

# VOTER MANAGEMENT DEVICES IN SOUTH AFRICA'S ELECTIONS, 2021-2024

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## ABSTRACT

*This paper tracks the performance of Voter Management Devices (VMDs) in South Africa from their piloting in the 2021 local government election to their adoption in the 2024 general elections. It seeks to unpack what this performance means for further modernising electoral processes in the country, and especially for the introduction of e-voting. The Independent Electoral Commission (IEC) argues that hand-held touch-screen electronic devices ushered in a new era for election management in South Africa. Procured for millions of rand, VMDs replaced the old Zip-Zip barcode machines used since 1998 which could not capture real-time information. They were introduced at a time when the COVID-19 pandemic posed a threat to electoral participation in the democratic world. While the IEC and some observers argue that VMDs strengthened tough health controls in the voting process during their piloting, as with most new technology they still experienced several challenges and technical glitches. Nevertheless, the IEC resolved to deploy the new devices in the 2024 general elections. Following further glitches in the general elections, two main research questions have emerged: is South Africa technologically ready to handle e-voting based on the performance of VMDs? and what can other African countries learn from South Africa regarding modernising their voting systems? Data for this study was collected using qualitative methods. This study found that political will alone is insufficient for the modernisation of voting systems. The performance of VMDs requires further scrutiny before e-voting can be successfully implemented in South Africa.*

**Keywords:** voter management devices, elections, South Africa, e-voting, Independent Electoral Commission

## INTRODUCTION

Thirty years into South Africa's democracy, voting in the country's elections is still paper-based despite promises of digital technologies to improve overall participation, transparency, and accountability in political processes (Nkala 2024; Maseko 2024a). Cheeseman et al. (2018) argue that roughly half of all national elections in Africa now involve digital equipment, most notably biometric voter registration/identification and electronic results transmission. However, faced with challenges including a lack of adequate internet coverage and high access costs, many countries struggle to achieve improved citizen participation in their elections.. These challenges are to be expected as the use of information and communication technology (ICT) is still in its infancy in developing countries (Mpekoa & van Greunen 2016).

South Africa is among the African continent's leading users of technology and the presence of overseas internet fibre cable presents numerous opportunities for digitalisation. These include trying out new methods of voting in elections, including e-voting (Goyayi 2021). She argues that mobile phone ownership and usage are high and have also penetrated rural areas. To this end, South Africa's Electoral Commission (IEC) has leveraged technology to facilitate the nomination and submission of party candidate lists online, parallel to manual submissions. The IEC and political parties also use social media platforms such as X (formerly known as Twitter), Facebook, and WhatsApp to promote voter education and registration, political campaigning, and debate on key national issues (Maseko 2024b).

Poor voter turnouts remain a concern in South Africa even after the much-anticipated 2024 general elections. According to the South African Institute of Race Relations (2023), there has been a steady decline in voter turnout since the 1994 national election's turnout of 86.87%, with the 2021 local government continuing this trend (45.86% voter turnout). The voter turnout declined from 89.3% in 1999 to an all-time low of 58.6% in the 2024 general elections (O'Regan 2024). Pundits argue that democracy is not primarily about voting in elections but about the day-to-day ability and willingness of citizens to participate in the decisions that affect their lives. Furthermore, voter turnout at elections is a check on the health of a democracy and non-violent participation in it (South African Institute of Race Relations 2023).

As South Africa's democracy evolves, citizens will be forced to reassess whether a particular electoral system ought to be amended. Indeed, in 2023 South Africa's Electoral Laws Amendment Act marked a significant milestone in the evolution of the country's democracy, expanding electoral participation (IEC

2024a) and enabling Parliament to devise a new electoral system that may include e-voting (Electoral Institute for Sustainable Democracy in Africa 2024). The time-consuming nature and long queues associated with traditional voting remain a concern for voters and election officials, as this paper will later demonstrate. It will also reflect on concerns about the possible isolation of citizens who might not be able to access e-voting due to the lack of internet service and the digital divide.

While South Africa searches for effective and faster ways of managing its elections, Ahmed and Maru (2024) caution that it is too simplistic to say that the use of technology in elections is all good or all bad. Norris (2015) argues that many of these technological systems fall foul of simple human errors, technical malfunctions, and logistical failures. Problems also occur when polling stations run out of ballot papers and election management teams hire poorly trained poll workers unfamiliar with procedures (Norris 2015). Ahmed and Maru (2024) urge governments to consider whether they can regulate the use of technology and whether the public trusts the chosen technology. Issues of identity politics, diversity, and digital illiteracy must also be considered (Ahmed & Maru 2024). They warn that during Kenya's 2017 election, consulting firm Cambridge Analytica allegedly used technology to target voters with disinformation. This potentially influenced the election outcome.

Furthermore, in South Africa there is increasing awareness that anonymous influencers, often positioned at the extremes of the political spectrum, contribute significantly to online misinformation and disinformation (Ahmed & Maru 2024). Increased participation by citizens in elections is therefore crucial to building a stronger democracy in South Africa and dealing with historical challenges linked to social and economic inequality. E-voting may hold the answer to achieving this increased citizen participation in elections.

In seeking to provide more context to the phenomenon under study, the rest of the paper is divided into various sections. These include the definition of key terms used in the study, the problem statement, and the main research questions to be answered. The methodology section explains how the data was collected, followed by a section on the state of democracy around the globe, including the African continent and in South Africa. The paper discusses the rise of VMDs in South Africa's 2021 local government elections and assesses their performance in the 2024 general elections, and also reflects on e-voting worldwide and the appetite for e-voting in South Africa. This is followed by further discussions on internet access and the digital divide in South Africa, which are critical to the successful usage of digital technologies in elections. The paper makes suggestions as to how the rest of the African continent could handle the modernisation of electoral systems, and discusses findings, recommendations, and a conclusion to this study.

## DEFINITION OF KEY TERMS

A *Voter Management Device* is a tablet with internet access and customised for election management only (IEC 2021). This hand-held device can function as the IEC's voter registration portal, track live voter participation, and facilitate the management of voting staff and logistics.

An *Election* can be defined as the formal process of selecting a person for public office or of accepting or rejecting a political proposition by voting (Eulau, Webb & Gibbins 2024). Furthermore, election day is also a pivotal moment in the democratic experience of citizens where they can cast their vote .

