

**Knowledge and use of Information and Communication  
Technologies in the Provincial Department of Culture,  
Arts and Traditional Affairs**

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## **CANDIDATE DECLARATION**

I, Mokete Patrick Kolojane, hereby declare that this study, entitled “Knowledge and Use of Information and Communication Technologies in the Provincial Department of Culture, Arts & Traditional Affairs”, has not been conducted before nor submitted before by myself or anybody to the North West University. This study is my original work and all authors of the articles that are used throughout the study have been acknowledged accordingly in the in-text citations and the complete reference list. I also declare that I have not sourced any additional assistance towards completion of this mini-dissertation other than as stated in the acknowledgements section.

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Mr. Mokete Patrick Kolojane

## **DEDICATION AND ACKNOWLEDGEMENTS**

I would like to first and foremost thank God the Almighty Lord for helping me through the academic journey that I have travelled. I would like to dedicate this achievement to my family for their continued unwavering support, in particular, to my pride and joy, my son, Pheny.

Special thanks go to my employer, the Department of Culture, Arts and Traditional Affairs, for responding positively to my application for funding. My appreciation also goes to the departmental leadership for allowing me to conduct this study using it as the area of focus. The study was not conducted in vain but is all about adding value to the department. A word of appreciation goes to my colleagues who were purposefully sampled to take part in the study and assisted as such; – without their participation this study would not have been practical.

I would also want to acknowledge my supervisor, Professor Meyer, for the guidance that he has provided in my study particularly in the earlier chapters. Later on, Prof Meyer deemed it fit to introduce Dr Kopung as the study's co-supervisor and for that I am eternally grateful. Dr Kopung has played a critical role by providing continuous guidance towards ensuring that this study finally has shape. I also would like to pass my gratitude to Professor Moroke, for assisting me with analysis of the study's data and lastly, Professor Awudetsy, for assisting by editing the document.

## **ABSTRACT**

As far back as 1998, the South African government through the Department of Public Service and Administration (DPSA) outlined the objectives for Government Information Project (GIP) that were essentially about promotion of information as a strategic enabler of public services through alignment of information and IT strategies with government business strategies, objectives and processes, and also building capacity in government to better manage information (GCIS, 1998). This bold pronouncement was followed-up by a number of initiatives that were geared towards the realization of the outlined GIP objectives in the main driven by the DPSA. The latest of these initiatives was development of the Corporate Governance of ICT Policy Framework that was adopted by cabinet in November 2012. This framework was developed to provide guidance to South African public service to get the proper institutional arrangements in place that will lead to the realization of the GIP objectives.

This study was conducted in order to establish the usage and knowledge levels of Information and Communication Technologies (ICT) in the Department of Culture, Arts & Traditional Affairs (CATA) in the North West Province. The findings in this regard revealed that even though there are ICTs that are used by the department, they are mainly used for internal administrative functions of the CATA and not more for the realization of the GIP objectives. In short, they are used more for e-administration instead of e-services as envisaged in the Government Information Project. This development, the study revealed, can in the main be attributed to lack of relevant skills particularly by departmental seniors that would enable them to drive the GIP agenda. Other factors that are also cited as significant are inadequate ICT organogram as well as lack of working relation between departmental business and ICT.

In order for the situation to be transformed for the better, the study recommends capacitation of senior management on skills that will make them aware of the value that can be added by ICTs, leading to them being able to drive the e-government initiative departmentally. This will pave the way for correct institutional arrangements to be in place through implementation of the CGICTPF; this initiative will also need to be driven by the department's senior management. In order for the department to review the ICT organogram appropriately, there is need for an assessment conducted to look at the department's internal capabilities in comparison to those that are required to move the

department in a better position. The results of this exercise will lead to the establishment of a well-informed ICT organogram that will likely yield positive results as far as GIP is concerned.

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## GLOSSARY OF TERMS AND ACRONYMS

**CATA:** Department of Culture, Arts and Traditional Affairs.

**CGICTPF:** Corporate Governance of Information and Communication Technologies Policy Framework.

**Department:** The department of Culture, Arts and Traditional Affairs.

**DPSA:** Department of Public Service and Administration.

**e-Government:** Is the public sector's use of Information and Communication Technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective

**e-Governance:** A concept of emerging practice, seeking to realise processes and structures for harnessing the potential of Information and Communication Technologies at various levels of government and the public sector for purposes of enhancing good governance and effective government service delivery.

**e-Service:** Services that are produced, provided, and/ or consumed through the use of ICT networks such as for example internet based systems and mobile solutions.

**ICT:** Is an abbreviation for Information and Communication Technologies that refers to business of developing and using technology to process information and aid communications.

**IT:** Is short for Information Technology and is the broad subject that is concerned with all aspects of managing and processing information, especially within an organisation.

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## CHAPTER 1

### OVERVIEW OF THE STUDY

#### 1.1 INTRODUCTION

The then Deputy President, who later became the President of South Africa, Thabo Mbeki, had a serious concern and, as a result, requested information on factors that played a role in constraining performance of public services and what can be done in a short-to medium-term to turn this situation around. This request resulted in establishment of the Presidential Review Commission (PRC) which prepared a comprehensive report in 1998 (GCIS, 1998). This report outlined constraints, analysed them and came up with recommendations as well. The PRC focused on four central themes. This study focuses mainly on findings and recommendations of the themes in Chapter 6 of the report; this chapter dealt specifically with the role of Information Management, Systems and Technology (IMST) in assisting public service delivery.

In terms of the report's IMST findings, it was clear that even though huge financial resources were invested in technology and systems, Information Technology (IT) assets were not contributing significantly to service delivery or transformation objectives of government. Some of the shortcomings highlighted in Chapter 6 of the PRC report were that (GCIS, 1998):

- Major IMST decisions were delegated to technological specialists and not to senior government political and managerial leadership;
- Information management was not treated as important as management of other organisational resources like human and financial resources;
- Lack of overall vision and strategy for IMST in government resulted in individual departments finding it difficult to develop their own IMST strategies;
- Departments pursuing their policy agendas independently and not coherently resulting in enormous costs for government;

In an attempt to respond to the shortcomings, the Department of Public Services and Administration (DPSA) outlined the following vision for IMST use in government:

*“IT will be aligned with Government Business Goals and will be a change agent to create responsive, result oriented, value added public service”.*

This vision clearly states the critical role that Information and Communication Technologies (ICTs) are envisaged to play in enabling effective delivery of public services. Guided by this vision, the DPSA also outlined objectives for Government Information Project (GIP) that are essentially about promotion of information as a strategic enabler of public services through alignment of information and IT strategies with government business strategies, objectives and processes, and also building capacity in government to better manage information (GCIS, 1998).

From various reviews on the role of ICTs in the public sector it became apparent that not enough was done to realise the ICT vision that was set by the DPSA. This led the DPSA to adopt the Corporate Governance of ICT Policy Framework (CGICTPF) in November, 2012 (The DPSA, 2012). This framework aims to give guidelines to national and provincial government departments on good corporate governance of ICTs, including the adoption of departmental frameworks, setting up ICT governance structures, and developing departmental ICT strategies that will enable government business strategies.

South African public service has, to a certain extent, worked towards DPSA's framework, IMST vision and GIP objectives by utilising ICTs to enhance the delivery of some of its services. Two examples that are noteworthy in this regard are the South African Revenue Services (SARS) e-filing system – that enables the general public to file their tax returns on an internet-based application from anywhere as long as they have access to internet (avoiding having to wait in long queues to file their returns manually – which was previously the only way to file the returns), and the Department of Home Affairs automated notification system – that gives sms notifications to the public in case documents applied for are readily available (Mphidi (n.d.) citing Kroukamp, 2005).

The study will be focusing on the department of Culture, Arts and Traditional Affairs in the North West Province with the aim of establishing how far it is with regard to the realization of DPSA's IMST vision.

## **1.2 BACKGROUND**

The mandate of the Department of Arts and Culture (DAC) is derived from three sections of the South African Constitution (Department of Arts & Culture, 2011) i.e.:

- Section 16(1) (c): *“everybody has the right to freedom of expression including freedom of artistic creativity”*;
- Section 30: *“everyone has the right to use language and to participate in the cultural life of their choice, but no one exercising these rights may do so in a manner inconsistent with any provision of the Bill of Rights”*, and
- Section 32(1): *“everyone has the right of access to any information held by the state, and any information that is held by another person and that is required for the exercise of protection of any rights”*

This DAC falls under the social cluster departments’ setup that mainly deals with social development as well as social cohesion. Provincially, the department that is responsible for contributing towards social development and cohesion through rendering of Arts and Culture is the Department of Culture, Arts and Traditional Affairs (CATA). This department also has additional responsibilities of rendering recreation services and also providing support to provincial traditional authorities (DCATA, 2015). CATA has four district offices, four district libraries, three recreational facilities and twenty-one service point offices across the province (DCATA, 2015).

