AN EXPLORATION OF THE EFFECTIVE USE OF ELECTRONIC VOTING MACHINES IN ELECTORAL PROCESSES IN THE KHOMAS REGION OF NAMIBIA

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ABSTRACT

This study was conducted to explore the effective use of Electronic Voting Machines (EVMs) in electoral processes in Namibia, focusing on the Khomas Region. Since it has been common in Namibia for the election system and election results to be challenged, subsequently as a means to pre-empt electoral challenges, such as the one which took place in 2004 and 2009 elections and in order to enhance legitimacy of the electoral processes in Namibia, the Electronic Voting Machines were introduced and was thought to be the solution. Hence, in the 2014 Presidential and National Assembly (PNA) elections, the EVM system was introduced and it was also used in the 2015 Regional Council and Local Authority (RCLA) elections. Namibia became the first African country to use the EVM system in the country's general elections, thus setting precedence in the continent. Globally, the system has been used in various countries such as France, India, Canada, Australia, Netherlands, and Germany to mention a few. In these countries, the effectiveness of the system produced mix results, to some the system was successful and to others a failure. For example, in the Netherlands and Germany the system was suspended.

Since this was the first time for the electronic voting machines to be used in Namibia, this study sought to explore the effectiveness of using Electronic Voting Machines. The main research objective was to explore the effective use of EVM as an instrument in the electoral processes in Namibia. A mixed method data collection approach was used where both qualitative and quantitative approaches were used although the qualitative was dominant. A sample of 40 participants was selected where 30 were electorates, 5 ECN employees and 5 political representatives. Non-probability sampling techniques in the form of judgmental and convenience sampling were used to select the participants.

The empirical results indicated that the EVMs were very effective in the 2014 Presidential and National Assembly elections and 2015 Regional Council and Local Authority elections. All the electorates, ECN employees and political representatives applauded the system and rated it as better than the traditional manual system. However, since it was the first time to use the system, the level of confidence and trust was very low. It was also noted that the education and awareness campaign was not enough to sensitise the electorate and all stakeholders, hence, the study recommended intensive educational and awareness programmes to be implemented in the coming elections, in order to instil trust and confidence in all stakeholders.

DECLARATION

I, Kachana Media Kamwi, do hereby declare that this thesis submitted for the Master of Business Administration (MBA) - Management Strategy at the Namibia Business School (NBS), University of Namibia (UNAM) is my original work and that to the best of my knowledge and belief; it has not previously, in its entirety or in part, been submitted to any other university or other educational institution for the award of any degree or diploma. Works of others cited or referred to are accordingly acknowledged.

Signed: ..... Date 11 APRIL 2019

DEDICATION

The accomplishment of this thesis is not an individual endeavour. Subsequently, I dedicate this thesis to many individuals who provided support, encouragement and assistance. A very special gratitude goes to all of those that helped me stretch and reach for the best.

I will ever be grateful to my loving and understanding husband and my baby boy for having emotionally supported me throughout my studies. Without their support, I would not have been able to complete this thesis.

This work is dedicated to the memory of my beloved late parents;

Mother - Clarina Namuchana Mutau (1959-2001)

and

Father - Charles Silumbu Kamwi (1953-2017)

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To God be the Glory!

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

APP	All People's Party
COD	Congress of Democrats
DRE	Direct Recording Electronic
DTA	Democratic Party of Namibia
ECN	Electoral Commission of Namibia
EVM	Electronic Voting Machines
EBP	Electronic Ballot Printers
EMS	Express Mail Services
EMS	Election Management System
ICT	Information and Communications Technology
INEC	Independent National Electoral Commission
IPI	International Peace Institute
IPPR	Institute of Public Policy and Research
MBA	Master of Business Administration
NBS	Namibia Business School
NPC	National Planning Commission
NUDO	National Unity Democratic Organisation
OMR	Optical Mark Recognition
PNA	Presidential and National Assembly
RDP	Rally of Democracy and Progress

RCLA	Regional Council and Local Authority
SPSS	Statistical Package for Social Science
SADC	Southern African Development Community
SWAPO	South West African People's Organisation
UDF	United Democratic Front of Namibia
UPM	United People's Movement
UNAM -	University of Namibia
VVPAT	Verifiable Voter Paper Audit Trail

DEFINITIONS OF KEY WORDS/TERMS

Democracy – A system of the government by the whole population or all eligible members of a state, typically through elected representatives.

Elections – it is a formal group decision-making process where a population chooses an individual to hold public office.

E-voting – refers to voting using electronic means.

Regional Council and Local Authority (RCLA) elections – these are elections that are done to choose leaders of towns, regions and communities, e.g. councillors.

Presidential and National Assembly (PNA) elections – these are elections that are conducted to choose state national leaders, e.g. parliamentarians and president.

Traditional voting – it is a voting system that uses ballot and ballot paper. Electorates indicate the candidate they choose to represent them by putting a mark on a ballot paper that they later cast in a ballot box.

CHAPTER 1

1.0. INTRODUCTION

Elections are a tool for democracy around the world and they make it possible for the act of self-determination as envisaged in the Charter of the United Nations (United Nations, 2014). Elections allow the general voters to choose their representatives and express their preferences and concerns on how they wish to be governed (Zangpo, 2014). Furthermore, Zangpo (2014) emphasised that the election system must be sufficiently robust to withstand a variety of fraudulent behaviours and must be sufficiently transparent and comprehensible that voters and candidates can accept the election results.

Various electoral systems have been in use since the advent of time, and the most common was the document ballot voting system or the paper-based voting system where votes are cast and counted by hand, using ballot papers. Although the ballot system has been so popular in Africa and around the world, its effectiveness in democratic processes and democratic politics has always been challenged. Generally, elections are of utmost importance in any democratic country as they facilitate a government of the people, for the people (Saunders, Lewis and Thornhill, 2012) and by the people (Mitra, 2014). (Mitra, 2014) further states that elections are important because the people participate in elections to choose their representatives.

According to the International Peace Institute (IPI, 2011), in some cases, elections have been manipulated to legitimise autocratic regimes or to ensure dynastic successions on the continent. Thus, the ballot voting system has been found to be a source of contention associated with delays in the counting process as well as the speed and manner of announcing polling station results (Election Watch, 2014).

In order to meet its mission "to deliver free, fair and credible elections, transparency, and democracy in Namibia", the Electoral Commission of Namibia under the new Electoral Act (Act No. 5 of 2014) introduced the Electronic Voting Machines (EVMs) in its 2014 Presidential and Parliamentary elections (Election Watch, 2014). An EVM is a simple electronic device used for casting, recording and counting of votes in place of ballot papers and boxes which were used earlier in conventional voting systems (Zangpo, 2014). Hence, this research was meant to assess the effective use of EVM as an instrument in the electoral processes, a case of Khomas Region. The research further accessed in-depth the use of EVM and identified the advantages of the use of EVM as an instrument in the electoral processes in Namibia.

1.1. Problem Statement

Electronic voting (e-voting) and the use of EVMs has been attempted by other countries around the world, with success in some countries and challenges in other countries. For instance, in 2008 e-voting in the Netherlands was suspended after 20 years of use when activists showed that the system in use could under certain circumstances compromise the secrecy of the vote, while in Germany, e-voting was declared unconstitutional in 2009 (Election Watch, 2014). In relation to this, Swamy (2012) highlighted that EVMs in India was supposed to be the cure for the problem of booth capturing in elections, but in the present form of use they have only worsened the problems due to resistance from the ordinary citizens.

In an African context, Namibia serves as the first country to use Electronic Voting Machines (EVMs) though not the first country in the world. Since Namibia was the first country in the SADC region to use EVMs in its 2014 Presidential and National Assembly elections, challenges similar to those of India, Germany and the Netherlands were likely to arise

considering that Namibia's election results used to be constantly challenged by other contesting parties.

For instance, the 2004 and 2009 national election results were challenged by other contesting parties. Citing, "irregularities which, were pervasive in the run-up to, during and after the elections; citing a lack of transparency and accountability in the election process; statutory non-compliance in the verification process and resultant undue returns and results" (Nico, 2012). Since it has been common in Namibia for the election system and election results to be challenged, the EVM system was thought to be the solution; hence in this research the main focus was to evaluate the effective use of EVMs in election processes in Namibia.

1.2.Research Objectives

The main research objective was to explore the effective use of the EVM as an instrument in the electoral processes in Namibia. This was supported by the following sub-objectives:

1. To analyse the lessons learned from the use of electronic devices such as the EVMs in electoral processes.
2. To determine the effectiveness of e-voting during the last elections between 2014 and 2015 in Namibia.
3. To compare and contrast traditional elections and the new adopted/used EVM as an instrument in electoral processes.
4. To identify various challenges which the Electoral Commission of Namibia might face in the long-term use of EVM in electoral processes.

1.3.Significance of the Study

The Electoral Commission of Namibia is mandated by the Namibian Constitution and the Electoral Act to conduct and supervise elections in a free, fair, transparent and in an impartial manner (Electoral Act No. 5, 2014). Thus, the research was of significant value to ECN employees, political parties, and the general electorates in understanding the effective use of electronic devices such as EVM in the national election processes. Furthermore, it assisted the ECN in benchmarking and analysing the extent of electorates' participation in elections after the use of EVMs in the recent elections.

1.4.Limitations of the Study

The major limitation was that the research was based on the information of one experience - 2014 and 2015 elections. This also revolves around the extent of information, which was gathered. Furthermore, the aspect of this research may limit the interpretation of the results, as the data was collected solely in the Khomas Region's ten (10) constituencies, which may not be representative of the Namibian population. Secondly the sample size may limit the generalisability of the findings of the research to the entire Namibian electorates. Thus, the research focused on the electorates who participated in the 2014 and 2015 elections, political parties in Khomas and ECN employees.

1.5.Summary

This chapter introduced an overview of the study i.e. the background of the study and what prompted the researcher to conduct the study. The main purpose of the study was to investigate the effectiveness of EVM as an election instrument in Namibia. The Namibian government has migrated from the traditional manual voting system to an electronic voting system that was

introduced in 2014. Since it was the first time this system was used in Namibia in particular and Africa at large, the researcher intended to investigate how effective this instrument was and if it was credible. The specific objectives of this study were to analyse the lessons learnt from the previous elections, comparing the traditional and manual system with the electronic voting system and determining the challenges that were faced during the previous elections.

CHAPTER 2

LITERATURE REVIEW

2.0.Introduction

This chapter reviews literature from other authors on the topic under study. The chapter starts by giving an overview of elections in general, highlighting the general concept of elections and why it is important in democratic countries. The chapter further reviewed the electronic voting system and the various types of electronic voting. Included in this chapter are the various characteristics of electronic voting, merits and demerits of electronic voting and a theoretical framework of democratic voting and how ICT contributes to such democracy.