*E-voting or electronic voting* is essentially a voting process that uses electronic means to cast votes and count results. According to the World Economic Forum (2024), e-voting means voters can vote from their home, another country, or a kiosk in a polling station. However, Omarjee (2019) also posits that when citizens vote on paper ballots which are then counted electronically by optical scanners this is also considered to be e-voting. Biometric devices can be used to register voters when they cast their votes (Ormajee 2019). For ease of explanation and illustration, this study refers to e-voting as the use of electronic means to cast votes and count election results.

## PROBLEM STATEMENT

South Africa's national and provincial elections held on 29 May 2024 highlighted the role of technology in electoral and democratic processes. This was the first time the IEC had used VMDs in a general election across over 23 000 voting districts. When digital devices were piloted in the 2021 local elections they experienced technical glitches, especially in large urban centres, contributing to the formation of unusually long queues.

The challenges experienced by VMDs in both elections remain central to the problem statement. The impact was felt by frustrated voters who stood in long queues for hours at polling stations, and political parties who feared losing the votes of citizens who may have decided not to take part in the election because of delays. An estimate of almost 40 million people (out of a total population of 60 million) were eligible to vote in South Africa, but over 11 million did not register. Of the 27.7 million registered voters, only 16.2 million went to the polls (O'Regan 2024). For now, it remains unclear whether those who did not vote did so because they did not care or whether they were not given a reason to and decided to boycott.

The credibility and integrity of an election can also be questioned if citizens cannot freely exercise their right to vote. This study does not suggest that machine

problems are unique to electoral management systems in South Africa or that using VMDs will completely resolve the country's challenges at the polls. It is simply based on the expectations of voters and political parties on the IEC to deliver a credible election in a highly digital world. Flawed election technology has been reported globally, negatively impacting even the U.S. presidential election in 2000 and Nigeria's presidential election in 2023 (Fatai 2023).

### RESEARCH QUESTIONS

This paper seeks to address two key research questions,

- Is South Africa technologically ready to handle e-voting based on the performance of VMDs?
- What can other African countries learn from South Africa regarding modernising their voting systems?

### METHODOLOGY

The IEC has labelled VMDs in South Africa as a game-changer for election management in the country. This study adopted a qualitative approach for its data collection methods on the topic. The process involved collecting data from key documents around the 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 various media reports and IEC official statements in the build-up to and after the 2021 local government elections and the 2024 general elections. This was particularly important as at the time of writing the IEC was still busy with its assessment of the technical glitches in the 2024 general elections, and to date there is no official comprehensive report about why VMDs failed. The author also relied on public pronouncements regarding technologies in African and global elections and consulted existing research on platforms such as Google Scholar, using keywords such as voter management devices, e-voting, and South Africa. Textual analysis was used to arrange, describe, and interpret the data in themes suited to the study's research questions.

According to Bhandari (2023) and others, a qualitative study aims to describe and understand social actions and events, and qualitative data collection methods are effective when the goal is to obtain coherence, depth, and density in the data. Furthermore, they argue that a qualitative approach is an effective design for investigating and understanding complex issues in real-world settings. This

approach was valuable in evaluating the performance and use of VMDs and drawing lessons for other African countries planning to invest in e-voting in the future.

### STATE OF GLOBAL DEMOCRACY

A reflection on the state of global democracy including the African continent in general and South Africa in particular provides context for this study. A democratic system of governance is not the only valid form of government. However, it is a system favoured by many countries because of its inclusive nature, allowing its citizens to choose their leaders and persuading them to act for the greater public good. VMDs and e-voting will be assessed against this democratic background. Situating the literature in a broader global and continental setting also enables the lessons learned from South Africa's 2021 election to be applied across emerging democracies in Africa.

According to the Economist Intelligence Unit (EIU)'s 2023 Democracy Index, elections are a condition of democracy but are far from being sufficient. They argue that 2024 is a crucial year for democracy globally as countries representing more than half the world's population of 8.1 billion people should have voted by the end of the year to elect new governments, presidents, mayors, governors, and municipal representatives. However, when the political system becomes uncompetitive, people become disenchanted with democracy.

The Global State of Democracy Report (2023) asserts that democracy has continued to decline across every region of the world. They warn that worldwide democracy is in trouble, stagnant at best even in countries previously thought to be healthy democracies. Glenn (2024) argues that certain trends in the state of global democracy need to be observed and this includes authoritarian regimes such as Russia and Iran which continue to rely on sham elections to create the illusion of legitimacy. Concerns about the impact of technology on elections have also become widespread and governments need to be aware of the danger of technology in undermining trust in elections and democracy (Glenn 2024). The Global State of Democracy Report (2023) recommends support for electoral processes, focusing on mechanisms and technology that guarantee fair contests and participation, transparency, and access to information.

### *Democracy in Africa*

Regarding Africa, Maseko (2024a) argues that there has been a worrying democratic decline in some countries and regions, most markedly North Africa. This is marked by an increase in military regimes, a rise in violent conflicts, and growing public



dissatisfaction with political systems. In 2023, various civil wars in Africa caused immense suffering and undermined prospects for positive political change, while Sub-Saharan Africa also suffered a significant democratic reversal (Democracy Index 2023). This reversal is dealt with in detail below. An increasing number of African leaders also continue to unilaterally change their constitutions and legal frameworks to hold on to power (Maseko 2024c). Countries such as Ethiopia and the Democratic Republic of Congo have throttled their citizens' internet access to prevent people from organising, mobilising or even discussing their grievances with their leaders (Maseko 2024b). Ethiopia, for instance, has since the early 2000s shut down the internet and on numerous occasions censored online material.

In recent years, more people in African countries have been able to access the internet than ever before. With close to 400 million users in Africa (especially in northern and southern Africa), digital media such as Facebook, X, and WhatsApp play an increasingly important role in election campaigns by circulating salient information and mobilising voters to participate (Galal 2024). This growth has been driven by improved telecommunication infrastructure and the rising adoption of mobile devices. Today social media platforms like X, WhatsApp, and Facebook are regularly used for debate, and to mobilise citizens and organise protests. Examples include the 2010-2011 Arab Spring in North African and Middle Eastern countries and South Africa's #FeesMustFall protests beginning in 2015.

According to Nkala (2024), countries such as Kenya, Zambia, and Senegal have incorporated technology in their national elections to improve their credibility. The Electoral Commission of Zambia has used biometric e-poll books in its past elections to fast-track identity verification and prevent identity theft. During Zambia's 'bush protests' in 2020 a reported 500 000 people tuned in online to social media platforms to listen to their leaders criticise alleged government corruption. This is just one example of how digital technology can strengthen democracy by allowing citizens to become involved. Others include improving health and education services and strengthening tax and revenue collection methods.