### **1.3 PROBLEM STATEMENT**

The public sector generally owes its existence to the delivery of public services to citizens. There are approaches that can be employed to make delivery of services more effective and ICT is one of the front runners in this regard. According to Raj, Gill and Bansal (2011), ICT has become a catalyst that plays a central role in enabling more effective government through better access to services and the democratic process. This position is endorsed by Tlagadi (cited in Mphidi, n.d.: 8) in outlining the following goals of e-governance that are endorsed by the DPSA:

- *“To improve the internal organisational processes of government;*
- *To provide better information and service delivery;*
- *To increase government transparency in order to reduce corruption;*
- *To reinforce political credibility and accountability; and*
- *To promote democratic practices through public participation and consultation.”*

Despite a number of noticeable pockets of excellence in ICT usage in the South African public service, it is evident through the initiatives of the PRC and the latest one by the

DPSA that, as a country, we still have a long way to go to fully realise the benefits of ICTs in enabling delivery of public services. In terms of the UN's e-Government survey 2014 global ratings, Europe is the world's leading continent followed by Eastern Asia, North America, South Asia, and last on the list is Africa (United Nations, 2014). The report also states that, despite the progress that has been registered, there is still a significant digital divide between the developed and developing countries particularly in Africa; – this is mainly attributed to lack of ICT infrastructure in the developing countries (United Nations, 2014).

The department of CATA has the following programmes that have a number of sub-programmes (DCATA, 2015):

- Administration;
- Arts, Culture & Heritage;
- Libraries, Archives and Records services;
- Recreation; and
- Traditional Affairs.

The initiatives that have been discussed, particularly from the side of the Department of Public Service and Administration are broadly about making sure that the South African public service is able to utilise ICTs to the benefit of effective service delivery. This, however, has not been fully realised as, according to Mahlatse (2011: 6), there are still major service delivery challenges in the South African public service. Given these developments, the study sought to establish the extent to which the Department of CATA is compliant to the previously discussed initiatives and using ICTs to effectively render public services.

## **1.4 LITERATURE OVERVIEW**

In the pursuit to get thorough theoretical background, the study reviews literature and takes a look at the inputs from the various authors into the subject of ICTs and their contributions/ envisaged contribution to the enhancement of public services, the factors that are mainly seen as deterrents to the success, and those that are seen as the enablers. This is sub-divided into two sections: South African and international perspective on ICT and public services delivery, the two sub-sections are as follows:

## **South African perspective on ICTs and public services delivery**

In this section, previous articles that were developed both by government and academia are reviewed to establish the South African picture as far as ICT developments in public services are concerned. The literature reviewed covers the four constructs that the study is based on that are: knowledge, use, ICT and provincial department of CATA. It is very important to have a thorough understanding of all the four constructs as far as previous authors' points of view are concerned.

Targeted materials include relevant books, academic journals, government reports on ICTs and previous surveys that were conducted on the related topic. These materials help to give thorough theoretical background on the concept of ICTs, their application in public service delivery, the enabling and also disabling factors.

## **Global perspectives on ICTs and service delivery**

In this section of the literature review, the study takes a look at knowledge and usage of ICTs in enabling public services internationally. United Nations, for example, regularly conducts e-Government surveys globally; this report takes a closer look at how ICTs are utilised in various regions to enable public services, as well as the challenges that lead to lack of ICT enablement of public services. This is one of the reports reviewed in terms of international trends and how we as a country are faring on the global scale. Various studies that were conducted previously on international trends are also reviewed. The aim of this section is to determine what best practices are there and what it takes to emulate them.

## **1.5 AIM AND OBJECTIVES**

### **1.5.1 Aim**

The aim of this study was to examine the usage of ICTs in CATA, the level of its effectiveness in departmental service delivery, factors that contribute to the level of effectiveness of ICTs and determine suggestions that can be adopted from best practices to assist the effective utilisation of ICTs.

### **1.5.2 Objectives**

The research objectives are to establish:

- (a) The extent to which ICTs are utilised within CATA;
- (b) How they are utilised to enhance the departmental service delivery mandate;
- (c) Knowledge levels of ICTs among departmental officials in various levels of responsibility;
- (d) Level of availability and reliability of ICTs; and
- (e) Best practices of the utilisation of ICTs in assisting the rendering of public services.

## **1.6 RESEARCH QUESTIONS**

The aim of this study was to establish an understanding of the following main questions:

1. How are ICTs utilised in CATA?
2. Are ICTs used to enhance the department's service delivery?
3. What is the knowledge level of ICTs among CATA workforce? And
4. What is the level of availability and reliability of ICTs in departmental service delivery?

## **1.7 RESEARCH METHODOLOGY**

The study adopts a combined approach of qualitative and quantitative research methodology. Utilizing both quantitative and qualitative research methods assists in getting a view from both measurable and analytical approaches. This is accurately captured by Sandelowski (2001) citing Olson when stating that in qualitative researches, numbers can also be used to complement the narratives. Within the research questions, there are those that require straight closed-ended responses that reflect the quantitative nature and those that require the participants to give narrative responses – reflecting the qualitative side.

### **1.7.1 Research design**

The study uses applied explanatory method with a total population of 278 and a sample size of 120 representing 43% of the total population.



### **1.7.2 Study Area:**

Department of Culture, Arts and Traditional Affairs in the North West Province is the focus area for the study.

### **1.7.3 Population**

The total population for the study is 278 users of ICTs in CATA's provincial office that is based in Mmabatho.

### **1.7.4 Sample size**

Since various strata differ in numbers: CATA has 13 senior managers, 60 middle managers and 205 operational staff that are users of ICTs, in ensuring adequate representability, the following are sample sizes: Eight senior managers, 35 middle managers and 77 operational staff.

### **1.7.5 Sample frame**

The study focuses on various levels of responsibility within CATA and seeks to obtain responses from the following categories of ICT users: senior managers, middle managers and operational staff.

### **1.7.6 Sampling technique**

The study uses purposive probability sampling technique to obtain its sample.

### **1.7.7 Data Collection**

Primarily, data for the study were collected through questionnaires and where necessary structured interviews facilitated by verbally administered questionnaires particularly for those users that experience challenges with responding to the questions. This questionnaire had both close-ended and open-ended questions with nominal measures to distinguish various levels of responsibility i.e. senior managers, middle managers and operational staff. The questionnaire was distributed by handing them out to users and interviews were conducted on the spot for those participants that experience challenges.

Secondary data included those relating to ICTs and public service enablement collected from numerous sources including researching on the South African government reports relating to ICTs, previous studies that were conducted in relation to the subject researched and other reliable secondary sources such as academic journals and books.

### **1.7.8 Data analysis**

After collection, the data were converted into information through the utilisation of Statistical Package for the Social Sciences (SPSS) statistical analysis tool. The study also captured the qualitative data in the form of words (Welman et al., 2005), and the coding of text data by converting words to numbers or symbols. Data were captured in a suitable format and analysed using this tool to give a clearer understanding of the results.

### **1.7.9 Ethical considerations**

Before embarking on the research, a letter requesting permission to conduct it in CATA was crafted for the Head of Department's approval. This letter outlined the value that the study aims to add to the functioning of the department. A questionnaire was developed to avoid the participant's details being reflected to uphold confidentiality and avoid the usage of ICT technical jargon that has the potential of making participants uneasy. The language was plain English, making it understandable to participants.

## **1.8 PROPOSED LAYOUT OF THE STUDY**

The research layout goes according to the following approach:

- Chapter 1 (Overview of the study) provides background of the study, problems that have necessitated the study to be conducted, and broadly what the study aims to achieve;
- Chapter 2 (Literature review) covers the theoretical aspects of the topic of ICTs and their enablement of public services both in the South African context and globally. This is where relevant literature is reviewed to assist in gaining better understanding;
- Chapter 3 (Research methodology) outlines in detail the research methodology adopted by the study – this covers all the necessary details in relation to the type

of research, the rationale behind it and all the necessary aspects that break down the research methods adopted.

- Chapter 4 (Interpretation) is about presentation of the findings of research and interpreting them with further discussions;
- Chapter five (Discussion, Conclusion, Summary, and Recommendation) constitute the final chapter that essentially summarizes the study, using the research results and relevant literature to respond to the research questions that were raised and also using these to come to recommendations and conclusion. This chapter is concluded by suggesting areas for future research based on the limitations that were identified;

In all the above mentioned steps, continuing from one to the next was done through continuous consultation with my supervisors who gave expert guidance throughout this journey.

## **1.9 CONCLUSION**

This chapter was essentially about outlining why it is important for this study to be conducted. It went through historical background on how ICTs are viewed from the highest echelons in South African public service and their expectations including what initiatives have been put in place in an attempt by the South African government to get value from the ICTs for effective service delivery. To a certain extent, it became apparent from previous research and other publications that the public sector has not managed to adequately use ICTs for delivery of services. This, therefore, necessitates research conducted in the Department of Culture, Arts & Traditional Affairs to ascertain extent to which it is utilising ICTs in the delivery of its services.