2.1. Elections

Elections have facilitated the emergence of democratic governments in some African countries although in some cases, elections have been manipulated to legitimise autocratic regimes or to ensure dynastic successions on the continent (International Peace Institute IPI, 2011). Since elections allow the general voters to choose their representative and express their preferences and concerns on how they wish to be governed, the election system must be sufficiently robust to withstand a variety of fraudulent behaviours and must be sufficiently transparent and comprehensible that voters and candidates can accept the results of an election (Zangpo, 2014).

For Rosas (2010), an Election Management System (EMS) is the only way to have a democratically political transition in a society. Countries that exercise democratic elections enjoy political stability and uncommon development. An election can be defined as a formal decision-making process by which a population chooses an individual to hold public office.

Since the 17th century, elections have been used as an instrument by which modern democracy operates. In most countries, electoral systems are detailed in constitutional and electoral statutory laws that regulate the voting system. Birch (2008,273) said that "an electoral process is an alternative to violence as it is a means of achieving governance. It is when an electoral process is perceived as unfair, unresponsive, or corrupt, that its political legitimacy is compromised and stakeholders are motivated to go outside the established norms to achieve their objectives". Therefore, in order to have a sound electoral system, an electoral management system must be put in place.

As asserted by Wall, Ellis, Ayoub, Dundas, Rukambe and Staino (2009, p.295-296), "an election management system is the set of processing functions and databases within a voting system that defines, develops, and maintains election databases; performs election definitions and sets up functions; formats ballots; counts votes; consolidates and reports results; and maintains audit trails". Thus, the electoral management systems are run on jurisdictions of existing personal computers and generally comprise of one or more collaborating databases holding information about the jurisdiction's area, the election contest, the candidates, and the issues being decided. They can then be used to design and generate various ballots, program vote-casting and tabulating equipment, and centrally tally and generate reports on election progress and results (Catt, Ellis, Maley, Wall, Wolf, 2014). From candidates' nominations, to voter registration and ballot design, EMS organises the information in any given country or region where an automated electoral process will be deployed with security, simplicity and accuracy. This body equally performs all administrative tasks related to the chosen electoral configuration such as contests and jurisdiction, specification, polling stations, candidate registration, ballot generation, results collection, results tabulation, proclamation of winner, election results publication (Wall *et al.,* 2014).

Elections are regarded as a means of getting rid of old demons of clientelism, corruption, arbitrariness, and abuse of power hence require proper checks and balances which can be achieved when a right leader is elected. In developing countries where election malpractices are common, the need to engage international electoral groups is required. As stated by Hall (2012), "international groups formulated mainly for this purpose, however, have several times helped to save elections from what otherwise would have been irremediable flaws and they have played pivotal roles in a large number of countries, most especially African countries" (Dundas, 2012).

2.2. Elections and Democracy

According to Birch (2008) elections in a democracy entails allowing people the right to choose their leaders through a process of free and fair election, holding them accountable for their policies and conduct in office. In addition, in a situation where a country shows democratic tendencies through elections, the masses are the ones who vote and they vote without intimidation, fear or coercion. It is against this notion that efforts to make changes in the election and voting process have been done over time to increase democracy, transparency and legitimacy for free, fair and credible elections (Dundas 2012).

Political democracy results in social and economic development. Thus, when people are engaged in choosing their future leaders, through democratic elections, this will result in economic and social emancipation, high productivity and economic growth (Hagen 2000). The relationship between democracy and development is therefore associated with the commonly believed model of social and economic development i.e. the higher the standard and the more value states provide for public involvement in determining the future of the country and governance, the more positive the results (Cramme and Hobolt, 2015).

Literature reveals that democratic countries are less likely engage in war with each other. Democratic countries promote eventual political transformation, that can less likely disrupt economic activity. Thus, in economic and political democracies, electorates have the freedom to choose political leaders and parties that enhance their economic endeavours and the parties that have more promising economic policies that enhances economic growth and development. In a democratic system, people are given the opportunity to change their leaders or a government that would have failed to deliver according to their social and economic expectations. Those governments that show transparency and democracy, promoting democratic processes, and public participation are likely to achieve more steady and long-lasting economic development (Cramme and Hobolt, 2015).

2.3. ICT and Electronic voting (e-voting)

In order to discover the full potential effect of ICT on democracies, it is important to explore the adoption and use of Electronic Voting (e-voting) as a means of a democratic voting system. Electronic voting is now common in some of the leading democratic countries around the globe, where internet voting is practiced (Goldsmith and Ruthrauff, 2013). Electronic voting has become a discussion in many countries and many are contemplating the adoption of this voting system as a way of improving democratic voting and electoral processes. Electronic voting is every so often perceived as a device to advance democracy, creating confidence in election management, enhancing integrity to election outcomes, thus increasing the electoral process' overall efficiency. Goldsmith and Ruthrauff, (2013) added that a well-executed, electronic voting system can eradicate chances of fraud, increase results processing, allow easy accessibility and create a more convenient voting process for the people, moreover, in the long-run reducing the election cost especially if it is used for more than one election.

However, like any other system, the electronic voting system cannot produce positive results to all. Literature has revealed that the e-voting system has its shortcomings. The notable shortcomings of the e-voting system include the legislative and technical challenges that it has suffered in other countries where it was implemented (Garrone, 2005). The common challenges of electronic voting are significant and are associated with the complications of electronic systems and procedures. For example, in some places electronic voting systems lack transparency for the electorates as well as the electoral management and observers. Mostly, electronic voting systems are merely understood by few individuals and experts, and the credibility of the electoral process depends on a fraction of systems operators rather than of thousands of election officers (Goldsmith and Ruthrauff, 2013).

A poor planned and designed electronic voting system can reduce voter confidence in the entire voting process. Hence, it is important to dedicate enough time and resources in planning and designing before implementing the system, by making use of previous voting experiences and case studies of other countries who successfully implemented the program. The modern devices of ICT can ensure a positive contribution to these three areas of democratic development if the correct decisions are made as well as the availability of resources. Nevertheless, it is clear that some level of caution is required if popular dissatisfaction with political systems is to be addressed (Prosser, Schiessl, & Fleischhacker, 2007).

2.4 The characteristics and functionalities of electronic voting systems

According to Prosser, Schiessl, & Fleischhacker, (2007), e-voting systems have various purposes, that include encryption, randomization, communication and security systems. However, this paper does not provide a detailed analysis of these functionalities. As such, this

study provides a narrow description of the electronic voting functionalities as given below for the benefit of voters and officials.

Electronic voter lists and voter authentication. This provides an electronic list of voters at a polling station, constituency or covering the whole nation. It helps the voters and officials to authenticate the eligible voters and to provide a record of those voted or not (Goldsmith and Ruthrauff, 2013).

Poll worker interfaces. These are unique responsibilities and functions given to polling officers that allows them to perform functions that include resetting the vote count at the beginning of the polling station as well as at the close of the polling. It is also the duty of the polling workers to ensure the printing and transmission of results (Garrone, 2005).

Interfaces for casting votes. This include various devices that are used at the polling station such as touch screens, touch sensitive buttons, special client software for internet voting, push buttons, and optical mark recognition (OMR) ballot papers that are fed into a scanner (Goldsmith and Ruthrauff, 2013).

Special interfaces for handicapped voters. These are devices that are designed for hand capped people that include braille and audio input devices for the blind, accessible devices for people with physical disabilities as well as simpler interfaces for illiterate voters.

Interfaces for the results output. These are voting machines that are used to print or display results. This machine is used after closure of elections to print or display results (in cases of digital machine). The printed results are used as physical evidence of the recorded results and printout copies will be distributed to various stakeholders (Garrone, 2005).

Result transmission system. Numerous voting machineries can transfer results to central counting systems, for instance through the Internet, telephone, mobile phone or satellite connection. And if there is no communication links, the electoral administrators can make use of physical transportation of the printed results and in case of electronic storage, external hard drives, memory cards and Universal Serial Bus flash drive can be used (Goldsmith and Ruthrauff, 2013).

Result tabulation systems, generally placed at result processing centres. After the elections and transfer of electronic results to the results processing centre, these results are automatically tabulated according to the various categories e.g. constituency, presidential elections, regional or council elections (Garrone, 2005).

Result publication systems. To ensure transparency of elections and results must be published in different forms and ways such as detailed print document, websites, geographic visualisation systems, and CDs. Results can also be displayed at polling stations (Garrone, 2005).

Confirmation code systems. Some electronic voting systems can accommodate control codes that allows individuals to verify every vote that is cast by them (Goldsmith and Ruthrauff, 2013).

2.5. The types of e-voting systems

There are four types of e-voting systems which are:

Direct recording electronic (DRE) voting machines. The machines come without Voter-verified paper audit trail (VVPAT). The VVPATs are used to provide physical evidence of the results (Gupta, 2011).

OMR systems: These are scanners that are used to scan or recognise the votes cast on a special machine-readable ballot paper. OMR systems can be placed at central counting centres or at polling stations (Islam, 2008). At a central counting centre, the votes are sent to the centre and thereafter they are counted whereas at polling stations, counting takes place as the voting progresses i.e. as soon as the voters feed the ballot paper into the ballot machine (Islam, 2008).

Electronic ballot printers (EBPs), these machines are similar to a DRE device that produce a machine-readable paper or electronic mark containing the voter's candidate of choice. This token is put into a separate ballot scanner which does the automatic vote count (Islam, 2008).

Internet voting systems: in this type, votes are transmitted through the Internet to a central counting server. In this case electorates can cast their votes through devices connected to internet such as computers, voting kiosks that will be placed at polling stations (Gupta 2011).

2.6. Characteristics of an effective e-voting

When considering introducing an e-voting system the following elements should be put in consideration.

2.6.1. Legality

Goldsmith and Ruthrauff, (2013) stated that before contemplating to introduce electronic voting systems the country must first consider the country's legal framework. In some cases, the use of electronic voting systems may violate the existing election laws in the country and maybe considered unconstitutional. Thus, if the existing laws can only allow for the traditional or manual system only, there will be a need to amend the constitution or the electoral laws so

that they can allow for electronic voting. If this is not done it will regard the electronic elections void and null.

2.6.2. Timeframe

Introducing the electronic voting is something that requires proper planning. The other important thing that needs to be taken into consideration when planning is the timeframe. The election administrators should set a feasible timeframe that will ensure the availability of the technologies and resources required, time to conduct a pilot survey, and to ensure that education and awareness campaign to all stakeholders are properly done. Failure to do this will result to failure of the project (Goldsmith & Ruthrauff, 2013).