Nkala (2024) and Maseko(2024b) also argue that most countries in Africa cannot afford to incorporate digital technology in their electoral processes because of their prohibitively high costs. There is also a lack of trust in digital technologies amid concerns about human interference and the lack of protection of personal data. An example of this in South Africa's 2024 general election is the uMkhonto we Sizwe (MK) Party, which had the third-biggest share of the vote and accused the IEC of deliberately taking the ICT systems down to manipulate the vote numbers (Nkala 2024). Moreover, Aikins and Mahdi (2024) argue that there is also a lack of trust among political parties and voters in election management bodies (Maseko 2024b). They refer to an Afrobarometer study that found that the

number of citizens in Africa with little or no confidence in their national electoral commission rose from 41% to 55% between 2011/13 and 2021/23. This mistrust is deeply rooted in how election management bodies are constituted, as seen previously in Ghana, Nigeria, and Zimbabwe where these bodies have allegedly been dominated by ruling party loyalists (Aikins & Mahdi, 2024). Furthermore, they argue that elections in Africa are undermined by weak transparency surrounding electoral processes.

### *Democracy in South Africa*

In keeping with the focus of this study, the state of democracy in South Africa is discussed in the context of the right of citizens to vote and the ability of democracy to accommodate changes in electoral systems. Mpekoa & van Greunen (2016) argue that voting is a critical feature of any democratic process and that a citizen's democratic right must be confidential. Voting methods often vary from traditional voting systems to electronic voting systems. Thakur & Millham (2018, p. 1) argue that the challenge with traditional elections in South Africa is the enormous size of the country. This size, they add, makes South Africa the 25th largest country in the world by geographical size with over 1.2 million square kilometres. This made election logistics costly and complicated opening dialogue for e-voting (Thakur & Millham 2018).

South Africa attained democracy in 1994, and an interim Constitution ushered in many political changes including the introduction of a new system of government and new institutions such as the IEC (Mhlongo 2020). During the pre-1994 era, the majority of South Africans were prohibited from voting in general elections by the apartheid government because of factors such as race (Currie & De Waal 2013). Furthermore, African, Coloured, and Indian communities could not engage meaningfully in decision-making within the state and government institutions due to oppressive laws such as the Group Areas Act No. 41 of 1950 and the Population Registration Act No. 41 of 1950. The National Assembly adopted the final Constitution on 8 May 1996, and it was signed into law by the late former President Nelson Mandela in December of that year (Parliament of the Republic of South Africa 2024).

Section 19(3)(a) of this so-called progressive Constitution grants every citizen over the age of 18 the right to vote and enables them to participate freely in governance and policymaking (Mhlongo 2020; Electoral Act, 1998). However, 30 years since the dawn of democracy, this fundamental right is yet to be fully realised. At local government level in particular this often results in protracted, widespread violent protests, especially in black townships. South Africa's paper-based voting method is derived from the Australian ballot system (Mpekoa 2017).



However, she also warns that this voting system is slow, convoluted, costly, and can be inaccurate and inefficient due to human error. According to the World Bank (2022), historical social and economic inequalities also affect participation in South Africa's political processes. Where participatory processes exist, they are marred by a mixture of neglect, poor service delivery, corruption, infrequent feedback, and limited involvement of citizens in decision-making.

South Africa's democracy is classified as flawed, according to the EIU's 2023 Democracy Index. This means that elections in the country are free and fair, and basic civil liberties are respected. Furthermore, the EIU warns that flawed democracies often have significant weaknesses such as problems in governance, an underdeveloped political culture, and low levels of political participation. Thirty years into South Africa's democracy, millions of citizens, including the youth, are still excluded from democratic participatory processes. Considering these challenges, researchers and practitioners have been debating whether digital technologies may be the answer to regaining the trust of disillusioned citizens in democratic processes such as citizen participation.

#### VMDS IN SOUTH AFRICA'S 2021 LOCAL GOVERNMENT ELECTIONS

In 2019, the IEC notified 'interested parties' that it would be issuing a tender to procure new voter registration technology to assist in managing the voters' roll on voting day (IEC 2020). A total of 40 000 machines were procured for a reported R500 million to replace old Zip-Zip barcode machines used since 1998 and which could not capture real-time information (Du Plessis 2021). However, just over 30 000 were deployed in the election (IEC 2021/2022). Multi-functional VMD technology scans barcodes of IDs, records voters' addresses, stores details of the national voters' roll, and transmits data from polling stations in real-time to a central point (IEC 2021). In a media briefing ahead of the 2021 local elections, IEC Chief Electoral Officer Sy Mamabolo stated that VMDs were connected to the internet, but where the signal was weak or non-existent, voter information was stored and uploaded when the device encountered a strong internet signal (Sibanyoni 2021). According to Maseko (2024a), supporters of digital technology argue that with over 40 million active internet users, South Africa was perfect for testing VMD adoption in election management. Furthermore, the uniqueness of the 2021 local government elections, based on strict health controls, would provide key lessons for other emerging democracies in Africa planning to modernise their election systems.

After they were piloted in the 2021 local government elections, VMDs ushered in a new era for election management in South Africa. The IEC argues that these hand-held touch-screen electronic devices were a game-changer for

voter registration, successfully live-tracking voters on election day, and dealing with double voting (IEC 2021). It says the devices enabled the processing of more than 12.1 million voters and the capturing and registration of their addresses during the registration period ahead of the November elections. In the IEC's report (pp. 9-10) on the 2021 local government election, IEC Vice-Chairperson Janet Love shared her assessment of VMDs as follows:

Innovations in technology that were used in the 2021 elections have laid a strong foundation for the further, future automation of electoral operations and for our country to move towards the possibility of electronic voting. In these elections, not having had the opportunity to hold a comprehensive dry-run using the newly acquired voter management devices (VMDs) prior to the registration weekend, the Commission had to manage a number of operational challenges that emanated from the first-time deployment of the new technology. Nonetheless, it did so for, without the VMDs, it would not have been possible to achieve the 42-day timetable. In addition, these devices have catapulted electoral management in our country to new heights. The commission deployed 30 387 VMDs, which were centrally connected through an Access Point Network (APN). Their introduction can only serve to fortify controls in the voting process and enhance our capability to manage the voting and counting processes efficiently.