In order for this research to be well informed and not be one-dimensional, two research methodologies were employed concurrently: qualitative and quantitative research methodologies. This study will, hopefully, contribute positively to better utilisation of ICTs to enable effective delivery of public services.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

In order to provide as much background as possible on this study, this section looks at the literature that relates to what is to be studied. In this regard, the following sources were looked into: academic journals, online articles, books, government reports and publications. The literature reviewed has been sub-divided into a number of sections that focus on different areas of interest such as South African perspective on ICTs and service delivery, knowledge of ICTs in the public service, usage of ICTs in the public service and global perspectives on ICTs and service delivery. This was done in order to establish what has already been researched or published in relation to the various sub-topics.

#### **2.2 SOUTH AFRICAN PERSPECTIVE ON ICTS AND SERVICE DELIVERY**

As far as the Economic Commission for Africa (cited in van Jaarsveldt, 2010), is concerned, IT is one of the key strategies that can be used by governments to reform and improve upon public service delivery. The National Development Plan notes that all South Africans should be able to acquire and utilise knowledge effectively. In order for this to happen, there must be better institutional arrangements to manage the ICT environment in order to make sure that South Africa does not fall victim to a “digital divide” (National Planning Commission, 2012).

The DPSA (2012) describes a better institutional arrangement as good governance of ICT that is defined as effective and efficient management of IT resources so that they are able to facilitate the achievement of the government's strategic objectives. Endorsing this position, Rose and Grant (cited in Ziemba and Oblak, 2014) reflect that: successful implementation of Information Systems in the public service means far more than just technology, but also requires sufficient attention to policy, processes, structure, laws and regulation. This can be regarded as getting the correct institutional arrangements in place for effective e-governance.

According to Lesame (2013), the advent of democracy in 1994 has transformed the apartheid legacy on information production and usage by advancing towards availing ICT to most citizens. This was done through creation of laws and policies that are mainly focused on achieving universal access to ICT and digital inclusion. The key document that promulgates access to technology and information by citizens is the South African Constitution (South African Government, 1996). According to this important document; “everyone has the right of access to any information that is held by state or another person and that is required for the executive protection of rights”.

This statement is supported by South Africa’s vision of the information society for 2015 that states that:

*“South Africa is an inclusive information society where ICT-based innovation flourishes. Entrepreneurs from historically disadvantaged population groups, rural communities and the knowledge-intensive industry benefit and contribute to the well-being and quality of life of our citizens. South Africa has a strong national ICT brand that captures the vibrancy of an industry and research community striving for excellence, characterised by innovative approaches to local and global challenges, and recognized for its contribution to the economic growth and well-being of our people and region”*

(Department of Science & Technology, 2007: 2).

To put the correct institutional arrangement in place, the South African government established the Presidential Review Commission (PRC) in 1996. One of the PRC’s objectives was to promote capacity development in the utilisation of electronically-enabled information systems so that they are able to effectively enhance the processes of governance and public management (GCIS, 1998). This process, referred to as e-governance, is described as making government services available, anywhere and anytime to citizens, officials, entities, businesses and other nongovernmental entities in a convenient, efficient and transparent manner (United Nations, 2014; Laudon & Laudon, 2014; Das & Patra, 2013; Belanger & Carter, 2012; Rachmawati, Sensuse & Suhartanto, 2012).

According to the literature, e-government is e-governance in action, e-governance is policies, structures and frameworks on good governance of IT to enable rendering of services, while e-government is electronic government services in action (Das and

Patra, 2013; Mphidi (n.d.); Kuye and Naidoo (n.d.)). For the sake of this study, e-governance and e-government are used interchangeably.

Through innovation and electronic government/ e-government, public administrations around the world now have the potential to be more efficient, provide better services and be responsive to demands for transparency and accountability (United Nations, 2014). Ondari-Okemwa and Smith (2009) are of the view that should civil service adopt knowledge management practices that are embedded in service delivery procedures, delivery of basic government services will be significantly improved.

To realise the objectives of the PRC and further enhance better institutional arrangements, government established various IT agencies like SITA (State Information Technology Agency), GovTech, Universal Service Agency, Savant and Infracore, to assist with issues such as capacity building, provision of the required broadband capacity, promotion and attainment of universal services, provision of effective and efficient ICT products and services, and promotion of dialogue between stakeholders that have common interests of improving service delivery in government (Ntetha & Mostert, 2011). Section 6 of the SITA Act states the objects of the agency as:

- *“To improve service delivery to the public through the provision of information technology, information systems and related services in a maintained information systems security environment to departments and public bodies; and*
- *To promote the efficiency of departments and public bodies through the use of information technology” (SITA, 1998,: 4).*

It is important to ascertain the extent to which the above objectives have been realised.

Based on the type of transaction that is performed, e-government functions can be categorised as follows: informational, transactional and operational. Informational functions provide access to government information through government portals, which include online publishing and broadcasting; transactional functions enable citizens to interact directly with government via the web such as online procurement and payment; while operational functions refer to the internal government operations that focus on internal efficiency and effectiveness of operations and interoperability across the various e-government practices at different levels (Khan, 2013).

The following are the goals of e-governance identified by the Department of Public Service and Administration (Mphidi, n.d.: 8):

- *“Improvement of internal organisational processes of government;*
- *Provision of better information and service delivery;*
- *Increasing government transparency in order to reduce corruption;*
- *Reinforcement of political credibility and accountability; and*
- *Promotion of democratic practices through public participation and consultation.”*

According to Mokhele and De Beer (n.d.), the use of ICT in e-service delivery means providing government services to all South Africans through online formats. Often the implementation of technologies lacks effective integration and this means that the full extent of their usefulness is hardly realised (Khan, 2013). This is one of the reasons the research that was conducted by Alshawi and Alalwani (2009) recommend the combination of ICT investment and human development investment because investing in ICT alone without raising the citizens’ general abilities and maintaining their involvement will result in the full benefits of e-governance not being realised. According to Kuye and Naidoo (n.d.), it is important to define metrics that will be used to measure effectiveness of e-government; the three critical metrics are application and service relevance, citizen and business satisfaction, and preservation of trust.

As far as PriceWaterHouseCoopers (2014) is concerned, many African governments are adopting some form of e-government to provide services to citizens online. According to Gurstein (2000), ICTs can be utilised to support communities in their efforts to attain social and economic development needs. This point is further stressed by PriceWaterHouseCoopers (2014) in stating that technology innovation enables governments and public sector organisations to deliver services that they are rendering faster, better and more cheaply and, at the same time, also addressing the long-term challenges that arise from social, economic, demographic, environmental and change. Delivery of e-government to the people is meant to make public services more responsive, citizen-centric and socially inclusive (United Nations, 2014).

E-governance has a high likelihood of reinforcing the connection between public officials and communities, thereby leading to a stronger, more accountable and inclusive democracy (Ondari-Okemwa & Smith, 2009). According to Kuye and Naidoo (n.d.), this is made possible through the internet that enables government to streamline its interaction with business people, private citizens and government agencies, while ensuring that there is improved public access to government information and services.

The study that was conducted by Kupe and Okello (2012) on e-government in Africa found that there is little evidence that point to real e-governance, with countries and economic systems requiring a greater development of their governance systems and institutions, and advances in democratisation. The Auditor General (AG)'s report on government information systems audit that was conducted in the 2008/9 and 2009/10 financial years revealed that little has changed with respect to governance of ICT long after the PRC report was published. The AG therefore recommended the following (The DPSA, 2012: 3):

- *“That a government-wide governance of ICT framework should be put in place in order to implement a national ICT strategy to address ICT risks based on defined processes and standards; and*
- *That the governance of ICT roles and responsibilities should be defined and implemented to ensure adequate enablement of public services by ICT.”*

The above recommendations led to the DPSA setting the institutional arrangement in place by developing the Corporate Governance of ICT Policy Framework with assistance from the Government Information Technology Officers Council (GITOC) and the AG. This framework guides government departments (from national to local government level) and public enterprises on effective implementation of good corporate governance of ICT by South African public services (The DPSA, 2012).

According to Ondari-Okemwa and Smith (2009), unlike most countries in the Sub-Saharan region, countries in other parts of the world have initiated and implemented knowledge management programmes in their civil service. This might be because of the two technological challenges that were highlighted by Khan (2013), that are: government's technological infrastructure not built to support transformation to e-government, and on the end users's side, existence of inequitable access to e-government services due to the digital divide that exists among demographically, economically, and socially diverse groups of people within one country as well as among various countries.

To overcome the identified technological challenges, Khan (2013), Akula, Narasimha and Chandrashekar (2014), and Trimi and Sheng (2008) recommend the utilisation of m-technology or m-government – known as “unplugged government”, which basically uses all kinds of wireless and mobile technology to deliver government services at the



citizens' doorstep. Taking into consideration the rapid penetration rate of mobile phones in rural areas, m-government has the potential to cover substantial scope when delivering government services to the rural poor (Akula *et al.*, 2014: 521).

M-Technology is the extension to e-government that involves provision of information and government services to government employees, citizens, businesses and other organisations through mobile devices. M-technology, according to Khan (2013), Akula *et al.* (2014), and Trimi and Sheng (2008), may be the best solution to overcome internet connectivity problems and digital divide issues faced by e-government applications because mobile technologies, unlike wired technologies, have been more evenly distributed among various societal layers and are growing faster in economically and technologically challenged nations. Also, compared to wired networks, wireless networks appear to be a more cost-effective option for countries with dense populations and difficult terrain (Trimmi & Sheng, 2008).