The electoral administrators who intends to introduce electronic voting and counting system should do a thorough analysis of the challenges that are related to time in their planning. Mostly, for a successful implementation of electronic voting system, time must be measured in years rather than months (Islam, 2008).

2.6.3. Sustainability

Another important fact to consider before implementing the electronic voting system is the sustainability of the system. Even if the systems system seems to offer many advantages as compared to traditional systems, the electoral body intending to introduce the electronic voting system should also consider if they have the capacity to sustain the system. This include assessing the costs, the ability to maintain the machines, adequate support personnel and also consider the different geographic areas, communication ways and accessibility to the e-voting polling stations (Goldsmith and Ruthrauff, 2013). Even if the system can work very well on

introduction, the administrators should look at the long-term use of the system. All the required components of the system should be sustainable in the long-run (Garrone, 2005).

2.6.4. Inclusiveness

Democratic elections should be inclusive, i.e. it must accommodate all voters, contestants and all stakeholders involved. Thus, when introducing an electronic voting system, the administrators should ensure no eligible person is excluded or discriminated by the system. Thus, the government through the new system should ensure that the rights of all its citizens is not violated i.e. the right to vote and the right to contest for any position. The machine must also cater for the physically handicapped persons. It must ensure that they exercise their right despite their physical condition. The illiterate should also be considered to ensure that they exercised their right. And finally, before introducing the electronic voting system, a thorough stakeholder consultation must be done (Goldsmith and Ruthrauff, 2013).

2.6.5. Transparency

In a democratic country, transparency is a key ingredient for credible elections. By transparency, we mean that the system is open to scrutiny by all stakeholders i.e. the electorates, political parties, local and international observers. These stakeholders should be free to verify the election process as well as the results and to ensure that the election was free from any irregularities. Thus, transparency in the electoral process will enhance voter confidence and trust (Goldsmith and Ruthrauff, 2013).

Goldsmith and Ruthrauff, (2013) further state that e-voting and counting solutions can be a challenge to the principle of transparency since some steps that can be verified physically in the traditional election set-up such as seals and how ballots were marked can be automated in

a machine, thus cannot be seen by the electorates and the polling officers making the system less transparent.

2.6.6. Integrity

Islam (2008) asserts that it is a basic principle of credible elections that the process should reflect the will of electorates. Thus, the electronic system should provide the voters an opportunity to choose the political representatives of their choice. Unlike the traditional paper ballot where everything is visible and understandable, the integrity of the e-voting system is challenged unless adequate awareness and education programs are conducted to instil confidence in the electorates.

2.7. Table 2.1. Merits and demerits of e-voting

Merits	Demerits
It is faster to tabulate and count votes.	It lacks transparency.
Results are more accurate since human involvement is limited hence less human error.	Lack of openness which will result in poor understanding to non-expert users.
More efficient in high volume populations and complicated elections were more labour is required to count votes.	Lack of agreed standards for e-voting systems.
Improved presentation of complicated ballot papers.	System certification is needed, but there is no international agreed certification that governs this system.
Increased convenience for voters	Possible defilement of the privacy of the vote, particularly in systems which, do both voter verification and vote casting.

In case of internet voting there is a possibility of increased voter turnout.	Risk of manipulation by insiders with privileged access by external hackers.
It is more flexible and can meet the needs of a more mobile society.	Likelihood of fraudulent acts through largescale manipulation by a small group of insiders.
The chances of fraud and manipulation in the polling station and during transmission and tabulation of results is reduced since there is minimal human intervention.	Higher costs of both purchasing and maintaining e-voting systems.
Easily accessible to the blind through audio ballot, and those who are housebound and abroad can easily cast their votes, i.e. in case of internet voting.	It is costly since it requires infrastructure development and environment conducive for elections such as power supply, communication devices and favourable temperature and humidity.
The system easily accommodates multilingual user interfaces that can serve electorates in their various vernacular languages.	It requires tight security especially during transportation, storage and maintenance.
Electronic voting reduces the number of spoilt ballot papers since the device can warn voters about any invalid entries.	Reduced level of control by the election administration because of high vendor- and/or technology dependence.
In the long run there will be a reduction of cost through reduced worker time on polling stations and reduced ballot paper production and distribution costs.	Limited recount possibilities.
	It requires adequate voter education and awareness.
	There is a possibility of conflicts with the existing laws or electoral legal framework.

Source: (International Peace Institute (IPI), 2011)

2.8. The Public participation theories and ICT Role.

An exploration of the various forms of democratic public participation is required in order to appreciate the role of ICT on the democratic public participation in choosing their governments. The term democracy is a derivation of a Greek word - demos, "the people" and keratein, "to rule". However, in the modern world, democracy has various meanings and forms. Navarra (2011) describes democracy as a system where people can exercise their right to vote in a free and fair elections. Thus, the citizens are freely given the opportunity to choose the leaders or political representatives of their choice that will take control over the government.

There might be international standards for democracy, but the models might be different. Democracy can differ from one country to another and no two democratic systems can be exactly the same. Thus, through history, various models for public participation were developed and these are discussed in this paper and are related to the use of ICT (Garrone, 2005).

It is normally known that the more public participation the elected representatives are accountable to the electorates they represent. This means, in a democratic government the decisions made are influenced by the interests of the majority. The more transparent the government is, the more likelihood of it being people cantered and for the satisfaction of the people's wishes. (Navarra, 2011).

Having said that, models of democracy can be divided into three that is:

2.8.1. Direct Democracy

This is the most common and untainted model of democracy where every adult in most cases of 18 years and above has the right to make contributions towards the decisions made in a

country. Thus, all citizens have a right for public discussions of the matters concerning their country and community and can express their will in public meetings, as supported by the Greek political theorist Thomas More and William Morris (Mohammed and Bashir, 2010).

Even though it looks like an attractive and ideal theory, direct democracy has not ever been presented as a real system of state government. Topographical and physical constraints on information-sharing and decision-making implied that direct democracy has only successfully been applied at the local level in communes, co-operatives and villages. There are few examples of even minor researches conducted as they have frequently showed to be innately unsteady and become victim of more powerful and hostile neighbouring political systems (Hall, 2012).

2.8.1.1. ICT Implications

Primarily, it is assumed that modern technologies and communications offers more opportunities for facilitating direct democratic systems. This view is supported by modern cyberspace theologists who argue for a global government of the people by the people. In the modern world of technology, ICT can be used for global interactions in matters relating governance and parliament, hence providing an opportunity for direct democracy. This would eliminate the necessity to choose political representatives since everyone will be able to present their own views from wherever they are (Onu and Chiamogu, 2012).

Surely, it is evident that the likelihood of information delivery and easy way to transmit information, in simple terms, can make this likely to happen. However, it is far from realistic and it cannot be achieved in the near future. For this to be achieved it requires universal access to ICT and if this is not achieved it will remain a dream (Hall, 2012). Although it is possible

that there will be prospects for broader engagement in decision making in the future especially at the local level. Nevertheless, the efforts to engage people in direct democracy through the internet is noticeable although it has faced difficulties witnessed by very low levels of participation. (Navarra, 2011).

2.8.2. Representative Democracy

According to Navara (2011), representative democracy is the most commonly known type of democratic government system in the world. Basically, with representative democracy, the local people of the state choose their own political leaders through democratic election processes. The chosen representatives have the responsibility to account for the public resources and to make legislations to guard the rights and resources of the citizens through bodies such as parliament or local authorities.

In most cases, representative democracies are composed of the executive, parliament and the judicial, and these bodies work independently within the limits of their jurisdiction. In, some states, an independent electoral body is appointed to administer elections in a free and fair environment. Thus, the government in a representative government consist of various political parties who can form the parliament or legislature and, in most cases, the dominating party will control the cabinet. These representatives will be responsible for the collection of taxes as well as administering the public funds in the best interest of its citizens. This model is also broadly used in institutions such as local government (Mohammed and Bashir, 2010).

Representative democracy is the most popular political theory and it is concerned with the effective functioning of democratic systems and retaining the political representatives and their effectiveness (Dundas 2012). The difference between the voted individual being a

'representative' except being a 'delegate' of their constituents is debated frequently. Edmund Burke a political philosopher, asserted that political representatives have a moral authority to represent those who elected them into office without consulting or ensuring they are reflecting the opinion of the mass that elected them. On the contrary to the common misapprehension, parliamentary legislatures are not 'representatives' expected merely to be a spokesperson for the masses' views of their constituents (Cramme and Hobolt, 2015).

In most cases, parliamentary legislatures contest for political positions on a political 'ticket', a specified set of political guidelines and ideologies that the electorates may consider to agree to take or reject. The legislature's role is to reflect on the opinions of his or her voters nevertheless, then to choose themselves by what means to take a matter onward clearly understanding that issues such as their political party's stance and their individual philosophy. The representative democracy systems have evolved over time even though the model or blueprint was approved from the onset. Certainly, if political system fails to adapt to the evolving circumstances would be ultimately be failing to reflect the evolving opinions of the voters they represent (Goldsmith and Ruthrauff, 2013).

2.8.2.1. ICT Implications

Since the ideology of representative is for political leaders to represent and reflect the views of the people they represent, ICT makes it possible for people to communicate their views easily. The ever-increasing advancement in technology is and will equip the majority to convey their concerns and opinions through internet and mobile communications. Consequently, the voted political representatives can also easily make consultations with their people via internet and e-mail before they make decisions in parliament or the board that they are elected to. Proper communication and management systems will allow people to hold their political

representatives accountable for their actions since they are always updated on the affairs of the government through internet and technology (Navarra, 2011).

Those governments that have incorporated modern technology in their business are considered to be more efficient in their endeavours. More the same, by the use of technology those individual representatives have vastly benefited from using modern technology in advancing their knowledge in various matters that are related to the electorate they represent (Islam, 2008).

Garrone, (2005) advised that there is a risk that this modern technology might aggravate the problems of information administration for legislators, instead of refining its effectiveness other governments in states where email is commonly used as a form of communication have suffered with a huge influx of emails in a single day even some from organised lobby groups that they don't represent and even out of their constituencies. This overload of emails will result in them to become less effective to their duties if they choose to attend to them all. There is also the question of how, in an election system lacking distinct geographical delimitations, a political representative might efficiently make use of ICT to enhance their representational role (Abu-Shanab, Knight, & Refai, 2010).