VMDs were also introduced at a time when the COVID-19 pandemic posed a threat to electoral participation in the democratic world (Maseko 2024a). While the IEC and some observers argue that they also strengthened tough health controls in the voting process, the devices still experienced some challenges during their piloting. For example, a reported 100 000 voters were disenfranchised after their details could not be uploaded into the electoral system (Du Plessis 2021). There were also reports of connectivity issues due to poor internet connections at some polling stations. Despite these challenges, the IEC resolved to continue using the new devices in the 2024 general elections.

#### VMDS IN SA'S 2024 GENERAL ELECTIONS

On Wednesday 29 May 2024, millions of South Africans queued patiently to vote in elections that threatened to challenge the ANC's 30-year dominance in Parliament. Just over 16 million people cast their votes amid various reports of technical glitches and failures of VMDs, mainly in the country's metros. Images of thousands of people standing in long queues after midnight on voting day

waiting to cast their votes, predominantly in Durban, Johannesburg, and Cape Town were displayed all over social media and television news. Interviewed by journalists about this matter at the official results centre, the IEC Chief Electoral Officer Sy Mamabola emphasised that the commission had not deliberately planned the delays, and there were no plans to extend voting in South Africa for a second day to accommodate people in queues. Instead, the IEC and political parties used platforms such as X (formerly known as Twitter) to ask voters to stay in the queues until they were processed. The IEC also instructed its officials to manually mark the voters' roll where they experienced technical glitches. Election observer missions also added their voices to the issue of technical glitches, with the AU Election Observer Mission urging the IEC to investigate the matter further and ensure that it did not repeat these problems in future elections.. The observer mission warned about the impact any uncertainty would have on the country's young voters.

Cowan (2024) argues that the IEC has still not yet concluded a detailed assessment of what caused VMDs to fail in the 2024 general elections, adding that the scale of the problem remains unknown. In the absence of an official report, Ren-Form, the company that provided the VMDs, maintains that it supplied devices that exceeded the technical requirements of the tendering process of 2021 (Cowan 2024). Instead, Cowan argues that the company blamed the glitches in the software loaded by the IEC onto the devices.

### E-VOTING WORLDWIDE

The concept of e-voting is not unique to South Africa. According to Mpekoa and van Greunen (2016), several countries have either piloted or implemented e-voting but very few have been successful. They also caution that the decision to adopt such a system is neither simple nor straightforward. Thakur (2024) argues that countries are most fragile between the time when voting starts and the election results are announced. He posits that e-voting offers speed in counting votes and eliminates this period of vulnerability.

The World Economic Forum (2024) argues that e-voting is part of a developing system around the world which pundits believe is crucial for reducing social and economic inequalities. They also argue that trials on electronic voting began around the 1980s, but it was not until the early 2000s that the initiative finally took off, driven by a rise in the use of the internet. Countries such as Estonia pioneered online voting in 2005 (Omarjee 2019), and the country's online voting system is widely known to have attracted hundreds of foreign delegations to Tallinn in the past wanting to see it in practice. Pundits for e-voting argue that the Estonian

government is showcasing the system as a model for other world governments on how online voting can be done.

India and Brazil, among the world's largest democracies because of the sheer number of voters, have been making use of e-voting for over two decades, having automated their systems in 1998 and 2000 respectively (Omarjee 2019). India, for example, developed its electronic voting machines which passed the pilot study, and the technology was able to solve many of the problems associated with the traditional paper-based voting system (Mpekoa & van Greunen 2016). However, their current voting system has many security challenges.

Thakur & Millham (2018) argue that e-voting allows for fast, unemotional, and accurate vote tallying, and e-voting systems can easily be configured to cater for multi-lingual and multi-abled interfaces. Furthermore, the technology can be used in referendums, shareholder meetings, university, and club elections with short commissioning and decommissioning times. For example, some South African universities such as the University of South Africa uses the e-voting platform of the Electoral Institute for Sustainable Democracy in Africa (EISA) (UNISA 2023). However, e-voting has its drawbacks, which include a high initial cost, both for setup and voter education, and the ever-present threat of malware or hidden code that could manipulate the vote (Thakur & Millham 2018, p. 1). Furthermore, (Omarjee 2019) posits that Ireland and Netherlands abandoned their e-voting due to security and hacking concerns. She also argues that Namibia was the first African country to adopt e-voting in 2014 following challenges with vote counting and tabulation processes in the 2009 elections, which led to a delay in the announcement of the election results. Though Namibia's technology was prone to technical glitches in 2014, the machines were still used in the 2019 presidential elections (Omarjee 2019, p. 3).

The Democratic Republic of Congo (DRC) planned to use electronic machines in its 2018 elections, but the project was negatively impacted by fears that the machines would be used to rig election outcomes (Wambua-Soi 2018). She argues that the country's electoral commission introduced voting machines to cut costs and speed up voting and counting in an election with more than 40 million voters. At the time, arsonists allegedly burnt 7 000 voting machines ahead of the election.

### E-VOTING IN SOUTH AFRICA

At the time of writing this paper, South Africa had not formally adopted e-voting. According to Fokane (2021) South Africa's IEC introduced technological solutions to assist with the processing of ballots in the 2009 general elections. In 2013, a seminar to assess the feasibility of electronic voting in the country was convened. It was noted by the then chairperson of the IEC, Advocate Pansy Tlakula, that whilst

e-voting presented some benefits such as speed and accuracy in vote counting, it would be expensive to monitor and could reduce transparency in the voting process (IEC 2013). At the time, she also noted the absence of global standards for verifying and auditing e-voting systems. In 2019, the IEC argued that it was neither appropriate nor cost-effective to introduce voting technology, but vice-chairperson Janet Love warned that this view was not absolute as the commission was continuously evaluating its position by interacting with colleagues from around the world (Wiener 2019). The IEC's position came despite many challenges in the 2019 general elections which threatened the credibility of the result such as issues of multiple voting, and long queues.

Fokane (2021) argues that electronic voting returned to the national agenda in 2020 using the Electoral Laws Amendment Bill which also dealt with the impact of the COVID-19 pandemic. The proposal argued that electronic voting would help increase efficiencies in the existing system, including counting and capturing election results. However, just ahead of the 2021 local government elections, the IEC proposal to test e-voting was rejected by the Parliamentary Portfolio Committee for Home Affairs citing fears of hacking and insufficient budgets, which were also raised through civil society submissions (Fokane 2021). In the end, the portfolio committee requested the IEC to return to Parliament with case studies, and challenges, and successes of e-voting in other countries (Fokane 2021). After the 2021 local elections, the IEC's deputy chief executive Mashego Sheburi alluded to financial constraints making it difficult to introduce new voting technology in the country (Nyathi 2023).