There are a number of factors that are critical to the realisation of the potential of ICTs for e-government and e-governance. These include: reform of political systems and cultures, trends in economic factors that may include development of, and access to infrastructure and e-services, as well as socio-cultural factors that enable or hinder the uptake of technologies (Kupe & Okello, 2012). Kuye and Naidoo (n.d.) and Kroukamp (2004), point to the fact that e-government is not about technology, but very much about changing the way in which organisations are operating. According to Kroukamp (2004), the move towards full e-governance does not pose only a technological problem, but also a management problem. Therefore, technological, financial and political hurdles still need to be cleared before the potential of e-governance can be fully realised. In the view of Akula *et al.* (2014), in order for there to be effective operation of ICT in e-governance, all the key stakeholders such as government, business and citizens need to walk together in collaboration.

Alaceva and Rusu (2014:716) posits lack of alignment between business and IT as one of the main reasons enterprises are not able to exploit full potential of IT investments. This point is emphasised by Aversano, Grasso and Tortorella (2012), when they state that since business and IT performance are tightly linked, it will be almost impossible for any enterprise to be competitive if their business and IT strategies are not aligned.

Accordingly, strategic alignment between IT and business exists when business' goals, activities and processes are supported by information systems.

### **2.3 KNOWLEDGE OF ICTS IN THE PUBLIC SERVICE**

A preliminary study of ICT diffusion in cultural tourism in South Africa provides evidence that access to ICTs is not as effective as it should be due to high costs of telecommunications and ICT equipment, with generally low levels of understanding of ICTs (Verhoest, James, Marais and Van Audenhove, 2007). A study conducted by Mahlatse (2011) points to challenges that impede successful utilisation of ICTs in rendering public services as including: leadership instability, lack of commonly shared vision and strategy, lack of skills, poor communication and decision making processes. The concern regarding IT skills is also captured in the SITA's annual report of 2008 that highlights one of the major impediments in the South African public service as shortage of ICT skills and recommends the development of IT skills among public servants if government is to be transformed for the better (van Jaarsveldt, 2010:175).

Shortage of IT skills in the public service results in lack of relevant IT solutions being developed internally – leading to them being outsourced. According to Murphy (cited in Cuvar (2015)), information services require skilled personnel who also have authority to make critical organisational decisions. Cuvar (2015) also argues that outsourcing IT software development has the likelihood of harming organisations and, therefore, recommends effective staffing balance and collaboration in information services outsourcing.

Even though the study that was conducted by Mbatha and Lesame (2013) found that there is availability of ICT tools in the government departments their research focused on, their study also noted that availability does not necessarily equate to adequate utilisation of ICTs as this utilisation may be hampered by a lack of computer skills, low levels of confidence and negative perceptions in respect of ICTs. As far as Ntetha and Mostert (2011) are concerned, managers of offices are often not ICT literate and unable to provide the necessary guidance and leadership in terms of optimal adoption and utilisation of ICTs. The authors recommend that the government conduct a resource and capacity audit in all offices to assist in accurately assessing the status of ICT tools and the level of skills of the officials expected to use these tools. According to Kappelman, Jones, Johnson, McLean and Boonme (2016), the period between the

1980s and the 1990s saw widespread usage of computers and local networks triggering a shift to a more strategic focus. This however, was not always the case as IT remained viewed still more as a support activity that is mainly responsible for managing the infrastructure that is needed for the functional groups within organisations.

For van Jaarsveldt and Wessels (2015), university education in Public Administration has the potential to be an important role-player in providing the necessary ICT competencies as transferable skill-sets to current and future public servants. A combination of interpersonal, technical and organisational skills is very important for the success of IT professionals at various stages of their careers (Kappelman et al., 2016). According to Lesame (2013), the 2012 report from the World Economic Forum (WEF) on Global Information and Communication stipulates that the sub-Saharan African region's ICT infrastructure is the least developed in the world and the region also has severe lack of ICT skills. In 2012, the then Minister of DPISA, Ms. Geraldine Frasier-Moleketi, highlighted the need for acquiring new skills to develop the ability of using ICTs in improving the public services (van Jaarsveldt, 2010). The same sentiment is captured in the State Information Technology Agency (SITA)'s 2008 report that identifies shortage of IT skills in South Africa as a major challenge in the public service and, in order to overcome this challenge and transform the government, technology skills of public servants must be developed (van Jaarsveldt, 2010). Mphidi (n.d.) bemoans lack of adequate knowledge by political leadership on the benefits that can be brought about by e-governance as one of the biggest obstacles to progress in some government departments.

The Department of Trade and Industry (cited in Lesame, 2013), indicates that the internet has contributed to the development of new applications and services in the areas of knowledge management and communication that can be used by government to educate, inform and provide services to the citizens. According to van Jaarsveldt (2010), since public servants are supposed to use IT in the process of rendering public services, it would be expected of them to have the skills and knowledge that are necessary to enable them to understand how IT can be used to improve government processes and procedures.

Mbatha and Lesame (2013) state that, government will need to come up with sufficient and coherent policies to regulate the training of staff in the utilisation of ICTs in the

public sector. According to Petty (cited in Ntetha and Mostert, 2011), since there is a drive by government to move towards e-governance, civil servants need to be subjected to International Computer Driving License (ICDL) training programme that will provide them with the IT skills that are necessary to enable them to assist the public in effectively using ICT-related services.

The following challenges were identified in relation to South African government and e-government in the report by Kuye and Naidoo (n.d.):

- Most South African government websites appear to be more of electronic brochures implying that there seems to be a dire lack of understanding on the powerful role that the web can fulfil; and
- Lack of mechanisms in place to ensure effective methods of protecting privacy over the internet, and provision of education and training on the usage of the electronic model.

## **2.4 USAGE OF ICTS IN THE PUBLIC SERVICE**

The use of ICTs by government is essential for the freedom of capable and cost-effective public services that are responsive to the needs of the general public (Akula et al., 2014). ICTs can also be used to enhance inner efficiencies of the various arms of government such as Legislature, Judiciary and Executive (Akula *et al.*, 2014). According to research conducted by Twinomurinzi et al. (2012), even though most people in communities in South Africa are still afraid of directly interacting with government reminiscent of the apartheid style of government, ICT has been able to ease community members into the same space and make them feel that their ideas are recognised. Kupe and Okello (2012) state that, ICTs are not only limited for use by governments to improve service delivery, but can also be utilised by both government and citizens alike to monitor service delivery, as well as to enhance transparency and accountability.

The use of Information Systems enhances processes management in public administration and supply of public services (Ziemba & Oblak, 2014). ICT plays an important role in enabling modernising government and its services through allowing both individuals and companies the opportunity to interact regularly with government using different means of communication such as: desktops, laptops, cell phones, telephones, self-service kiosks and ATMs (Mokhele & De Beer, n.d.). Access to e-government services is dependent on the availability of personal computers and their

connection to the internet, as well as private access in households. Fortunately, users have the opportunity of accessing the internet via public libraries, tele-centres, and internet café's (Durrant, cited in Mokhele & De Beer, n.d.).

The utilisation of Information Systems is an essential component of a government strategy to succeed in rapidly changing the world (Ziemba and Oblak, 2014). In order for this to happen, there will need to be strategic alignment between business and technology. This is defined as the degree to which the IT mission, objectives and plans support and are, in return, supported by the business' mission, objectives and plans (Aversano et al., 2012:463).

According to Visser and Twinomurinzi (n.d: 39) and Kuye and Naidoo (n.d.), in order for e-government to be truly effective, it will need to be managed from a single portfolio in government inclusive of various government departments, and not from silos within each government department. This is now very possible since with the usage of networks to share information, organisational boundaries no longer serve as inhibitions to service delivery (Kuye & Naidoo, n.d.).

In an effort to fast-track development, the South African government has since 1999 rolled out ICT in rural areas as part of what was called Multi-Purpose Community Centres (MPCC) that did not enjoy much success. In 2007, they were re-branded, re-technologised with more powerful computers and internet bandwidth, and then re-labelled the Thusong Service Centres (TSC). The principal objective of these centres is to take government to the people through provision of integrated services and information from government to communities close to where they reside as part of a comprehensive strategy to better their lives (Twinomurinzi et al., 2012). An indicator for success or failure of any telecentre or MPCC is the degree to which it becomes an integral part of the community that it serves. This measure is important as the main aim of MPCCs is to stimulate and respond to the communities' demand for the needed information and communication services (Jacobs & Herselman, 2006).

A study conducted by Hulbert and Snyman (2007) on the effectiveness of ICT centres found that there is little evidence of the successful establishment of these centres in South Africa. Avgerou (cited in Twinomurinzi et al., 2012) is of the view that, the MPCC initiative does not take into account the social contexts of the communities in which ICT

implementation is to be done and that more participative approaches to the implementation of these centres and use of ICTs is necessary.