2.8.3 Participatory Democracy

Most party-political academics have contended that attaining a progressive democratic government is more than simply extending suffrage to formerly unenfranchised models (Islam, 2008). As states engage more intensely in areas of a society's life, it is seen to be essential to create much better public involvement in decision-making and for those decisions to be made, wherever possible, at the level closest to the people. The participative model argues that people

must have more say in the activities of their communities or societies as well as their state. It brings and retain some attributes of both the direct and representative democracies (Prosser, Schiessl, & Fleischhacker, 2007).

It is qualitatively diverse from receiving contribution on opinions on matters as in representative democracy, since people are actively involved in decision making that are concerned about their daily welfare. It is not the as direct democracy in that people are involved in making decisions at the local level only but rather they also provide opinions through representative system (Abu-Shanab, Knight, & Refai, 2010).

However, the participatory democracy has suffered lack of willingness by the local people to actively participate and those in power to relinquish control and failure to balance the opposing interests of a diversity of participatory organisations. Thus, for proficient participatory democracy to work, the top structures must be willing to decentralize power to the local people (Hagen 2000).

2.8.3.2 ICT Implications

Hagen (2000), describes participatory democracy as a type of model that can best benefit from the use of ICT due to the advancement in ease of communication and availability of information. Since participatory democracy allows people to actively participate in the matters that affect their lives, making sounding decisions at their various levels and to encompass developments in their communities, ICT makes it more possible. However, the idea of participatory democracy through ICT looks to be more exciting and positive but the are some concealed risks and threats that can arise towards development in an area (Islam, 2003).

Since, participatory democracy is a hybrid of direct and representative models, and where representatives are expected to convey information to the people to the people they represent, ICT is very vital in this case for it allows a more participatory and can make it possible for the whole populace to make their contributions (Hall, 2012).

Nevertheless, if ICT can provide a platform for participatory engagement such that the central government can bypass the elected representatives and have direct contact with the people it reduces the role and responsibilities of the elected legislatures which nullifies their necessity. Moreover, there is no evidence that those people in the remote areas in developing countries can have access to ICT which will make this system ineffective. Furthermore, bypassing elected representatives by use of ICT will provide an opportunity to dictatorial and corrupt regimes to take advantage (Cramme and Hobolt, 2015). Moreover, the Executive can be able to control the movement of information and even to manipulate the messages, both those received by - and those conveyed to - the public. This can have a negative impact to those who seek to use ICT to advance participatory democracy (Islam, 2008).

2.9. EVMs and VRKs

The changes to the electoral processes in Namibia have also witnessed the introduction of the Voter Registration Kits (VRKs) as a means of registration of voters as well as the Electronic Voting Machines (EVMs) as a means of casting votes electronically. One of the significant benefits of these new systems is the possibility for increased efficiency and ability to reduce fraud by eliminating the opportunity for ballot tampering (Lin & Espinoza, 2007) and the durability of the voting cards. According to Tjihenuna, the Namibian Newspaper reporter, and Rao, the senior assistant engineer of Bharat Electronics Limited, which manufactured the EVMs, stated that the EVMs cannot be manipulated once programmed and either interfered by

any electronic device for example Bluetooth as it operates offline and does not require internet connectivity to operate.

2.10. Effectiveness of Electronic Voting Machines and the Voter Registration Kits

There are arguments against the effectiveness and efficiency of the EVM, for instance, soon after the 2014 elections, the opposition parties of Namibia that included the Workers Revolutionary Party, the Namibian Economic Freedom Fighters and the Namibia United Democratic Organization (NUDO) blamed the election mishaps on the EVMs use in the Presidential and National Assembly Election results claiming that the results were being "cooked and manipulated behind closed doors" using the machines (Tjihemuna, 2014). Thus, the use of e-voting in some European countries had particular challenges. For instance, in 2008 e-voting in the Netherlands was suspended after 20 years of use when activists showed that the systems in use could under certain circumstances compromise the secrecy of the vote, while in Germany, e-voting was declared unconstitutional in 2009 (Election Watch, 2014). This shows that the acceptance of EVMs and their effectiveness is not obvious, thus further and continuous research is necessary.

2.11 Lessons from other countries

Although Namibia is the first country to implement an e-voting system in Africa, but globally e-voting was implemented in many countries including, Estonia, India, Australia, America, Germany, Norway, France, to mention a few. Hereunder, an analysis of Estonia, India and Germany was carried out.

Estonia

Estonia was the first country to implement e-voting globally. It introduced the e-voting system for its national and local elections in 2005 and until now 30% of its votes are done online. Estonia's voting over the internet is very straightforward. Like all the other digital services in the country, the internet voting system is made possible via the Estonian ID cards or Mobile-ID that enable secure remote authentication and legally binding digital signatures (Springall, Finkenauer, Durumeric, Kitcat, Hursti, MacAlpine, and Halderman, 2016).

Since it was introduced in 2005, there is growing number of people who prefer using internet voting. In 2005, only 1.9% of the population used internet voting and in 2015, the number increased to 30.5% users. This shows that e-voting is gradually gaining confidence and trust among the electorates in Estonia. In terms of security, the Estonian elections never faced any threats neither were there any successful hacking. And the system is appraised for being costs effective and saving time (Chowdhury, 2017).

India

Electronic Voting Machines ("EVM") are being used in Indian General and State Elections. The firstly it was implemented in part in 1999 and were recently used 2017 state elections in five states across India. There were earlier claims regarding EVMs' temparability and security which have not been proved. After rulings of Delhi High Court, Supreme Court and demands from various political parties, Election Commission decided to introduce EVMs with voter-verified paper audit trail (VVPAT) system. The VVPAT system was introduced in 8 of 543 parliamentary constituencies as a pilot project in Indian general election, 2014 (Solehria & Jadoon, 2016).

Since it was introduced the EVMs proved to be costs effective as compared to the traditional manual system. Moreover, EVMs are said to be easier to transport as compared to ballot boxes.

Furthermore, vote counting became easier and the EVMs reduced bogus voting as the vote is recorded only once (Solehria & Jadoon, 2016).

However, since the results can be published at various polling stations the political representatives develop resentments with the areas where they lost. The control units do not electronically transmit their results back to the Election Commission, even though a simple and unconditionally secure protocol for doing this exists. The Indian EVMs are purposely designed as stand-alone units to prevent any intrusion during electronic transmission of results. Instead, the EVMs are collected in counting booths and tallied on the assigned counting day(s) in the presence of polling agents of the candidates (Solehria & Jadoon, 2016).

Nigeria

Nigerian government endorsed the e-voting system in 2007. In the same year, the Independent National Electoral Commission (INEC), the electoral body in Nigeria used the electronic system for data capturing and to register voters. However, the process was hampered by distrust and massive abuse of the system and the INEC decided to put the system on hold. Moreover, the high cost of establishing the e-voting system that can cater for the whole population of 160 million people, lack of political support and the high illiteracy rate were the major setbacks to implement the e-voting in 2007 (Shacham, 2016).

In 2015, the INEC implemented electronic voter authentication. In this system, the card reader, which is a portable electronic-voter authentication device is configured to read a voter card. The card reader was designed specifically for the accreditation process, and for the authentication of eligible voters before voting. The card reader was designed and configured to read only the permanent voter cards issued by the INEC; and they could only work on election day (Shacham, 2016).

2.12. Summary

Elections have become a common practice in democratic governments and allow the populace to elect the representatives of their choice and to express their preferences and concerns on how they want to be governed. Thus, governments should set an election management system that includes a set of processing functions and databases within a voting system. Elections are related to democracy since they give the people the chance to choose the political leaders whom they hold accountable for the success of their communities and the provinces they inhabit. Thus, political democracy results in social and economic development. Currently, many governments are considering implementing an electronic voting system in order to improve democracy in their countries and in other countries including Namibia the system has already been implemented. Across the globe, the e-voting system was effectively implemented Estonia. In Namibia, Electronic voting systems are said to be effective if well implemented in particular on providing fast results and accuracy. An effective e-voting system must possess the following characteristics: legality, timeframe, sustainability, inclusiveness, transparency and integrity and in a democracy, three theories are used i.e. representative, participatory and direct democracies.

CHAPTER 3

RESEARCH METHODS

3.0 Introduction

The term research methodology in a simple manner, is a systematic way to solve a problem. It is the science of studying how research is to be carried out. Essentially, it is the procedure by which researchers go about their work of describing, explaining and predicting phenomena and making conclusions and recommendations thereon (Saunders, Lewis and Thornhill, 2012). The research method applied for this study was a mixed-method research design. A mixed-method research design is a mixed procedure for collecting and analysing the data by using both qualitative and quantitative research methods to understand the research problem Creswell, (2013). Its central premise is that the use of qualitative and quantitative approaches in combination provides a better understanding of the research problem, than either approach alone (Bergman, 2008 Teddliie & Tashakkori, 2011). Thus, in this study, the research identified the procedures and techniques that were used in the collection, processing, and analysis of the data. Hence, the following subsections of research methodology were outlined; research design, targeted population, sample, data collections instruments, procedures and data analysis. Furthermore, the justification of the data collection procedure, data analysis, the reliability and validity of the research as well as ethical considerations were also outlined under this chapter.

3.1 Research Design

A research design is one that is based on well thought-through research questions and objectives (Macky & Gass, 2015). According to Kerlinger (2012) a research design is a

framework or blue-print for conducting a research project. It details the procedures necessary for obtaining the data and information needed to structure or solve the problems. Though there are many ways to classify research designs, sometimes the distinction is artificial and sometimes different designs are applied interchangeably.

The function of the research design is to certify that requisite data in accordance with the problem at hand is collected accurately and economically. The research design is necessary as it facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible, yielding the highest information with minimal expenditure of effort and the efficacy of time and money. In many cases, it is beneficial to apply or use both the qualitative and quantitative methods as it broadens the magnitude as well as the scope of the research project.

In this research both primary and secondary data were used. Interviews and questionnaires were administered forming part of the primary data for the research and secondary data was collected through journals, reports, published by research organisations, newspapers, Electoral Act (Act 5, of 2014), and other documentary reports and previous research. Henceforth, the researcher applied and used the mixed-method research design which serves as a mixed procedure for collecting and analysing the data by using both qualitative and quantitative research methods to investigate the problem (Bergman, 2008, Creswell, 2013b). A central belief in mixed-method research is that there are many social science issues that could be better understood and explored through the combination of different methods and techniques. Mixed-method research design involves philosophical assumptions that guide the direction of the collection and the analysis of the data; and they comprise the mixture of qualitative and quantitative approaches in the research problems that either approach alone (Bergman, 2008;

Morse, 2003; Tedd thus, this allowed for more freedom during the data collection process (Neville, 2007).