Following the conclusion of the 2024 general elections, the conversation about introducing e-voting appears to have received renewed enthusiasm on platforms such as X (formerly known as Twitter), especially after the weak performance of VMDs in the election discussed above. In its election satisfaction survey, the Human Science Research Council found that on average, 51% of respondents (comprising both those who support the idea and those who strongly support it) supported electronic voting (Human Sciences Research Council 2024).

### ONLINE ACCESS IN SOUTH AFRICA

An explosion of digital technologies, not just in South Africa but also across the African continent, has transformed the nature of elections. Various technologies have impacted election campaigning, the dissemination of information, the formation of opinions, and the choice of instruments used in elections.

At the start of January 2024, South Africa had over 45 million active internet users out of a population of over 60 million, mostly using mobile phones to go online (Cowling 2024). This figure represents some of the highest numbers of

internet users in Africa, together with those in Kenya and Nigeria. The 2022 national census results also indicate the upward trend in mobile phone ownership with over 90% of households in the country owning a cellphone in working order. However, a good internet connection is needed to ensure the successful implementation of digital technologies for election purposes. Results from the census further show that internet access in South Africa has been confined largely to urban areas, and most people access it in their workplaces, public libraries, universities, and internet cafes. Users have been predominantly white, city-dwellers, relatively affluent, and well-educated (Jensen 2001). Previous studies have also argued that South Africa was grappling with a lack of access to technology especially for poor, rural, and vulnerable communities. There are also problems with high data costs, the lack of protection of personal information online, and fears about the spread of fake news (including misinformation and disinformation). According to Africa News (2023) not much has changed as the South African government is still focussed on improving poor internet connectivity. They have cautioned that the government needs to act faster to keep up with a rapidly changing digital world.

### THE DIGITAL DIVIDE

According to Motala (2018), South Africa's digital divide is rooted in the country's racial segregation and the unequal development imposed by apartheid. These historical challenges resulted in the uneven distribution of basic technological infrastructure across the country, which persisted 30 years into democracy (Faloyea & Ajayib 2023, p. 3). According to Rey-Moreno & Pather (2020), the problem is being worsened by weak government policies and a lack of strategic direction on the part of officials. Mathekga (2024) argues that the digital divide prevents many people in the country, particularly the poor, from participating in an increasingly networked world. He argues that South Africa, for example, relies on approximately 10 undersea cables connecting the country through its vast coastline, and outages affecting some of the cables and internet traffic are not helping the South African situation.

### AFRICAN EXPERIENCE

2024 is also a crucial year for elections and democracy in Africa. According to Aikins and Mahdi (2024), 180 million eligible voters should have made their mark in close to 20 polls across the continent by the end of the year. They caution that many countries are still struggling to hold free, fair, and transparent elections despite decades of democracy. As explained earlier, countries are looking for



fresh solutions to deal with a democratic decline. Fatai (2023) argues that those governments leaning towards modernising their election management should note that digital elections are not cheap, and inadequate preparation could have dire consequences on voting day. Furthermore, Fatai (2023) also warns that because technology is operated by humans, any systems put in place must take care to ensure the absolute safety of that system.

Ahmed and Maru (2024) maintain that when used correctly, technology plays a major role in a country's election by assisting to quickly analyse large amounts of data such as voter patterns, running automated chatbots for voter engagement and authenticating voters, and hopefully detecting cyber threats. It is for this and other reasons above that the South African election is interesting to watch, and different African countries can use the lessons learned to strengthen their own democracies. Ahmed and Maru (2024) rightly posit that successfully adopting digital technology should be dependent on popular legitimacy and trust in that chosen technology. Governments must have the correct legislation and capability to enforce oversight of that technology, otherwise the work will be a futile exercise and a waste of resources.

## FINDINGS AND DISCUSSION

This study sought to answer two key research questions about whether South Africa was ready to handle e-voting, and to reflect on the lessons for other African countries that might be considering e-voting in the future. It is clear from this study that democratic institutions are falling short of people's expectations. The plight of developing nations and historically marginalised groups is a testament to growing public dissatisfaction about the democratic decline and the demand for solutions. The research questions were answered as follows.

### *Is South Africa technologically ready to handle e-voting based on the performance of VMDs?*

Simply put, the answer is yes when one considers several factors such as the positive attitude of IEC leaders, political parties, and civil society toward modernising local electoral systems and strengthening democracy by encouraging more people to participate in democratic processes. For instance, various social media platforms are used by the IEC, political parties, and civil society to promote voter registration and education, campaign and mobilise voter support, and promote debate and highlight issues of national interest. The answer is also simple when one considers the growing rate of internet adoption in South Africa and the growing ownership of mobile phones needed to access digital services. To ensure the responsible use of social media in its campaigns, South Africa's IEC

recommends that it follows the 'Principles and Guidelines for the Use of Digital and Social Media in Elections in Africa' inspired by the first-ever Continental Conference for Election Management Bodies held in Cape Town, South Africa in March 2020 (IEC 2024b).

However, the answer becomes more complicated when considering that the right social, political, and economic conditions must be created before officials can introduce e-voting. For e-voting to succeed, Maseko (2024c) suggests that aside from political will, South Africa also needs skilled artisans who have a basic understanding of technology to ensure that digital benefits reach everyone. Implementing this needs investment in time and money, and the reality of government cuts in spending for huge projects may reduce prospects for the quick initiation of projects such as e-voting in the future. Mpekoa and van Greunen (2016) have also previously argued that implementing e-voting is not a straightforward process and all new projects encounter diverse problems whether they be technical, social, economic, organisational, or political.

The proper skilling of artisans should be accompanied by appropriate legislation to guide the process, and affordable data prices for citizens. Challenges of persistent inequality and the digital divide are policy issues that need reforms promoting private investment, job creation, and inclusive growth. These issues may need longer to resolve and should not impede the progression of the country towards more modernised systems of electoral governance. When the IEC's appetite for e-voting is considered, the literature shows much back and forth in the decision-making since 2009 when the commission introduced technological solutions to assist with the processing of ballots in the general elections. This indicates that the IEC is still not clear on the way forward.