Governments in developing countries have increasingly turned to internet models of ICT as the preferred channel for citizen-centred service delivery (Visser & Twinomurinzi, n.d.). According to Kuye and Naidoo (n.d.) and Kaisara and Pather (2011), many South African citizens have become used to ordering what they want online, and receiving the item/s that they ordered in a timeous manner. This development will, ultimately, lead to them expecting the same type of fulfilment from government officials in terms of service delivery.

One important e-government initiative that was brought about by the DPSA was development of South Africa Government Online gateway, initiated in 2002. It is a single electronic gateway/website that facilitates access to all information about the services that are provided by various government departments (van Jaarsveldt, 2010). The challenge with this gateway is that it only provides information about the services that are rendered, but is not interactive enough to provide services to the public. E-government must be utilised to allow citizens instant access not only to information, but to services as well through an efficient process which will fundamentally change the way the people of South Africa relate with their government (Kuye & Naidoo, n.d.). Ondari-Okemwa and Smith (2009) bemoan lack of / or poor knowledge management and therefore low level of knowledge and information sharing in the civil service as the prime contributor to poor government service delivery. This may be because of the challenge of non-alignment between business and IT as indicated by Alshawi and Alalwani (2009). In the main, their study found that issues that hamper alignment have to do with social issues like weak business/ IT relationship, poor communication between the two, and limited knowledge of each other's area of work.

Even though findings show that ICTs are generally available in a study conducted by Ntetha and Mostert (2011) in three government departments in uMhlatuze municipality, these ICTs were mainly utilised by officials for internal departmental activities and not much for executing service delivery. This usage of ICTs is classified more as e-administration and not e-service. A similar point is echoed in the findings of the research conducted by Mbatha and Lesame (2013) that indicated that all the civil servants that responded to the survey stated they mainly used ICTs to communicate with colleagues

and to disseminate departmental information through emails, other than for communication purposes; they also use ICTs for spreadsheets, word processing and for printing.

It is for these reasons Ntetha and Mostert (2011) found that despite heavy investment by government in both physical resources and modern ICT infrastructure, the public is still not benefitting from ICTs to the extent that was envisioned by the government. This, according to the authors, is evident in the regular long queues that are seen in government offices and also regular service delivery protests. Limited role of ICTs in delivery of public services can be attributed to lack of correct institutional arrangement for e-governance and also non-alignment between business and IT, as already captured earlier in the study.

ICTs are not just responsible for instant data transmission such as the use of emails and the internet, their importance extends to more functions such as intelligent traffic management, swipe card technology on board public transport, smart metering solutions for municipalities and e-health services – in essence ICTs must play a pivotal role in improving economies and solving social issues (City of Johannesburg, 2014).

Another finding from the research conducted by Ntetha and Mostert (2011) was that even though there is wide usage of mobile phones among citizens in South Africa, this mode of access is not utilised in the researched departments to deliver public services. As far as Akula et al. (2014) are concerned, in today's world where mobile and wireless technology are growing limitlessly, the extension of e-government facilities to m-governance seems to be in line with reality.

A study conducted by Mphidi (n.d.) on digital divide and e-governance in South Africa found that some South African government departments are using their websites to provide certain government services to citizens. The author recommends that government take strides in providing training to ordinary citizens on the usage of ICTs so that they are able to use them to access such services, appoint competent staff to develop and maintain e-governance services and assist citizens with access to affordable internet service so that it will not be too expensive for them to gain access to e-governance services. Kuye and Naidoo (n.d.) state that it is not enough to simply put in new systems, the government has to find new ways to respond to people in a timeous

manner and as users begin to interact with government online and experience the increased benefits, there is bound to be an increased level of trust.

GCIS (1998) argues that the current shortcomings in the use of ICTs in the South African public service can be overcome if there is sufficient political will to drive the ICT agenda. The GCIS observes that ICT decisions in the public service are relegated to the technologists leading to technical and not business-oriented solutions. A similar point is made by Mahlatse (2011) in stating that it is important for ICTs to be driven by government's development agenda, rather than by technology.

The PRC also identifies the massive investment by the state in technology and systems that are highly fragmented as the other causes to ICT not being able to fulfil its intended mandate (GCIS, 1998). The huge investment by the state in these technologies is not bearing fruit as they are not integrated and effective. Khan (2013) also points to the fact that very often, the implementation of technologies is done in isolation and lacks the very important element of integration, resulting in their full potential of usefulness not being realised. Technical challenges often cited as impacting negatively on successful implementation of ICTs in the public service are: lack of ICT infrastructure, and integration and interoperability issues (Mahlatse, 2011). The study conducted by Chabossou, Stork, Stork, and Zahonogo (2008) recommends implementation of key policy interventions that would come up with regulatory mechanisms that would lead to a decrease in access and usage costs, rural electrification and policies that would lead to increased ICT skills of pupils and teachers.

The PRC report suggests that the management of ICT in public service and choices that arise from it should be seen as equally important by the senior political management as the other management functions such as those of people, money and organisations in public service. This point is further endorsed by Lindiwe Sisulu, the then Minister of Public Service and Administration, in stating that information never received the same level of attention as people, money and material – some of the main problems identified in this regard were due to lack of involvement and support from top management. The Minister then stressed that, according to corporate governance of ICT, important ICT decisions should not be delegated to ICT management, but rather should come from the senior political and managerial leadership (The DPSA, 2012). The Corporate Governance of ICT Policy Framework (CGICTPF) that was developed by the DPSA



seeks to provide national and provincial government departments with direction on how to implement Corporate Governance of ICT in their spheres of accountability and responsibility (The DPSA, 2012).

Findings from a study conducted by Mzimakwe (2012) indicate that availability of and access to ICTs has the potential to offer governments with opportunities to interact with citizens in ways that would otherwise not be possible through traditional mechanisms. This point is further enhanced by Das and Patra (2013) who state that the Implementation of e-government initiatives is not only dependent on the availability of resources but, more importantly, on the adoption of an appropriate implementation-oriented model that outlines the growth and development of e-governments.

Gurstein (2000) believes that it makes a lot of sense to provide online information or service to groups, rather than to individuals, due to limited access to ICT resources in certain instances.

The following are gaps that were identified as negatively affecting the implementation of e-governance (Akula, 2014:520):

- *“Lack of proper understanding of capacity building requirements;*
- *Lack of data on human resources requirements to support the state e-governance implementation;*
- *Inappropriate skill set of personnel already appointed;*
- *Policy gaps while sourcing from private sector;*
- *Shortage of expertise and lack of skills within the state training institutions; and*
- *Inappropriate standards, policy guidelines for e-governance.”*

A study conducted by Trimi and Sheng (2008) identified two challenges that hamper the wide adoption and implementation of e-government:

1. Inadequate technological infrastructure that has to be built by government in order to support transformation to e-government; and
2. The existence of unequal access to e-government services due to the digital divide that exists among demographically, economically and socially diverse groups of the population within a country and also among different countries.

Since e-governance greatly reduces corruption and increases transparency in government, the study conducted by Saxena and Sharma (2012) points to the challenge

that some government officials are not too keen to support these initiatives as they would harm their hidden selfish interests, therefore the successful application of ICTs to the processes of government does not only depend on transformation of technology but also equally important it requires transformation of the mind-set of those who have been controlling public service delivery for some time. The study therefore recommends strong will particularly at higher political and administrative levels of government in order for e-government initiatives to become successful.

## **2.5 GLOBAL PERSPECTIVES ON ICTS AND SERVICE DELIVERY**

In the World Economic Forum 2012 report on “Networked Readiness”, out of 142 countries, South Africa is ranked in the 72<sup>nd</sup> place since it is not yet leveraging potential benefits associated with the utilisation of ICTs (Lesame, 2013). The report on the United Nations (UN) e-Government survey outlines the key contributors to sustainable development of e-government as: the right institutional framework, policies, adequate funding and capacity building efforts (United Nations, 2014). This report also reveals that mobile-based technologies have become the rapidly adopted technologies for providing e-services; rural areas communities with limited telephony access can therefore access these services through the mobile and broadband technology that is currently available.

In terms of the UN's e-Government survey 2014 global ratings, Europe is the world's leading continent followed by Eastern Asia, North America, South Asia, and last on the list is Africa (United Nations, 2014). The report also states that, despite the progress that has been registered, there is still a significant digital divide between the developed and developing countries, particularly in Africa – this is mainly attributed to lack of ICT infrastructure in the developing countries (United Nations, 2014).

In India, e-governance started in the 1970s and focused more on in-house government applications in the areas of defence, economic monitoring, census and tax administration. In the early 1990s, the scope of e-governance grew tremendously with ICTs enabling the distribution of government services as it caters for a large base of people across diverse segments and geographic locations (Akula et al., 2014). This is evident as one of India's states, Chhattisgarh, noticed the significance of ICTs in effective public services and established ICT based public service centres across the state to deliver more than 131 public services at a single window (Saxena & Sharma,

2012). The integrated services that come as part of this initiative assist the communities in getting relevant information relating to a variety of public services at a single access point. Also, the Indian state of Andhra Pradesh embraced e-governance through the utilisation of Mee Seva citizen service to deliver 45 government services to the communities, plans are underway to increase the number of services offered to more than 100 (Akula et al., 2014).