The reason being that by using a mixed-method research design it provides more comprehensive evidence for studying a research problem that either quantitative or qualitative research alone. Since this research revolved around the view and experiences of the people involved in the research and their perception, meanings and interpretations the research applied mixed-method but predominantly applied qualitative research methodology (Saunders, Lewis and Thornhill, 2012).

3.2 Population

According to the ECN Report (2015), the Khomas region has a total of 197 884 registered electorates. However, for convenience and flexibility's sake, the population of the study was narrowed to one constituency i.e. Windhoek East Constituency that has a total of 12 892 registered electorates which excludes the political parties representatives. Since the population is generally a large collection of objects or individuals that is basically a scientific query, due to the large size of the population, during the research it is often difficult for the researcher to test every member of the population as it is extremely expensive and time-consuming. That is why it is advisable for the researcher to rely on sampling techniques. Though, there are two types of population in the research, which is the target research and accessible population, this research made use of the target population which is the ECN Employees, registered electorates, and political representatives such as the SWAPO Party, RDP, UDF, DTA, NUDO, APP, COD, and UPM among other.

3.3 Sample

Sampling is the process of selecting target elements for the research, for example organisations, people from a population of interest, so that by studying the sample the researcher may fairly generalise the results back to the population from which they were chosen. The sampling methods are normally classified into two categories which are probability sampling and non-probability sampling. With probability sampling, it is possible to determine which sampling elements belong to which sample and the probability that each target unit/respondent will be selected, whereas the non-probability sampling method is based on human choice rather random selection.

The sampling technique this research adopted was the use of all listed political parties, ECN employees and the registered electorates and the stratified random sampling technique was applied and the various political party representatives, ECN employees, and sampled registered electorates were administered as strata. For data collections purposes, the sampling technique applied were purposive sampling and convenience sampling. Out of 12 892 registered electorates, 30 registered electorates were sampled, 5 ECN employees and 5 political party representatives. Hence the sample size of the respondents used for the research was 40.

Purposive sampling was used to select the ECN and political party representatives. "This type of sample is based entirely on the judgment of the researcher, in that a sample is of elements that contain the most characteristic, representative or typical attributes of the population that serve the purpose of the study best", (De Vos, 2011, p. 232). Whereas, the electorates were selected through convenience sampling technique. Rubin and Rubbie in De Vos (2011, p. 232), describe accidental/convenience sampling as a sample that selects available respondents

haphazardly for example, the nearest and easily accessed respondents will be selected until the number of participants is reached.

3.4 Research Instruments

The primary data was collected using a questionnaire with structured and non-structured questions. The researcher also developed an interview guide for use in face to face interviews. The questionnaires were administered to managerial employees of ECN, Citizens (electorates) within Khomas region and a number of political parties' representatives. Out of sixteen (16) political parties, five (5) political parties such as the All People's Party, DTA of Namibia, National Unity Democratic Organisation, Rally of Democracy and Progress, and SWAPO Party of Namibia formed part of the population and sample.

3.5 Data Collection Procedure

Data collection is the process of gathering and measuring information of the targeted variables in an established systematic manner, which assists the researcher to answer research questions and evaluate and analyse the outcome (Bell, 2004). The two most common data sources used were primary and secondary data. Self-administered drop and pick questionnaires were distributed among the senior management, selected general electorates and political parties represented. By applying primary data, the questionnaires were personally distributed to the respondents, and the researcher personally ensured that the completed questionnaires were collected from the respondents at the point where the questionnaires were administered to them. Whereas secondary data was also collected through the Namibian Electoral Act, (Act No. 5 of 2014), reports published by research organisations such as the Institute of Public Policy and Research (IPPR) and other previous scholars' research work was used as documentary review

3.6 Data Presentation and Analysis

Analysis of data is a process of inspecting, clearing, transforming, and modelling of data with the goal of discovering useful information, suggesting recommendations and conclusion-making (Bryman, 2007). The data analysis consisted of examining the surveys for correctness and completeness, coding and keying data into a database by using Microsoft Excel Spreadsheet (MS Excel) and performing an analysis of descriptive responses.

This data was then entered in a flat excel sheet using columns for the different study variables and rows for the different respondents. The data was then cleaned, variable-by-variable while running preliminary analysis to exclude duplicate variables.

Since the qualitative study paradigm was also used in this research, the data collected was analysed using narrative methods. Content analysis, commonly utilised for open ended questions was also applied in analysing the data. After the data obtained was grouped and analysed in particular analytical categories e.g. age, sex, constituency, level of understanding, experience, knowledge of EVM, etc., and the quantitative data was also analysed using the Excel Spreadsheets. The researcher used descriptive statistics to present the results - frequency tables and graphs were constructed to display results with respect to each of the questionnaires and findings.

3.7 Research Ethics

According to Creswell (2012) ethical issues should always be addressed while collecting data. This may include the purpose of the research, confidentiality of data obtained, respect of the participants in all aspects, and not forcing the participants/respondents in case he/she takes time to respond. During the research, strict compliance and confidentiality was exercised with

regard to data obtained. The data was maintained by applying data intended purpose only. Interviewee identity remained anonymous, as no names were required to be indicated in the study. Key staff members were assured of confidentiality of the information that was collected by explaining that the information was only used for academic research purposes. During the completion of the interview guide and questionnaires, the participants and respondents were not influenced in any way to provide answers that would support the perception of an individual or that of the researcher's opinion. Consent was reached between the researcher and the key staff members. Through this, the interviewee could easily answer the questions confidently.

Since the end of the research, the soft data is being kept away in an external drive for safe keeping for at least a minimum period of five years. With regards to the hard copy research materials, one sought for approval from work or the Namibia Business School for the safe keeping of the materials. Hence, by the fifth year the data will be destroyed by shredding and burning with the secondary data being archived for future reference by other researchers.

3.8. Summary

This chapter described the methodology that was followed in conducting this research study. In order to have a broader understanding of the topic, the researcher used a mixed research method where both quantitative and qualitative techniques were used. Questionnaires were used to collect data from a sample of 40 participants and data was presented and analysed through Microsoft Excel and SPSS. The next chapter presents the results and their discussion.

CHAPTER 4

DATA PRESENTATION, ANALYSIS, FINDINGS AND DISCUSSION

4.1. INTRODUCTION

This is the penultimate chapter, where the results obtained from the analysis of transcriptions of the views of electorates, ECN employees and political party representatives who were the key role players in understanding the Electronic Voting Machine in Namibia are discussed. The data was collected from 30 electorates, 5 employees and 5 politicians, as indicated in the previous chapter.

FINDINGS FROM THE QUESTIONNAIRE

4.2. SECTION A: RESPONDENT PROFILE

4.2. 1. Gender

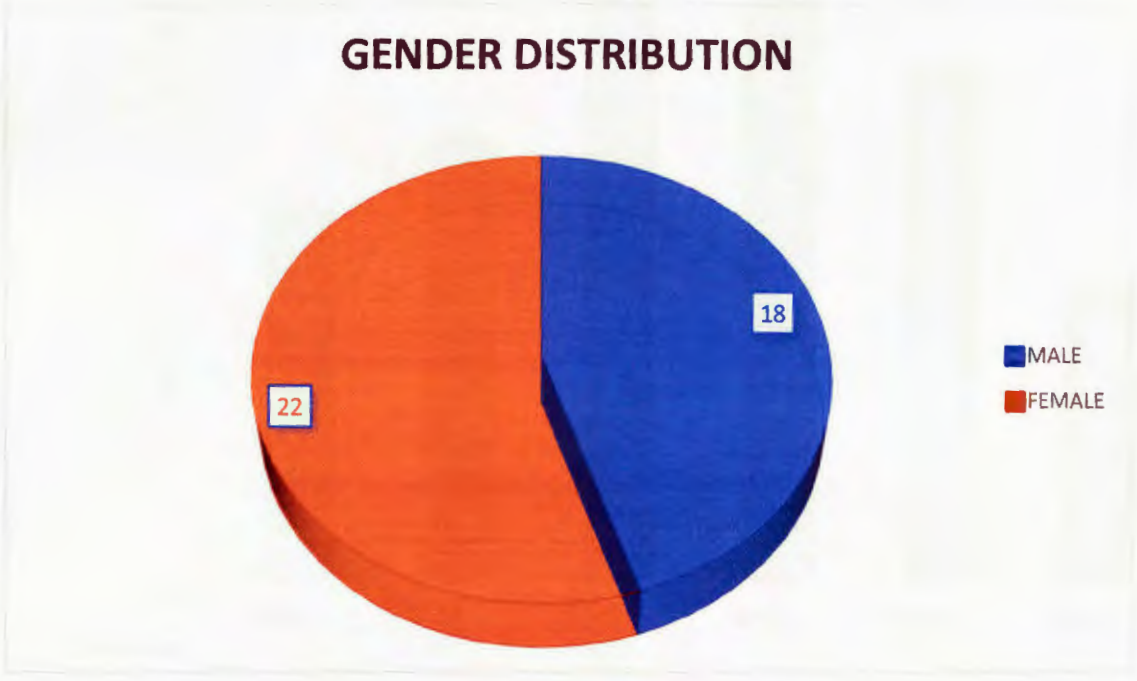

Fig 4.1. Gender distribution

As shown in fig 4.1. above more women participated in the study compared to men. There were 22 women and 18 men who participated in the study. The participants shown in the chart include all categories that were involved in this study, i.e. electorates, ECN employees and political representatives. However, there were not that many discrepancies regarding gender.