This study posits that the road ahead will not be smooth sailing for African countries hoping to use e-voting in the future. Current literature shows that not much has changed as the South African government is still focussed on improving poor internet connectivity.

### *What can other African countries learn from South Africa regarding modernising their voting systems?*

As the literature indicates, many African countries seem to be interested in modernising their electoral systems; however, e-voting is a long way from being a reality for various reasons. These challenges include the scarcity of skilled professionals in data science and machine learning, limited technological infrastructure, and poor to weak digital policies also raised by Faloyea and Ajayib (2023, p. 9) and Rey-Moreno and Pather (2020, p. 3) in this study. These countries can learn from the South African experience in the following ways.

Technical glitches on VMDs are not unique to South Africa. New technology will almost always face problems due to malfunctioning devices and elements of human error as witnessed in South Africa's elections in 2021 and 2024. To avert unnecessary delays in voting, service providers should anticipate technical problems and make provision for adequate time to rectify unforeseen technical problems and system failures. Most importantly, cool heads need to prevail in a time of crisis and allow election management bodies to do their work uninterrupted. South Africa's 2024 elections were declared free and fair by the IEC despite these technical glitches and machine malfunctions.

In the 2021 local government elections, VMDs achieved their aim of verifying most voters. Although there were technical challenges in some polling stations, the problems were not as common as in the 2024 general elections. This suggests that VMDs assisted the IEC in delivering credible elections despite the threats of COVID-19. For other African countries looking to invest in similar technology, there is hope for success when the correct technology is utilised.

Budget issues need to be addressed ahead of time for those countries seeking to adopt technology in their elections. The system failures in South Africa have highlighted the need for adequate budgets to allow election management bodies to do their work properly. According to the IEC (2021/2022), 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.

Electoral management bodies must take charge of and address valid concerns around machine failure and other concerns. This will assist citizens to keep calm during system failures. As witnessed in South Africa's 2024 general elections, frantic calls were made by the IEC and political parties for voters to remain in the long queues as many people had still not voted by the cut-off time of 9 pm. There were suggestions in the local media that the queues were a result of the failure of VMDs to verify voters and that some polling officials did not realise that they could use manual verification in the event of system failure. As stated by Cowan (2024) previously, the IEC is still assessing the full extent of the performance of VMDs in the 2024 general elections.

VMDs did not resolve the issue of voter apathy, low voter registration numbers, and low voter turnouts which are fairly common in South Africa's elections. This points to a need for IEC officials and other African countries to find more lasting solutions through investment in further research. A crisis looms for democracies in Africa if patterns of non-participation in elections persist.

On a continent with rising military and authoritarian regimes, South Africa has provided important lessons about respecting the rule of law and court outcomes. Not all issues raised by political parties had been resolved at the time of writing this paper, but the elections were declared free and fair while due

process is underway to address the concerns of aggrieved parties. Decisions by the electoral court have been respected and where this was not possible, the matter has been referred to higher courts for a decision. The South African elections also highlighted the importance of election management bodies adequately training staff to use new technologies. This will prevent unnecessary long delays at polling stations.

### RECOMMENDATIONS

This study makes several recommendations, as follows:

1. The performance of VMDs needs to be revisited and scrutinised more closely by South Africa's IEC, especially if the devices are to be used again in future elections.
2. Although the country's 2024 elections were declared free and fair, complaints about technical glitches should not be taken lightly as the strength of democracy is compromised when citizens are deprived of their right to vote freely and fairly due to machine failure.
3. The IEC should ensure that all their staff deployed to voting stations are well trained in how to operate election machines (Timcke & Schroeder 2024, p. 4). Amid unproven allegations of sabotage, the IEC should strengthen forensic screening of staff hired for elections to ensure that their integrity is not easily compromised.
4. In 2023, the non-profit entity Organisation Undoing Tax Abuse (OUTA) encouraged the government to allocate adequate funding to the IEC to cover its constitutional responsibilities. It advised that this would assist in securing future elections (OUTA 2024, p.1).
5. Long queues and staff shortages at voting stations create conditions that are barriers to exercising voting rights (Timcke & Schroeder 2024). Improvements in planning, training, and resource allocation are required for future elections to ensure all voters can participate.
6. It is critical to note that there is no one best way for election management, but in a fast-changing digital world, voters seek instant results. It may seem reasonable for African countries to combine manual and electronic voting methods as they search for more suitable ways to digitise their elections. This is also suitable in view of the ongoing challenges of inequality and the digital divide present in many Africans.
7. African governments need solid governance coupled with a commitment to implement their existing digital rights and laws if they wish

- to succeed in using digital technologies in their elections. Budget cuts and a lack of political will must be dealt with accordingly to achieve maximum results.
8. Electoral management bodies (EMBs) must follow electoral laws strictly, and selfishly guard their independence to enhance the credibility of elections. EMBs such as South Africa's IEC have been negatively impacted by budget cuts, but they should still use the resources at their disposal to ensure the transmission of results in real-time.
  9. African leaders need to conscientise themselves that an election is not always a sign of a healthy democracy, although it gives citizens a chance to choose and evaluate their leaders. A positive attitude towards technology will go some way towards strengthening democracy, and leaders need to embrace and support this notion. However, with the right attitude comes suitable social, political, and economic conditions conducive to ensuring that digital benefits reach everyone. Furthermore, leaders should also consider the views and opinions of all stakeholders before embarking on the adoption of new technologies, as Mpekoa and van Greunen (2016, p. 366) have suggested. These stakeholders include voters, political parties, election observers, and electoral management bodies.
  10. Campaigns to raise awareness about misinformation and disinformation in the digital age must continue even outside elections and should include partnerships with local mainstream media, the public, and government departments. This includes protecting the privacy of citizens online to restore their trust and confidence in e-voting. South Africa has enacted laws such as the POPIA Act to protect the personal information of citizens online. However, bad governance, corruption, and a poor human rights track record threaten the rule of law in many sub-Saharan countries and South Africa is no exception to these challenges.

## CONCLUSION

This study highlights the performance of VMDs in South Africa from their pilot stage in the 2021 local government election to their adoption in the 2024 general elections. Interesting discoveries and observations were made, especially regarding the confidence and willingness of the IEC to adopt new technology in a general election despite some recorded hiccups in the piloting stage. This speaks to its commitment to modernise elections. The IEC says in South Africa, VMDs

are not a requirement in law, but an additional safeguard for the voting process. This means that the voters' roll can still be marked manually to avert problems and delays caused by VMDs in the voting process.