Khan (2013) stresses the fact that Geographic Information Systems (GIS) have a great potential in addressing and enhancing all the three dimensions of e-Government highlighted earlier, bringing a better option in addressing the many challenges from the local to the national government because it can be used as visualisation, analysis and communication tool, while managing data at the same time. The case in point is the GIS used by Polk Country's state for managing all the three dimensions of e-Government that are: e-democracy (connectivity with constituencies), e-services (electronic service rendering), and e-administration (internal operations).

There is a European Union funded initiative by the name of Learning Museum whose main aim is to create a permanent network of museums and cultural heritage organisations around Europe. After collection of their materials/ artworks, they share it amongst themselves by loading it on the website, making it easily accessible to everyone (Sani, 2010). This is one of the initiatives that can be beneficial to the department of CATA.

The m-government in the United States (US) state of Virginia has grown significantly. This state is proclaimed as a leader in implementing m-government applications. Its 'My mobile Virginia' application was the first in the whole of US to introduce a wireless state portal that made government services accessible via mobile and wireless devices; this application offers a number of downloadable information on handheld devices including emergency weather conditions, legislative information and tax-related information. (Trimi & Sheng, 2008).

Table 2-1: list of m-government applications available in various European countries (Trimi & Sheng, 2008:57):

	<b>Applications</b>	<b>Government Agencies</b>	<b>Description</b>
G2C (Government-to-Citizen)	SMS alerting services	London Police Departments	-Inform citizens about security threats and emergency alerts
	Mobile tracking systems	Metroline, London	-Track London buses using mobile communication systems -Send messages to control traffic flow.
	SMS for job posting	Sweden	-Provide job posting for temporary workers via SMS
	MapMate	Sweden	-Wireless map systems
	Mobile parking fee payment	Sweden	-Allow citizens to pay parking fee through mobile devices
	SIM ID	Finland	-ID cards that serve as an official travel document as a passport does
IEE (Internal Efficiency and Effectiveness)	Tracking suspects	German Police	-Use GPS and mobile phones to track suspects' movements
	M-parking	Austria law enforcement	-Use handheld devices to connect to central database to monitor parking

SMSs are also widely used in the Asian countries to alert the citizens of important notices for example, in 2004, Hong Kong government sent 6 million sms messages to its mobile phone users to calm them on the SARS health scare that broke out (Trimi & Sheng, 2008).

Khan (2013) also states the significance of creating awareness among managers and decision makers as they are not always aware of the full potential of GIS which is the main reason for them not being fully utilised. GIS will never be fully effective if decision makers are not fully aware of the value that they can add and how they can address their specific business needs. In Indonesia, the country's President was the first to introduce e-government services through his instruction no. 6 of 2001, which maintained that the government apparatus must utilise the technology of Telematika (Telecommunication, Media and Information) to enhance good governance and accelerate the democratic process (Rachmawati et al., 2012).

According to Ziembra and Oblak (2014:34), public administration of Poland currently concentrates on attaining the following benefits through implementation of Information Systems (IS):

- *“Logical and effective circulation of information in government units at the local and the central level;*
- *Operations of government units according to the defined government processes;*
- *Integration of government data;*
- *Easy access to government data and information for government units; and*
- *Access of citizens and businesses to government information and e-government services from various media (PC, laptop, smartphone, tablet).”*

## **2.6 CONCLUSION**

The general consensus from the literature is that ICTs have the capability of assisting government in effective rendering of public services through electronic government/ e-government. This assertion is supported by a number of practical cases from the literature where success in service delivery was evident through effective utilisation of ICTs. The literature also makes it clear that on its own ICT will not be in the position to assist in the delivery of e-government. In order for this to happen, there is a need for correct institutional arrangements to be put in place, including relevant policies, structures, systems and processes that will be used to support e-government. Over and above the institutional arrangements, leadership, both administrative and political, need to play an active role in order for effective e-governance to be realised.

The literature reviewed is also consistent in pointing to lack of relevant ICT knowledge and skills among the leadership and general public servants as one of the key factors that negatively affects full realisation of the benefits that ICTs can bring about. Lack of /or inadequate knowledge of ICTs by leadership leads to inadequate appreciation of the full potential of ICTs resulting in ICT tools not fully utilised. It is, therefore, broadly recommended that ICT skills development across all the levels of responsibility need to be prioritised in government. There are various types of ICT skills needed in order for e-governance to be effective: skills that are necessary for the general public, public servants and ICT specialists.

As far as the various studies are concerned, in order for e-government to be truly effective, various government services need to be managed from a single portfolio in

government, and not from silos within each government department, also the general public must be in a position to access these services. The literature also reveals that the South African government has made efforts to make information on integrated government services accessible to the public through the rolling-out of tele-centres across the country. Despite the correct intentions from the side of government, a number of studies have found out that although modifications were effected on the tele-centres to enhance their capabilities, the issue is that they did not enjoy the success that was envisaged and this was mainly due to government not involving the public concerned/ failing to take the social context of the communities where the tele-centres were to be deployed. The involvement of communities is critically important so that government gets relevant information and is able to deliver services that the various communities are in dire need of through e-government.

Case studies conducted in the South African Public service point to more utilisation of ICTs for internal administrative functions such as e-administration (emails, word processing and spreadsheet) and less for reaching out to the general public. Government websites are mostly used for disseminating information and, to a very limited extent for interacting with the public and rendering public services that are required by the general public. This can also be attributed to lack of or limited knowledge of the full potential of the ICTs by government leadership. Since the usage of mobile devices by the general public has increased drastically and high costs of rolling-out ICT infrastructure, a number of studies recommend e-government to be enhanced with m-government that is delivery of government services using wireless technology to mobile devices. This approach has the potential of significantly reducing the costs for delivery of e-government and also enhance convenient access by the general public from wherever they may be as long as they have mobile devices.

The literature reviewed on global practices of e-government point to broad utilisation of e-government for delivery of public services. In the e-government leading regions, electronic government is covering the three dimensions which are: e-democracy (connectivity with constituencies), e-services (electronic service rendering) and e-administration (internal operations). Globally, Africa is ranked as the bottom region in the utilisation of e-government with Europe being the leader followed by Eastern Asia and the rest of the other regions. The challenges that are mainly cited in the literature is lack of ICT infrastructure in the African region, lack of proper institutional arrangements

and also inadequate leadership/ decision makers. A number of studies on the global sphere point to more utilisation of mobile government for effective delivery of e-government, which is supported by a number of practical examples in various areas where m-government is effective.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

Chapter two provides the theoretical background covering the level of knowledge and usage of ICT in South African Public Service to enable service delivery and international trends in relation to ICT enablement of public services. This chapter outlines the processes and mechanisms undertaken to outline how data were sourced and analysed, and all the necessary elements and steps that led to finalisation of the research. After obtaining the responses, this chapter analyses and discusses them accordingly.

According to Rajasekar, Philominathan and Chinnathambi (2013), research methodology is the science of how the research is going to be conducted. This science entails the procedures that are followed to carry out the research that will lead to gaining of more knowledge. Given the nature of this study, mixed method research was adopted. This type of research means utilisation of both the qualitative and quantitative research approaches. This type of research combines what is considered qualitative data such as words, pictures and narrative with quantitative data like numbers allowing research results to be generalised (Hesse-Biber, 2010). Utilising both these methods assisted the study to get a view from both measurable and analytical approaches.

Mixed methods research assists in getting adequate responses from participants because the combination of closed-ended and open-ended questions allows them to choose from the limited fixed options when coming to closed-ended questions and also gives them proper platform to adequately express themselves in terms of open-ended questions that do not have limited fixed options. This position is supported by Creswell (2008:9), who states that a combination of both qualitative and quantitative research assists in establishing a better understanding of the research problem, rather than when either method is used in isolation.



## **3.2 RESEARCH METHODS**

Research methods are all the methods / techniques that are used for the purpose of conducting a research (Kothari, 2004). According to Welman et al. (2005:52) and Rajasekar et al. (2013:5), research methods are there to assist the researcher to collect data samples in order to find a solution to a problem. The sub-sections that follow give details of the research methods followed during this study.

### **3.2.1 Type of research**

The study used applied – explanatory research method. According to Rajasekar et al. (2013:8), Kothari (2004:3), and Welman et al. (2005:25), applied research is the type of research that is used to find solution for an existing problem that needs a solution for immediate use. For Dawson, Kothari and Kumar (2005), applied research is conducted in order to solve practical questions, for formulating policy, administration and understanding of a phenomenon. Explanatory type of applied research attempts to clarify how and why there is a relationship between two or more aspects of a situation (Dawson et al., 2005).