4.2.2. Age group

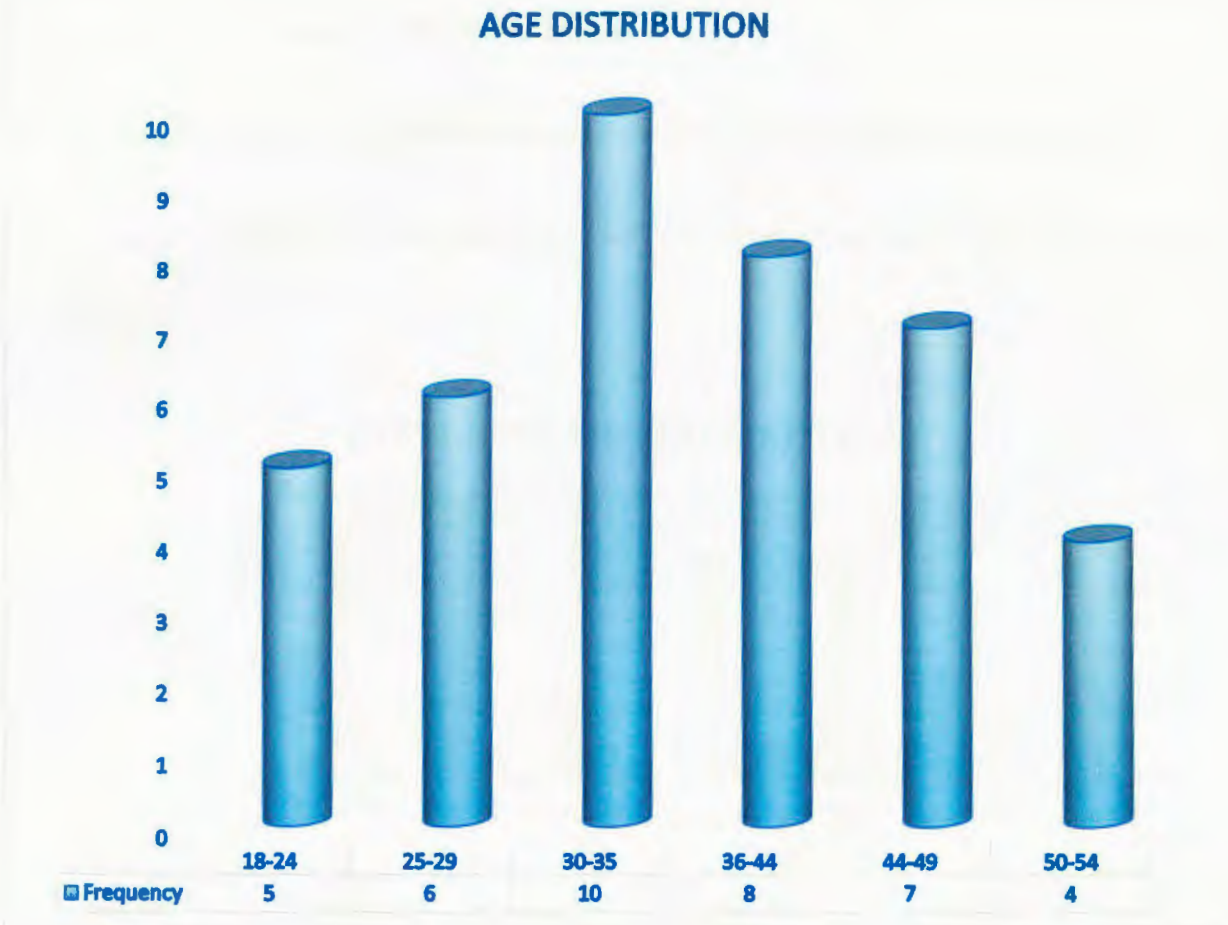

Fig. 4.2. Age distribution

All the age groups that were listed in the research instruments were represented. However, the most represented age group was between 30 to 35, which was 25% (10 respondents) of the sample, followed by 36 to 44 which was 20% (8 respondents), and 44 to 49, 25 to 29, 18 to 24, 50 to 54 with 17,5% (7), 15% (6), 12.5% (5) and 10% (4) respectively. It must also be noted that the age group (30-35) is also the group with highest voting patterns as well as the majority in terms of the Namibian population.

4.3. SECTION B: ELECTORATES

4.3.1. General information on the use of EVMs

To what extent was the use of EVM satisfying in terms of the following during elections?

Fig. 4.3. below shows how the electorates rated the level of satisfaction it terms of given characteristics.

	Applicable	Accessibility	Availability	Convinient	Flexibility	Simblicity	Uniquenes s
Strongly Agree	8	9	9	7	7	7	14
Agree	16	18	18	14	14	12	16
No idea	4	2	2	6	5	4	0
Disagree	1	1	1	1	2	4	0
Strongly Disagree	1	0	0	2	2	3	0

Fig. 4.3. Level of satisfaction with EVM

As shown in figure 4.3. the electorates rated the EVM positively. All the respondents agreed and strongly agreed that the EVMs are unique, with 90% agree and strongly agree on the accessibility and availability of the EVM, 80% agreed and strongly agreed on its applicability, 70% of the participants agreed and strongly agreed on the convenience and flexibility of the Electronic Voting

Machines, whereas 63% agreed and strongly agreed on its simplicity. This shows acceptance of the EVMs by the general electorates.

4.3.2. Rate the trust you had in the use of EVMs during elections.

The study also sought to investigate to what extend the electorates trusted the Electronic Voting Machines. The respondents were asked to rate with a yes or no on given statements related to their experience with the EVMs during the 2014/2015 elections, and the information is presented in table 4.1. below.

No.	Statement	Yes	No
1	Have you used EVMs before?	30	0
2	Do you think EVM has advantage over manual Voting system?	25	5
3	Do you think the use of EVM helped in solving the problems experienced with the manual/traditional voting system?	25	5
4	Did the use of EVM improved/increased the turnout of voters?	11	19
5	Do you think the use of EVM made voting easier for everyone involved?	17	13
6	Do you trust the use of EVMs?	15	15
7	Were you having confidence in the use of EVMs during elections?	14	16

8	Do you think you were well educated on the use of EVMs?	15	15
9	Do you think you received enough knowledge or awareness with regard to the use of EVMs?	15	15
10	Does the use of EVMs allow the general voters to choose their political representatives?	30	0

Table 4.1. The level of trust in EVMs

According to table 4.1 all the electorates who participated in this study used the EVMs during the 2014 and 2015 elections. Of the 30 electorates, 25 agree that the EVMs have an advantage over the traditional/manual system and has helped to solve the problems caused by the traditional system, and with only 5 saying otherwise. Related to the former, 17 out of 30 which is 56,7% of the electorates believed that EVMs made voting easier. And all the electorates agreed that the EVMs allow the general voters to choose the political representatives of their choice. However, the majority i.e. 19 out of 30 believe that the introduction of the EVMs did not improve/increase the rate of voter turnout.

On the issue of trust and mistrust of the EVMs, the participants' results, resulted in mixed perceptions with equal proportion of 50% trusted the EVMs and the other 50% had no trust in the use of EVMs. This was the first time for Namibia to use the Electronic Voting as well being the first African country to implement the Electronic Voting, hence it might be the reason why some could not trust the EVMs. The other reason for lack of trust will be inadequate knowledge of the EVMs, as is shown in the table that 50% or half of the participants indicated that the general voters were not well educated on the EVMs and the awareness on the machine was insufficient.

4.3.3. Rate the following statements on a 1 to 5 scale, where 1 is the lowest and 5 the highest.

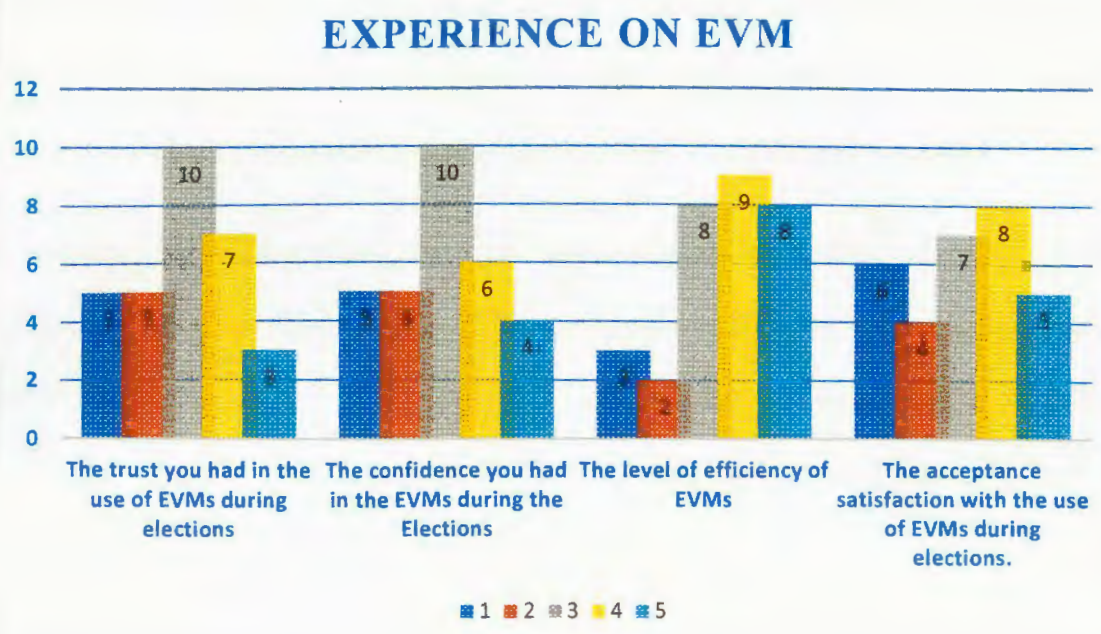

Fig 4.4. Voter experience with EVMs

Fig. 4.4. shows how electorates rate their experience with the EVMs in terms of trust, confidence, efficiency and acceptance satisfaction. On trust and confidence, the results show that the electorates are equally divided between those who trusted the machines and those who did not. However, the majority that is 10 were at the middle, they trusted the machines however with an element of doubt. This finding concurs with the table 4.2 where 50% trusted and the other 50% did not trust the machines. The reason will be the same of insufficient knowledge of the machines and lack of proper awareness. On efficiency and acceptance, the graph shows that 9 rated it on 4 and 8 on 5 to make it 17 out of 30 who rated EVM above 80% on efficiency whereas the level acceptance was also good with 13 rating it above 80% and 7 participants rating it on 60%.

4.3.4. Electorates general understanding of EVMs

The general definition of EVMs that was given by the electorates was that: "EVMs are used for voting and counting election results. However, they did not understand whether the machine was offline or online and how the votes will be transmitted to the command centre".

Comparing the traditional and electronic voting system, 80% of the electorates preferred the electronic voting machines whereas 20% preferred the manual system. The most notable advantage of EVMs over traditional voting system was that it is fast and results will be announced in the shortest time. It was also mentioned that the EVMs can allow for easy audit whenever a political party challenges the results.

On the other hand, it was noted that since the EVMs are machines, cases of breakdowns were noted and this could delay the election process. The technicians were not readily available at very centre that will require some time of communication and travel to the affected centre.

It was also reported that due to inadequate awareness and education programs on the use of EVMs, electorates found it difficult to use the voting machines at the first time. Nevertheless, EVMs were seen as the future of modern democratic voting solutions and the respondents recommended it to be used in the future elections.

4.4. SECTION C: ELECTORAL COMMISSION EMPLOYEES

4.4.1. Does the use of EVMs allow the general voters to choose their political representatives?

All the respondents agreed that the EVMs allow the general voters to choose their political representatives.