Election bodies should be transparent in how they work in order to regain public trust and confidence by building consensus on electoral reforms across the political divide. With no end to budget cuts, it will take strict financial discipline for election management bodies to control their spending while delivering credible elections.

#### — REFERENCE —

- Ahmed, S & Maru, MT 2024, *AI and African Elections: Efficiency Gains Hinge on Trust and Proper Governance*, Retrieved from <https://democracyinfrica.org/ai-and-african-elections-efficiency-gains-hinge-on-trust-and-proper-governance/> (Accessed 19 June 2024).
- Aikins, ER & Mahdi, M 2024, *Five Worrying Signs of Africa's Poor Election Quality*, Retrieved from <https://issafrica.org/iss-today/five-worrying-signs-of-africa-s-poor-election-quality> (Accessed 20 June 2024).
- Bhandari, P 2023, *What Is Qualitative Research? | Methods and Amp; Examples*, Retrieved from <https://www.scribbr.com/methodology/qualitative-research/> (Accessed 24 June 2024).
- Cheeseman, N, Lynch, G, & Willis, J 2018, 'Digital Dilemmas: The Unintended Consequences of Election Technology', *Democratization*, vol. 25, no. 8, pp. 1397–1418. <https://doi.org/10.1080/13510347.2018.1470165>.
- Cowan, K 2024, 'IEC paid Joburg printing company R546m for faulty voter management devices that delayed voting', *news24* 18 July. Retrieved from <https://www.news24.com/news24/investigations/iec-paid-joburg-printing-company-r546m-for-faulty-voter-management-devices-that-delayed-voting-20240718> (Accessed 31 July 2024).
- Cowling, N 2024, 'Digital Population in South Africa as of January 2024(in millions)', *Statista* Retrieved from <https://www.statista.com/statistics/685134/south-africa-digital-population/> (Accessed 25 June 2024).
- Currie, I & De Waal, J 2013, *The Bill of Rights Handbook* (6<sup>th</sup> ed.), Juta and Company Ltd., [Cape Town?].
- Du Plessis, C 2021, 'New Voter Management Devices Blamed for Disenfranchising up to 100,000 People', *Daily Maverick*, 3 November, Retrieved from <https://www.dailymaverick.co.za/article/2021-11-03-new-voter-management-devices-blamed-for-disenfranchising-up-to-100000-people/> (25 June 2024).
- Economist Intelligence Unit* 2023, *Democracy Index Final Report*, *Economist*, London.
- Electoral Act* 1998, Government Printer, Pretoria.



- Electoral Institute for Sustainable Democracy in Africa 2024, *Explainer: The Three Ballot System and Amendment of Section 24A of the Electoral Act*, Retrieved from <https://www.eisa.org/the-three-ballot-system-and-amendment-of-section-24a-of-the-electoral-act/> (Accessed 1 August 2024).
- Eulau, H, Webb, PD & Gibbins, R 2024, 'Election', *Encyclopaedia Britannica*, Retrieved from <https://www.britannica.com/topic/election-political-science> (Accessed 19 June 2024).
- Faloyea, ST & Ajayib, N 2023, 'Understanding the Impact of the Digital Divide on South African Students in Higher Educational Institutions', *African Journal of Science, Technology, Innovation and Development*, vol. 14, pp. 1-11. 10.1080/20421338.2021.1983118.
- Fatai, A 2023, *Nigeria's Election was nearly derailed by Technology - But Biometric Devices Weren't the Problem*, Retrieved from <https://theconversation.com/nigerias-election-was-nearly-derailed-by-technology-but-biometric-devices-werent-the-problem-200936> (Accessed 19 June 2024).
- Fokane, T 2021, *South Africa's Parliament Rejects Plan to Introduce e-Voting*, Retrieved from <https://cipesa.org/2021/03/south-africas-parliament-rejects-plan-to-introduce-e-voting/> (Accessed 18 June 2024).
- Galal, S 2024, 'Social Media in Africa – Statistics & Facts', Retrieved from <https://www.statista.com/topics/9922/social-media-in-africa/#topicOverview> (Accessed 25 June 2024).
- Glenn, JK 2024, *Is Democracy Surviving the "Year of Elections"?* Journal of Democracy, Washington DC.
- Global State of Democracy Report 2023, *The New Checks and Balances*. Global State of Democracy Initiative, International IDEA, [Stockholm].
- Goyayi, M 2021, *The Role of Voting Technology in Enhancing Democracy in South Africa*, Retrieved from <https://ddp.org.za/blog/2021/07/09/the-role-of-voting-technology-in-enhancing-democracy-in-south-africa/> (Accessed 25 June 2024).
- Human Sciences Research Council 2024, *Election Satisfaction Survey*, Pretoria.
- IEC 2013, *Electoral Commission Convenes Seminar to Examine Feasibility of e-Voting*, Retrieved from <https://www.elections.org.za/content/News/Electoral-Commission-Convenes-Seminar-to-Examine-Feasibility-of-e-Voting/> (Accessed 17 June 2024).
- IEC 2019, *Electoral Commission to procure new Voter Registration Devices to replace 'Zip-Zip Machines'*, Retrieved from <https://www.elections.org.za/content/About-Us/News/Electoral-Commission-to-procure-new-Voter-Registration-Devices-to-replace--Zip-Zip-Machines-/> (Accessed 27 June 2024).
- IEC 2021, *Voter Management Devices (VMD)*. Independent Electoral Commission, South Africa.