The applied explanatory research method was relevant to the study because on the subject of ICTs and enablement of public services, there were two or more aspects that needed to be clarified and they are: ICTs and their role in enabling public services in the CATA, and practical questions that needed to be responded to in relation to the extent to which ICT enablement is realised in the CATA. This type of research method was able to assist in explaining the relationship between responses from the participants and how they relate to the current situation in the departmental ICT setup. Based on the responses, the research came up with recommendations or practical solutions that can be implemented in order to turn the situation around.

In order to capture accurate and reflective information for the applied – explanatory research method, the study adopted a combined approach of qualitative and quantitative research methodology. Quantitative research methods are fairly inflexible with participants being asked identical closed-ended questions in the same order while qualitative methods are more flexible in allowing greater spontaneity and adaptation of the interaction between the researcher and the study participants – this type of method mostly asks open-ended questions that allow participants to respond in their own words

(Family Health International, n.d.). The study, therefore, struck the correct balance between the open-ended and closed-ended questions.

### **3.2.2 Study area**

Department of Culture, Arts and Traditional Affairs (CATA) in the North West Province was the focus area for the study. The offices that the study focused on are CATA's provincial office based in Mmabatho.

### **3.2.3 Population**

According to Goddard and Melville (2001:34), a population is any group that is to be researched. Mugo (2002) describes a population as a group of individuals from which samples are to be taken for purposes of conducting a research. A population is a group of participants that the research would like to generalise the study results for (Welman et al., 2005:55). The population for the study comprised 278 officials in CATA, based at its provincial office. This population consisted of senior managers, middle managers and operational staff that are regular users of ICTs in the department. Regular users of ICTs were targetted as they are the ones that would best relate to the research questions that were posed.

### **3.2.4 Sample size**

A sample is a predetermined part of the population group that is used for conducting a study in order to determine the characteristics of the whole population (Mugo, 2002). As far as Welman et al. (2005:70) are concerned, it is wise to have a larger sample size in order to lower the likely error in generalising to the population. As a general rule, they emphasise that in instances when the total population is smaller, the relatively larger sample size has the high likelihood of ensuring satisfactory results.

Since the total population size is relatively small (278), the sample size of the study needs to be larger in order to lower the error level. Since various population strata differ in numbers: CATA has 13 senior managers, 60 middle managers and 205 operational staff that are users of ICTs, to ensure adequate representability, the following constituted the sample sizes: Senior managers (8), Middle managers (35) and Operational staff (77).

Therefore, the total sample size for the study was 120, representing 43% of the entire population.

### **3.2.5 Sample frame**

Before a sample of the population can be drawn for analysis and in order for it to be adequately representative, clarity about the population needs to be obtained first by establishing units of analysis which involves compiling a sampling frame (Welman et al., 2005:57). The study's sampling frame was compiled by focusing on various levels of responsibility within CATA. Responses were obtained from the following categories of ICT users: senior managers, middle managers and operational staff. This was important in order for the study to reflect points of view of the various levels of responsibility.

### **3.2.6 Sampling technique**

The study used purposive sampling technique to obtain its sample. Purposive sampling technique is applicable in instances when the researcher has prior information with regard to the composition of the population and uses this information to deliberately obtain the units of analysis such that they are representative of the relevant population (Welman et al., 2005:69). Based on the information stated in the sample size sub-heading, it is apparent that the researcher was well aware of the size of the population and various strata that make it up (Senior managers/ middle managers/ operational staff) that are all ICT users, – making it practical to use the purposive sampling technique as the targetted participants were supposed to be users of ICTs. After the three strata were established, the samples were drawn using purposive sampling within the three strata.

### **3.2.7 Data collection**

Primarily, data for the study were collected through a questionnaire and structured interviews, where necessary. According to Gill, Stewart, Treasure and Chadwick (2008: 291), structured interviews are verbally administered questionnaires that comprise a list of predetermined questions. The structured interviews were facilitated by verbally administered questionnaires for those users who found it difficult to respond to the questions. Users who did not experience challenges with responding to the questions were left to complete the questionnaire on their own with the option of contacting the researcher for clarity regarding any uncertainty when responding to the questions.

The questionnaire that was used had both open-ended and close-ended questions. According to McClure (2002:6), questionnaires are used to ask both open-ended and close-ended questions making them suitable for data collection tools in both qualitative and quantitative research or mixed research. Zohrabi (2013:255) states that, it is better for any questionnaire to have both close-ended and open-ended questions so that responses to the two complement each other.

There was a nominal measure that was used to distinguish various levels of responsibility that are: senior managers, middle managers and operational staff. This was important in order to get the point of view of officials in various levels of authority.

In designing the questionnaire, various important aspects were taken into consideration such as: making sure that the questionnaire covered the stated research objectives and the research questions, together with a brief memo that introduced participants to the questionnaire, including the following: the purpose of the study, assurance about ethical considerations such as anonymity and confidentiality. The approach of using a memo to introduce the questionnaire, according to Gill et al. (2008:292), gives participants an idea of what to expect from the interviews and also increases the likelihood of honesty and serves as a fundamental aspect of the consent process.

Secondary data relating to ICTs and public service enablement were collected from numerous sources, including research on the South African Government reports relating to ICTs, previous studies conducted in relation to the subject researched and other reliable secondary sources such as academic journals and books. This material assisted the study in getting a better understanding with regard to national developments in relation to the topic researched.

### **3.2.8 Data analysis**

After collection, data were converted into information through utilisation of SPSS statistical analysis tool. Since the study also captures qualitative data in the form of words, Welman et al. (2005), recommend coding of text data by converting words to numbers or symbols – retaining the words for using together with their corresponding numbers in the analysis. This is because words reflect more meaning compared to a set of numbers. Coding, in this regard, is used to analyse and give meaning to qualitative data by categorising them according to particular themes that have been collected when

captured in the statistical analysis tool. Data were captured in the suitable format and analysed using this tool to give a clearer understanding of the results.

The results were presented in a tabular format that displayed the responses to the various research questions in a summarised tabular version. This approach assisted in establishing better understanding of the responses. After each table, the results were interpreted in words in order to establish better understanding of the outputs.

### **3.2.9 Ethical considerations**

In order to pave the way for conducting this research, a letter that requested permission to collect data in CATA was crafted for the Head of Department's approval. This letter also outlined the value that the study aimed to add to the functioning of the department with the recommendations that might follow. The HOD approved the request to collect data and the process of collecting data from the officials got underway. This letter was very important because as the participants saw the HOD's consent for data collection they became at ease and were able to participate.

The questionnaire was crafted in such a way that did not allow the participants to reveal their identity. This was done in order to uphold confidentiality and encourage the participants to give honest and critical responses. Usage of ICT technical jargon was avoided as this would have had the potential of making participants feel uneasy paving way for the use of plain English that was easily understandable to participants. Both the letter that requested permission and the questionnaire are attached for ease of reference (See Appendix A).

## CHAPTER 4

### INTERPRETATION

#### 4.1 INTRODUCTION

This chapter provides an analysis of the results gathered from the respondents. The target population was employees of the Provincial Department of Culture, Arts and Traditional Affairs (CATA) in North-West Province at the Provincial head office. The results are based on the responses gathered using a structured questionnaire. All the questions were developed and recorded by the researcher. The study aimed to examine usage of ICTs in CATA, the level of its effectiveness in departmental service delivery, factors that contribute to the level of effectiveness of ICTs and suggestions that can be adopted from best practices to assist in effective utilisation of ICTs.

Specifically the study sought to answer the following research questions:

- How are ICTs utilised in CATA?
- Are ICTs used to enhance the department's service delivery?
- What is the knowledge level of ICTs among CATA workforce? And
- What is the level of availability and reliability of ICTs in departmental service delivery?

A questionnaire was prepared and 120 copies distributed to individual participants randomly in the Provincial office of the Department of CATA. From the initial 120, distributed 99 were returned, meaning that the response rate was 82.5%, which is well above 25% recommended by Bless, Higson-Smith and Karee (2006).

#### 4.2 ANALYSIS OF THE RESULTS

- **Question 1: Participant's level of responsibility in the department**

Table 4-1 Respondents' level of responsibility

	Frequency	Percent
Senior Manager (Salary level 13-15)	6	6.1
Middle Manager (Salary level 9-12)	27	27.3
Operational Staff (Salary level below 9)	66	66.7
Total	99	100.0

Question 1 establishes the level of responsibility of the respondents. There are three options to choose from and they are: senior manager, middle manager and operational staff. As shown in Table 4-1, all the three managerial levels are represented, the majority being staff members at the operational level having a representation of 66.7%, followed by middle managers at 27.3%, and senior managers with 6.1%.

It was important to establish if there was representation from the various levels of responsibility because, according to Kennedy and Daim (2010), most literature highlights the importance of engaging people at different organisational levels of responsibility when conducting a research/ survey.

- **Question 2: What is your knowledge level of ICTs?**

Table 4-2: The respondents' level of knowledge as far as ICT is concerned

<b>Knowledge level</b>	<b>Yes</b>
Do not use a computer for performing official duties	2
Use a computer mainly for basic official duties (developing documents, emails, printing, scanning, etc.)	62
Use a computer mainly for advanced official duties (work-related systems e.g. Persal/ BAS/ Walker/ SLIMS/ etc.)	38
Use a computer mainly to develop work-related systems	12

The table shows the level of ICT knowledge for the CATA workforce. According to the responses, as reflected on Table 4-2, the majority of employees at CATA seem not to be technologically challenged. As far as the results are concerned, most participants do use computers for the execution of their official duties. Only two employees acknowledged they do not use a computer to perform official duties. This does not necessarily mean they do not have knowledge for using computers at all.