4.4.2. How would you rate the EVMS in terms of the following terms?

In table 4.2. the participants rated the EVMS in terms of given factors based on their experience in using the machines and the information as follows:

How would you rate the EVMs in terms of the following terms	Strongly disagree	Disagree	No idea	Agree	Strongly agree	Total
i. Applicability	0	0	0	5	0	5
ii. Authenticity	0	0	0	5	0	5
iii. Accessibility	0	0	0	4	1	5
iv. Accuracy	0	0	0	1	4	5
v. Efficiency	0	0	0	2	3	5
vi. System Usability	0	0	0	5	0	5

vii. Convenient	0	0	0	2	3	5
viii. Integrity	0	0	0	1	4	5
ix. Flexibility	0	0	0	3	2	5
x. Reliability	0	0	0	0	5	5
xi. Simplicity	0	0	0	4	1	5
xii. Transparency	0	0	0	0	5	5
xiii. Uniqueness	0	0	0	0	5	5

Table 4.2. Employees' EVM ratings

Table 4.2. shows how the employees of the Electoral Commission of Namibia rated the use of EVMs in terms of applicability, authenticity, accessibility, accuracy, efficiency, system usability, convenient, integrity, flexibility, reliability, simplicity, transparency and uniqueness on a 1 to 5 scale or how they agree or disagree with the notion. And as shown in the table, all the respondents agree or strongly agree with the statements that means the use of EVMs was

4.4.2. Overview of EVMs

All the ECN employees interviewed indicated that the Electronic Voting Machines were imported from India. The motive behind the EVMs was to establish a voting system that is fast and efficient. It was further indicated the EVMs can reduce errors, are secure and accurate. This concurs with

the research done by the International Peace Institute (IPI). (2011) that the Electronic Voting Machines are faster, accurate and can eliminate human errors. It was also indicated that the Electronic Voting Machines are cost effective as compared to the traditional method where huge amounts of funds will be spent on ballot papers, which is as well supported by the International Peace Institute (2011).

The ECN employees also indicated that the EVM came with many benefits and served the purpose which they were intended for. Among the benefits is that the elections were conducted faster and as well as the results were counted faster as compared to traditional ballot paper counting. It was indicated that in the 2014 and 2015 elections, voting was done in one day and results were presented the same day. The results from all the respondents had shown that the EVMs have two units i.e. the ballot unit and the control unit. The ballot unit is where the electorates cast their votes whereas the control unit is where the votes are processed. It was noted that the system was designed in such a way that no one would temper with it even the manufacturers, which makes it secure from fraudsters and rigging. The results of an election are sent at the end of the polling.

However, the challenges that were associated with the EVM included resistance from political parties and electorates since it was the first time to use the system. It was hard for the electorates and political parties to trust and have confidence in the machines for they had not been used before. During the 2014 and 2015 elections, the EVMs were used throughout the country at all centres and the manual system was completely replaced.

4.4.3. Hardware

The price or cost of one voting machine was not ascertained since all the participated employees were not involved in the procurement of the machines.

4.4.4. Voter register

The results from the participants showed that the voter register was segmented into constituencies.

4.4.5. Challenges/Problems of using EVMs

As indicated earlier, the major challenges associated with the EVMs was related to the acceptance of the system by the electorates and the political parties. An average of 3% failure rate was recorded on the machines. However, it was discovered that there were spare machines that were reserved in case there was a failure. Moreover, at each regional centre, there were technicians who were assigned to deal with technical failure of the machines.

4.4.6. Security

All the employees had an understanding that the EVM cannot be hacked since it works offline. Furthermore, it was a requirement that the use of voting machines be subjected to the simultaneous utilisation of a verifiable paper trail for every vote cast by a voter, and any vote cast is verified by a count of the paper trail. The Voter-Verified Paper Audit Trail (VVPAT) is intended as a verification system designed to allow voters to verify that their vote was cast correctly, to detect possible election fraud, and to provide a means to audit the stored electronic results.

On the polling station the Namibian Police could ensure that there was adequate security. Moreover, party representatives were assigned at each polling station as a measure to ensure security and transparency.

Before the distribution of the machines all the machines were checked at the ECN command centre by the technicians. Further, before the election the machines were examined too to ensure that they were working properly. During the voting process, the voter could go alone into the booth to cast his/her vote. Therefore, there was no influence from external or third parties.

The staff who conducted the elections were Namibian citizens who had at least a grade 12 certificate. They were trained by the ECN experts on how to conduct elections as well as the use of the EVMs.

4.5. SECTION D. POLITICAL PARTIES' REPRESENTATIVES

All the five political party representatives who participated in this study indicated that the EVMs proved to be a solution to a free and fair election. Though initially they had little confidence in the EVMs but the 2014 and 2015 elections proved that EVMs are the best for reliable and efficient elections. And they all recommended the use of EVMs in the future. However, in the previous elections, there was no notable impact of EVMs on encouraging the citizens to vote, i.e. the voter turnout was still the same as in the previous elections where manual voting was used. This means that voter turnout is not determined by the election method used but there are other underlying factors that encourage people to vote.

In relation to voter education and awareness, three political representatives asserted that the process was not enough to adequately familiarise the electorates with the new system, whereas two believed that the education and awareness was enough to prepare the electorate.

The major challenge that could be encountered by the use of EVMs or the Electoral Commission of Namibia in future, as indicated by the political representatives, was the ability of the ECN or government to sustain the electronic voting system. It was stated that the machines can be expensive to maintain and they always need to be updated to suit the required standards. Therefore, a huge budget is required to ensure the ongoing success of the voting system.

4.6. SUMMARY

This chapter was divided into four sections. Section A presented the respondents' profiles, Section B presented data from the electorate, Section C was data presentation from ECN employees and finally Section D was data from political representatives. The next chapter provides the general conclusions from the findings as presented and discussed in this chapter as well as providing some recommendations on the use of EVMs in Namibia.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This study sought to explore the effective use of Electoral Voting Machines in Namibia, the aim was to understand how effectively the system was implemented in the 2014 and 2015 elections, as well as analysing if the Electronic voting system has increased the voter turnout. The study also compared the electronic voting and manual voting and as well establishing the challenges faced in implementing the electronic voting system.

The results presented in the previous chapter were obtained from three categories of participants, namely, electorates, ECN employees and political representatives. These categories were the major stakeholders of the electoral process though there are some stakeholders who were not involved in this study.

In this chapter, the findings from the respondents mentioned above will be summarised and conclusions and recommendations will be made based on these findings.

5.2. Reason for undertaking the research

This study was conducted to achieve the following objectives:

- To analyse the lessons learned with the use of various electronic devices such as the (EVMs and VRKs) in electoral processes.

- To determine, to what extend (from the recently conducted elections 2014 and 2015) the new used/adopted e-voting maximised/encouraged or increased citizens' or the electorate's participation in electoral processes.
- To compare and contrast traditional elections and the new adopted/used EVM as an instrument in electoral processes.
- To identify various challenges which may confront the long-term use of EVMs in electoral processes and proffer solution to such challenges.

5.3. Summary of the findings

According to the results from the results presented in the previous chapter, the following is the summary of the findings as reported by the three categories involved in this study, i.e. electorates, ECN employees and political representatives:

5.3.1. The use of EVMs has proved to be faster and efficient in conducting elections in Namibia. The electorates, ECN employees and the political representatives applauded the electronic voting system in solving the electoral problems that were experienced in the manual voting system.

5.3.2. Electronic voting is more reliable and reduces the risk of fraud and voter manipulation. When one party is not satisfied with the results, the results can easily be audited since the use of voting machines is subject to the simultaneous utilisation of a verifiable paper trail for every vote cast by a voter, and any vote cast is verified by a count of the paper trail. The Voter-Verification Paper Audit Trail (VVPAT) is intended as a verification system designed to allow voters to verify that their vote was cast correctly, to detect possible election fraud, and to provide a means to audit the stored electronic results.

5.3.3. The EVMs are acceptable by all stakeholders and they were considered to be advantageous when compared to the traditional/manual voting system. All the stakeholders and participating groups recommended them to be used for future elections. However, if this research was conducted before the 2014 and 2015 elections the results could have been different. Hence, the EVMs became more acceptable because the participants had an experience with the system, thus they had a clear understanding of how the EVMs operates.

5.3.4. The machines were purchased from India but the price of the machines was not ascertained, therefore, it was not established if the use of EVMs is cost effective.

5.3.5. On security, the results show that the EVMs cannot be hacked since the system works offline. Moreover, if one has access to the EVM's operating system it will still be impossible to manipulate the results.

5.3.6. With regards to the maintenance and support during elections, technicians were deployed to all the 14 regions so that they would be ready to attend to any breakdowns or system failures. With these measures, the chances of disruptions during elections was limited. A spare machine was also reserved at every polling centre that could be used if there was any system failure.

5.3.7. All polling stations were manned by police officers as well as agents of every political party involved to ensure maximum security and to ensure that the voting system and the EVMs are safe.

5.3.8. The results of the elections could be obtained the same day of the elections which made it faster and helped reduce the cost of counting the votes as well as the number of days spent by election officers at the polling station.

5.3.9. During the 2014 and 2015 elections, the education and awareness programs were not adequate to win voter confidence and trust. Almost 50% of the electorate was not confident of the EVMs and this was the same with the political players.

5.3.10. The challenges faced during the 2014 and 2015 electronic voting elections included lack of trust in the EVMs that resulted in some resistance by some political parties. This was because it was the first time this system was used in Namibia as well as in Africa. Whenever, a new system is introduced or in times of change, resistance is very common. Additionally, some of the electorate had problems with using the Electronic Voting Machines which resulted in delaying the election voting process. Furthermore, anticipated future challenges are the ability by the government and ECN to sustain the Electronic Voting System.

5.4. Contribution of the study

The study contributed immensely to the body of knowledge in relation to the implementation of the Electronic Voting System. The study evaluated the use of EVMs in Namibia's 2014 and 2015 presidential and regional council elections, thus the findings of this study are important especially for the various elections stakeholders and can be used for future elections. Globally and regionally, electronic voting is not common, hence this paper will help those countries that consider implementing the electronic voting system. Finally, it will help the ECN to eliminate the problems and challenges that were faced in the previous elections.

5.5. Limitations

As indicated in the first chapter, the results of this study are only based on one presidential and one regional set of council elections. Therefore, we cannot quickly conclude that electronic

voting is effective, at least the system must be used for 2 or 3 times and produce the same results to be certified effective. Moreover, the study was only conducted in Windhoek which is an urban area. I believe experiences and challenges in using the EVMs are different if we can consider different geographical areas. In particular, those in the rural areas can have different experience, problems, and challenges as compared to urban areas. The level of literacy also determines the level of understanding, trust and confidence in the EVMs, of which it was not considered in this study.