- IEC 2021/2022, *Annual Report*. National Government of South Africa. Retrieved from [https://nationalgovernment.co.za/entity\\_annual/2998/2022-electoral-commission-\(iec\)-of-south-africa-annual-report.pdf](https://nationalgovernment.co.za/entity_annual/2998/2022-electoral-commission-(iec)-of-south-africa-annual-report.pdf) (Accessed 2 August 2024).
- IEC 2024a, *What's New in the 2024 Elections: Electoral Amendment Act*. Electoral Commission of South Africa.
- IEC 2024b, *Principles and Guidelines for the Use of Digital and Social Media in Elections in Africa*. Retrieved from <https://www.elections.org.za/pw/Elections-And-Results/Principles-and-Guidelines-for-the-use-of-the-Digital-and-Social-Media-in-Elections-in-Africa> (Accessed 2 August 2024).
- Jensen, M 2001, *The African Internet – A 2001 Status Report*, Retrieved from <http://www.digitaldivide.net/articles/view.php?ArticleID=322> (Accessed 16 June 2024).
- Maseko, M 2024a, *Is South Africa Ready for Electronic Voting?* Retrieved from <https://mg.co.za/africa/2024-04-05-is-south-africa-ready-for-electronic-voting/> (Accessed 19 June 2024).
- Maseko, M 2024b, *Democracy in Africa: Digital Voting Technology and Social Media Can Be A Force For Good – and Bad*, Retrieved from <https://theconversation.com/democracy-in-africa-digital-voting-technology-and-social-media-can-be-a-force-for-good-and-bad-229311> (Accessed 20 June 2024).
- Maseko, M 2024c, *ANALYSIS | Could Failure of Voter Management Devices Jeopardise Introduction of E-voting in SA?* Retrieved from <https://www.news24.com/news24/opinions/analysis/analysis-could-failure-of-voter-management-devices-jeopardise-introduction-of-e-voting-in-sa-20240608> (Accessed 19 June 2024).
- Mathekga, R 2023, *Bridging Africa's Digital Divide*, Retrieved from <https://www.gisreportsonline.com/r/africa-digital/> (Accessed 27 June 2024).
- Mhlongo, L 2020, *A Critical Analysis of South Africa's System of Government: From A Disjunctive System to A Synergistic System of Government*. *Obiter*, 41(2), 257-274, Port Elizabeth.
- Motala, E 2018, *The State, Education, and Equity in Post-Apartheid South Africa: The Impact of State Policies*, Routledge, London.
- Mpekoa, N & Van Greunen, D 2016, 'm-Voting: Understanding the Complexities of its Implementation', *International Journal for Digital Society*. 7. 10.20533/ijds.2040.2570.2016.0149.
- Mpekoa, N 2017, 'A Framework for M-voting Implementation in South Africa', Nelson Mandela Metropolitan University (PhD Thesis).
- National Census 2022, *Census 2022 Population Count Results 10 October 2023*. Pretoria, Government Printer.
- Nkala, S 2024, *Trust Deficit In Tech Devices Hits Elections Credibility*, Retrieved from <https://theafrican.co.za/technology/trust-deficit-in-tech-devices-hits->

- elections-credibility-ea7d99d9-ccf5-4e9f-a31d-f7bb51d1b3be/ (Accessed 19 June 2024).
- Nyathi, M 2023, *IEC 'Technically Ready' for 2024 Elections*, Retrieved from <https://mg.co.za/politics/2023-10-30-iec-technically-ready-for-2024-elections/> (Accessed 21 June 2024).
- Omarjee, L 2019, *E-voting: Which Countries Use It, Where has it Failed and Why?* Retrieved from <https://www.news24.com/fin24/e-voting-which-countries-use-it-where-has-it-failed-and-why-20190510> (Accessed 20 June 2024).
- O'Regan, V 2024, *The Big No-Vote: Over 11 Million Registered Voters Did Not Cast Ballots in 2024 Polls*, retrieved from <https://www.dailymaverick.co.za/article/2024-06-07-the-big-no-vote-over-11-million-registered-voters-did-not-cast-ballots-in-2024-polls/> (Accessed 3 August 2024).
- OUTA 2023, 'Fund the IEC Properly Rather Than Political Parties', retrieved from <https://www.oua.co.za/blog/newsroom-1/post/fund-the-iec-properly-rather-than-political-parties-1266> (Accessed 21 August 2024).
- Parliament of the Republic of South Africa 2024, *Parliament's Statement on the Anniversary of the Adoption of the Constitution*. Retrieved from <https://www.parliament.gov.za/press-releases/parliaments-statement-anniversary-adoption-constitution> (Accessed 1 August 2024).
- Rey-Moreno, C & Pather, S 2020, *Advancing Rural Connectivity in South Africa Through Policy and Regulation: A Case for Community Networks*. 2020 ISTAfrica Conference (IST-Africa), 18–22 May.
- Sibanyoni, M 2021, 'LGE 2021 | IEC to Use VMDs Instead of 'Zip-Zip Machines'. *IEC Media Briefing – Update on the voter registration progress*, South African Broadcasting Corporation.
- South African Institute of Race Relations 2023, *South Africa's Low Voter Turnout is no Laughing Matter: 5 Crucial Takeaways*, Retrieved from <https://irr.org.za/fan/media/south-africas-low-voter-turnout-is-no-laughing-matter-5-crucial-takeaways> (Accessed 3 August 2024).
- Thakur, C & Millham, R 2018, 'The Decision to Adopt Electronic Voting in South Africa', *Muma Case Review* vol. 3, no. 14, pp. 1-16 <https://doi.org/10.28945/4216>.
- Thakur, C 2024, *E-voting versus Paper Ballots*. Retrieved from <https://mg.co.za/africa/2024-04-24-e-voting-versus-paper-ballots/> (Accessed 2 August 2024).
- Timcke, S & Schroeder, Z 2024, *Election Observation Report 2024 National Regional and Provincial Elections*, Research ICT Africa.
- UNISA 2023, *E-voting Guidelines for the Unisa SRC Election 2023*. Retrieved from <https://www.unisa.ac.za/sites/myunisa/default/Announcements/e%E2%80%93Voting-guidelines-for-the-Unisa-SRC-Election-2023> (Accessed 3 August 2024).

- Wambua-Soi, C 2018, *DRC's New Electronic Machines 'Could Help Rig Election*, Retrieved <https://www.aljazeera.com/videos/2018/12/18/drcs-new-electronic-machines-could-help-rig-election/> (Accessed 21 June 2024).
- Wiener, M 2019, 'Indelible Ink vs Biometrics – What the Voting Experts Say', Retrieved from <https://www.news24.com/news24/indelible-ink-vs-biometrics-what-the-voting-experts-say-20190510> (Accessed 20 June 2024).
- World Bank 2022, *New World Bank Report Assesses Sources of Inequality in Five Countries in Southern Africa*, Retrieved from <https://www.worldbank.org/en/news/press-release/2022/03/09/new-world-bank-report-assesses-sources-of-inequality-in-five-countries-in-southern-africa> (Accessed 21 June 2024).
- World Economic Forum 2024, *What Is E-voting? Who's Using It and Is It Safe?* Retrieved from <https://www.weforum.org/agenda/2024/04/what-is-electronic-voting/> (Accessed 19 June 2024).