the electronic ballot box cannot delete votes at random or produce extra votes." (Microsoft, 2019)

Martens also advised that it had taken time to build trust in the system and that ultimately, electronic voting had worked out cheaper than paper-based voting, even though the initial investment was substantial. Furthermore, Martens argued that countries needed to make a start despite their fears of venturing into the 'unknown', and political will would take the process far (Microsoft, 2019).

Conclusion

The introduction of technology in South Africa's electoral processes has generally been well-received when one considers the attitude of electoral officials and politicians towards maintaining the credibility and transparency of the country's democratic processes. A positive attitude towards technology will go some way towards strengthening democracy. Of course, attitude alone is insufficient, as the ideal social, political and economic conditions must be created before the appropriate technology is deployed. This also requires skilled artisans with a general understanding of basic technology, proper information and communications technology infrastructure, affordable data, and legislation. By rejecting IEC plans to pilot e-voting, South Africa's parliament demonstrated that political considerations such as a lack of trust in advanced voting technologies cannot be ignored. South Africa's balloting is still very much paper-based. As the country moves forward towards adopting e-voting in the future, perhaps it would be appropriate to employ parallel systems of paper-based voting and digital technology. In a digital era, the rest of the world looking for faster and quicker election management processes and digital technology may be the answer to restoring the credibility and transparency of elections.

Recommendations

Electoral malpractice and violence linked to polling remain a concern on the African continent. Scholars such as Mathe (2022) have emphasised that technology cannot serve as a panacea for sociopolitical ills; however, it can be a relevant and valuable tool for improving the management of electoral processes. While the idea of innovating is promising and commendable, it has been met with mixed feelings by some governments. There have been some improvements in the enactment of data protection legislation and standards, especially

in the SADC states, of which South Africa is one, and an overall trend towards improving ICTs. However, infringements of internet rights and restrictions on access in authoritarian states, as well as restrictions on the right of access to information and perceived assaults on dignity and equality, cannot be condoned. Diverse stakeholders must come together to fight such infringements within individual affected countries and across regions. Structures such as the SADC Secretariat and the African Union already have instruments supporting the use of technology in elections, and the necessary skills and leadership to achieve positive results.

This chapter has demonstrated that despite the technological glitches experienced by VMDs in South Africa's 2021 local government elections, technology positively impacted the electoral process, especially considering the challenges posed by the COVID-19 pandemic. For instance, the IEC acknowledged that the use of VMDs allowed it to tackle the issue of double voting. The elections were held under tight curfews to limit the spread of the virus. Election management bodies such as the IEC were tasked with protecting the integrity and credibility of the elections even in such uncertain times, when some other countries opted to cancel or postpone their elections. This chapter recommends sustained commitment from South Africa's civil society, politicians and the IEC to invest in technology in the future. Planning should include putting money aside for investing in advanced equipment and updating software. Additionally, comprehensive training should include all election management officials. Legal reforms should be geared toward creating safe, secure, free and fair elections. Despite budget cuts reported by the IEC in South Africa, all countries and their election management bodies should do their utmost to remain within their allocated spending limits.

Furthermore, it is a fact that across Africa, the cost of elections is increasing, and so is the cost of digital technology. Ibeanu (2022) argued that African countries must find new and creative ways to fund elections without jeopardising the development needs of their people. The problems of worsening inequality and a persistent digital divide need more investment in time and the strengthening of digital policies in Africa. All the countries on the continent are part of a larger global community, and they cannot afford to ignore the opportunities presented by digital technologies to improve their election management.

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