5.6. Recommendations for further research

Based on the conclusions above, it is recommended that more voter education and awareness on EVMs is required to instil confidence in the electorate, political parties and all stakeholders involved in the election process. Moreover, this study was only conducted in Windhoek and a sample of 40 participants can be considered too small to represent the views of more than 400 thousand voters. Therefore, a more detailed study will be required in all 14 regions of Namibia to explore the effectiveness of the EVMs.

Furthermore, this study did not compare the cost of running electronic voting against the manual voting system. The cost of purchasing and maintaining EVMs was not ascertained. Therefore, a study that would seek to compare the costs and sustainability of the two systems should be conducted.

5.7. Final remarks

In conclusion, the use of EVMs in Namibia proved to be effective and acceptable for future use by all stakeholders. The EVMs provide a faster and reliable election, free of fraud and

manipulation, giving the citizens a chance to elect the political leaders of their choice. There are no serious challenges that were faced in the implementation of EVMs that are noted so far. Furthermore, compared to the traditional method, the participants preferred the use of the Electronic Voting System in presenting their votes.

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APPENDICES

APPENDIX A: QUESTIONNAIRE

INTRODUCTION

My name is Kachana Kamwi, a registered student doing my Master's degree at the Namibia Business School with the University of Namibia and doing a research study as part of my studies towards attaining my MBA in Management Strategy. My thesis is entitled: An exploration into the effective use of EVMs in electoral processes in Namibia: A case of the Khomas Region. This study is for my thesis and the aim of the study is to bring out a detailed expression, ideas, feelings, understanding and the level of acceptance of the effective use of EVM in in electoral processes in Namibia.

The questionnaires will only take less than 30 minutes to complete.

The questions are meant to solicit views and opinion from registered voters, ECN employees and Political Parties Representatives regarding the effective use of Electronic Voter Machines (EVMs) in electoral processes in Namibia as an ICT instrument for conducting national elections a case of Khomas Region.

Your participation in this study will be exceedingly valued

Do you have any questions before we begin?

SECTION A: RESPONDENT PROFILE

1. Gender

	TICK HERE (√)
Male	
Female	

2. Age group

Please tick the appropriate age range

	TICK HERE (√)
18 – 24	
25 – 29	
30 – 35	
36 – 44	
45 – 49	
50 – 54	

SECTION B: ELECTORATES QUESTIONNAIRE

PART A: ELECTORATES' CLOSED ENDED QUESTIONNAIRE

1. To what extent was the use of EVM acceptable during 2014 and 2015 elections?

Rate the use of EVM during the 2014 and 2015 elections based on the following observations?

Question To what extent was the use of EVM satisfying in terms of the following during the elections?	Strongly disagree	Disagree	No idea	Agree	Strongly agree
	1	2	3	4	5
i. Applicable					
ii. Accessibility					
iii. Availability					
iv. Convenient					
v. Flexibility					
vi. Simplicity					
vii. Uniqueness					

2. Rate the trust you had in the use of EVMs during elections?

Tick only one column

TICK WHERE APPLICABLE	YES	NO
3. Have you used EVMs before?		
4. Do you think EVM has advantage over manual voting system		
5. Do you think the use of EVM helped in solving the problems experienced with the manual/traditional voting system		
6. Did the use of EVM improved/increased the turnout of voters		
3. Do you think the use of EVM made voting easier for everyone evolved		
4. Do you trust the use of EVMs?		
5. Were you having confidence in the use of EVMs during elections		
6. Do you think you were well educated on the use of EVMs		
7. Do you think you received enough knowledge or awareness with regard to the use of EVMs?		
8. Does the use of EVMs allow the general voters to choose their political representatives?		

3. Rate the trust you had in the use of EVMs during elections?

Tick only one oval

4. Rate the confidence you had in EVMs during the Elections?

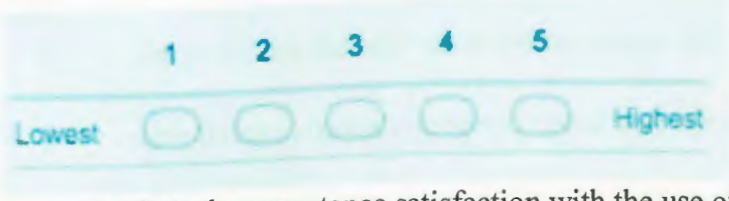
Tick only one oval

5. Rate the level of efficiency of EVMs?

Tick only one oval

6. Rate the experienced level of effectiveness of EVMs?

Tick only one oval



7. Rate the acceptance satisfaction with the use of EVMs during elections?

Tick only one oval

PART B. ELECTORATES' GENERAL UNDERSTANDING OF EVMs

1. What do you understand about EVMs?

2. Have you voted in any elections before with the use of EVMs?

a) 2014 Presidential Elections

b) 2015 Regional Council and Local Authority Elections

3. In your opinion which voting process would you prefer?

a) Manual/Traditional election system, or

b) The use of Electronic Voting Machines which is known as EVMs?

4. Advantage and disadvantages of EVM

a) Do you think EVM has advantages over manual voting system?

b) Do you think the introduction and use of EVM in conducting elections will eliminate the previously experienced problems/challenges associated with manual voting system?

5. EVM use in Namibian Elections

a) What would you like to see improved with the use of EVMs in elections?

b) Do you see any future with the use of EVMs?

c) Do you think the electorates (voters) were fully educated on the use of EVMs?

d) Any threats you are concerned about with the use of EVMs?

6. Do you see any future challenges with the use of EVM in the national elections in the near future?

Any other opinion/comment or views you may have on the use of EVMs in the Namibian election processes?

Thank you for your time and for your participation!

SECTION C: ECN EMPLOYEES QUESTIONNAIRE

1. Does the use of EVMs allow the general voters to choose their political representatives?

2. How would you rate the EVMs in terms of the following terms?	Strongly disagree	Disagree	No idea	Agree	Strongly agree
	1	2	3	4	5
i. Applicability					
ii. Authenticity					
iii. Accessibility					
iv. Accuracy					
v. Efficiency					
vi. System Usability					
vii. Convenient					
viii. Integrity					
ix. Flexibility					
x. Reliability					
xi. Simplicity					
xii. Transparency					
xiii. Uniqueness					

3. Overview of EVMs

3.1. Where they are coming from?

3.2. What was the motivation for electronic voting?

3.3. What benefits have been realized since electronic voting was implemented?

3.4. What challenges did they face in the early days?

3.5. What kind of implementation method did they use? (was it phased as some using electronic and others using manual or it was a complete change over)

4. Hardware used

2.1 Cost of the voting machine (Average cost for 1 complete voting machine in N$)

5. Voter register

5.1. Is it segmented or the whole country register is uploaded to the voting machine?

6. Challenges/Problems

6.1. What challenges do they face specially to do with illiterate voters from rural areas?

6.2. What is rate of failure for the voting machines on poll day?

6.3. What happens when a voting machine fails after voting has already started, say midway?

6.4. How are backups and restores managed?

6.5. Types of common problems encountered with voting machines?

6.6. How are problems resolved or mitigated during the election?

6.7. At what point are results transmitted (Real time or at the end)?

7. Security

7.1. What security features are in place to deal with things like hacking?

7.2. Is there a security team responsible for monitoring activities on the infrastructure throughout?

7.3. Security of the vote cast, how do we ensure integrity of the votes?

7.4. What Audit trails are in place?

7.5. What are some major and minor security breaches they have had in the past?

7.6.In case of a petition and a recount is required, how is it done

7.7.How do we ensure that there are no votes allocated already before the count?

7.8.Levels of literacy required for someone to use the voting machine.

7.9.What is the level of education required for someone to be a poll staff who will operate the voting machine?

7.10. What kind of IT Staff are required and the numbers (at Constituency, District, Province, Nation)

7.11. Do they share the source code with stakeholders for transparency?

7.12. What Quality assurance procedures are in place?

7.13. How is testing of the equipment done?

7.14. How is software tested to ensure that there are no errors?

Any other opinion/comment or views you may have on the use of EVMs in the Namibian election processes?

Thank you for your time and for your participation!

SECTION D: INTERVIEW QUESTIONNAIRES FOR POLITICAL PARTIES REPRESENTATIVES

1. What lessons do you think was learned with the use of EVMs during elections?
2. Will you still recommend the use of EVMs in elections in Namibia?
3. To what extent do you think the new used adopted e-voting or the use of EVMs maximised or encouraged citizen participation in casting their vote during elections?
4. In your opinion do you see a future with the use of EVMs in Namibian elections?
5. If you can recommend, which voting system will you recommend?
   a) Manual traditional voting system, or
   b) The use of EVMs?

6. What challenges do you think might confront the long-term use of EVMs in electoral processes in Namibia?

7. Do you think the electorates received enough awareness or education with regard to the use of EVMs?

Any other opinion/comment or views you may have on the use of EVMs in the Namibian election processes?

Thank you for your time and for your participation!

Dr.GM

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LANGUAGE & COPY-EDITING CERTIFICATE

2nd June 2018

RE: LANGUAGE, COPYEDITING AND PROOFREADING OF KACHANA MEDIA KAMWI's THESIS FOR THE MASTER OF BUSINESS ADMINISTRATION DEGREE OF THE NAMIBIA BUSINESS SCHOOL OF THE UNIVERSITY OF NAMIBIA

This certificate serves to confirm that I copyedited and proofread **KACHANA MEDIA KAMWI's** Thesis for the **MASTER OF BUSINESS ADMINISTRATION DEGREE** entitled: **AN EXPLORATION OF THE EFFECTIVE USE OF ELECTRONIC VOTING MACHINES IN ELECTORAL PROCESSES IN THE KHOMAS REGION OF NAMIBIA**

I declare that I professionally copyedited and proofread the thesis and removed mistakes and errors in spelling, grammar, and punctuation. In some cases, I improved sentence construction without changing the content provided by the student. I also removed some typographical errors from the thesis and formatted the thesis so that it complies with the University of Namibia's guidelines.

I am a trained language and copy editor and have edited many Postgraduate Diploma, Masters' Thesis, Dissertations and Doctoral Dissertations for students studying with universities in Namibia, Zimbabwe, Swaziland, South Africa and abroad. I have also copy-edited company documents for companies in the region and abroad.

Please feel free to contact me should the need arise.

Yours Sincerely,

The Rev. Dr. Greenfield Mwakipesile

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