The Department of Communications, cited in van Jaarsveldt (2010:181), classifies the IT skills that are required by public servants at all levels of responsibility and the society into the following categories:

- *ICT skills needed for modern life outside the workplace, referred to as digital literacy or e-literacy;*
- *ICT skills in the workplace that are necessary for responding to changes in business and industry; and*
- *ICT skills for specialists in the IT industry.*

The responses to the question on ICT knowledge levels of participants established that most of the respondents do have ICT skills in the workplace that are necessary for enabling them to respond to changes in business and industry. This is because 62 indicated that they use computers for basic official duties like developing documents and emails and 38 of those literate are at advanced level as they are able to use work-related systems for executing their official duties. About 12 of the respondents are more advanced as they mainly use computer to develop work-related systems.

- **Question 3: Do you have all the necessary ICTs to enable you in executing your duties? [Yes] or [No]**

Table 4-3: necessary ICTs tools to enable you in executing your duties

	Frequency	Percent
Yes	69	69.7
No	30	30.3
Total	99	100.0

Table 4-3 reveals the extent to which relevant ICTs are available to the respondents in order to assist in the execution of their official duties. In terms of what is reflected in Table 4-3, majority of the respondents have the necessary ICTs to enable them in executing their official duties, representing 69.7 % of the respondents, while 30.3% of the respondents declared that they do not have the relevant ICT tools. It was important to establish the respondents' level of availability because, as correctly stated by Zambon (2010), availability of IT infrastructure is extremely important to supporting business activities and if availability is compromised, then a company's competitiveness can be dealt a serious blow.

- **Question 4: If the response to the above is No, please select those ICTs that you do not have that are necessary for your duties**

Table 4-4: ICT tools that are lacking but necessary for execution of respondents' duties

Computer	2
Printer	10
Scanner	19
Internet	1
Email	3
ICT system/ software application	24



Question 4 came as a follow-up to the last one that wanted to know if the respondents do have relevant ICTs to enable them in the execution of their duties. This question requested those respondents who responded with a “No” to identify ICT tools that they deem necessary for them to effectively execute their duties. Of these respondents, 24 of them indicated that they needed ICT system/software application, 19 indicated that they were in need of a scanner and then 10 stated that they lacked a printer. Only one of these respondents did not have access to internet, two had no computers and three had no access to electronic mail system.

It was important to find out from the respondents what ICT tools they were lacking because IT is utilised for various uses such as to develop, market and distribute products or services and also to support business activities and without relevant tools the businesses will likely fail to meet their objectives (Zambon, 2010:1).

- **Question 5: Are there Computerised Information Systems utilized in your unit to enhance your operations? [Yes] or [No]**

Table 4-5: The extent to which Computerised Information Systems are used to enhance unit operations

	Frequency	Percent	Valid Percent
Yes	57	57.6	57.6
No	42	42.4	42.4
Total	99	100.0	100.0

Table 4-5 outlined the extent to which computerised Information systems (CIS) were utilised to enable the respondents in enhancing their units' operations. About 57.6% of the respondents indicated that they did have relevant CIS to enhance their units' operations, while 42.4% responded by stating that they did not have those CISs. According to Ziemba and Oblak (2014), the use of Information Systems enhances processes management in public administration and supply of public services. It was therefore necessary to establish better understanding of the extent to which ICTs are utilised in CATA.

- **Question 6.1: If the answer is Yes in question 5, please state the name of the software application/s**

Table 4-6-1: Names of Software Applications

	Frequency	Percent
Valid	39	39.4
Antivirus and web	1	1.0
BARNOWL	1	1.0
CYBERS	1	1.0
GEPF Portal	1	1.0
Groupwise	10	10.1
Groupwise and slims	3	3.0
Groupwise and transversal systems	6	6.1
Microsoft office	4	4.0
ORGPLUS	1	1.0
QPR	1	1.0
Slims	5	5.1
Slims and jaws	1	1.0
Trados and Autshumato	1	1.0
Transversal systems	24	24.2
Total	99	100.0

As a follow-up to question 5 that sought to establish if respondents were using Computerized Information Systems in the execution of their unit operations, those that responded with a “Yes” were requested to state the name/s of the CIS that they are using in the execution of their duties. The discovery in the above table reflects that those respondents that responded with a “Yes” do have the IT skills that enable them to work with information systems and computers in the public service. These constitute important information and communication skills that are required in the workplace (van Jaarsveldt, 2010:181).

In terms of the results in Table 4-6-1, 24% of the respondents stated that they mainly use transversal systems (Persal/ BAS/ Walker/ ISS) to execute their unit’s operations. The next CIS on the list is GroupWise, which is used by 10% of the respondents followed by 6% who stated that they used both GroupWise and transversal systems, and 5% of the respondents stated that they use SLIMS as their main unit’s CIS.

- **Question 6.2: If the answer is Yes in question 5, please indicate whether they are Departmental D, Provincial P, or National N systems**

Table 4-6-2: Type of CIS

	Frequency	Percent
Departmental system	11	11.1
Provincial system	28	28.3
National system	21	21.2
Total	60	60.6
No computerised information system	39	39.4
Total	99	100.0

Table 4-6-2 is linked to Table 4-6-1 and reflects whether those systems identified in Table 4-6-1 are departmental/ provincial or national systems. About 28% of the respondents indicated that they are using the provincial system, followed by 21% who stated that it is the National system, the last being 11% who are using the departmental system. Question 6-2 was important to establish if the department is self-sufficient or not in terms of in-house systems development. The results clearly show that the department is not self-sufficient because in the main, it is using systems developed and hosted externally. Outsourced information technology services results in the companies saving the costs of in-house development at the expense of knowledge acquisition (Cuvar, 2015).

- **Question 6.3: If the answer is Yes in question 5, briefly describe what CIS is used for**

Table 4-6-3: Description of CIS

	Frequency	Percent
Valid	39	39.4
Accounting purposes	2	2.0
Backup system	1	1.0
Email system for sending and receiving emails	12	12.1
Email for sending and receiving emails and human resource administration	2	2.0
Email system for sending and receiving emails and library information management	1	1.0
Email system for sending and receiving emails and procurement of goods and services	4	4.0
Human resources administration	12	12.1
Human resources administration and procurement of goods and services	9	9.1
Library information management	6	6.1
Procurement of goods and services	5	5.1
Resolving bank exceptions and electronic mail system for sending and receiving mails	1	1.0
Risk register	1	1.0
Submission of pension documents to GPAA	1	1.0
Translation from source to language	1	1.0
Used for organogram of the department	1	1.0
Virus buffer and surfing internet	1	1.0
Total	99	100.0

From the respondents who have computerised Information System/s that they are using for execution of their duties, 12 of them indicated that they are using their identified system for sending and receiving emails. Another 12 stated that they are using their systems for human resources administration, while 9 respondents that indicated that they are using the systems for human resources administration and also for procuring goods and services; 6 respondents indicated that they are using their stated applications for library information management, closely followed by 5 who said that they are using their stated systems for the procurement of goods and services.

Ziemba and Oblak (2014) see the utilisation of Information Systems as an essential component of a government strategy to succeeding in a rapidly changing world. The

extent to which CATA Information Systems are changing the world needed to be established. Table 4-6-3 therefore reflects this extent by responding to questions as to what the systems that are mentioned in Table 4-6-1 are used for.

- **Question 7: If ICTs are available, please select the level of responsiveness of internet, emails and/ or systems below**

Table 4-7: Level of responsiveness of internet, emails and/ or systems

	Frequency	Percent
Slow	38	38.4
Normal	57	57.6
Fast	4	4.0
Total	99	100.0

Question 7 sought to establish the level of reliability/responsiveness of the available ICTs. As highlighted in Table 4-7, majority of the respondents (57) indicated that the level of responsiveness of the internet/emails and/or systems is normal, followed by 38 respondents who indicated that the response was slow. Only 4 of the respondents stated that the response level is fast.

It was important for the study to determine the level of responsiveness of the network that the respondents are using to access their systems on a regular basis because access to e-government services is dependent on the availability of personal computers and their connection to the internet (Durrant, cited in Mokhele & De Beer, n.d.).

- **Question 8: In your view, is CATA effectively using ICTs in their delivery of public services?**

Table 4-8 Level of respondents' content with effectiveness of ICTs in delivery of services

	Frequency	Percent
Strongly Agree	15	15.2
Agree	37	37.4
Not sure	12	12.1
Disagree	18	18.2
Strongly Disagree	17	17.2
Total	99	100.0

Question 8 sought to establish the views of the respondents in terms of whether CATA is effectively using ICTs to deliver its public services. This question was asked with a 5-

point Likert scale that allowed respondents to choose from the options: Strongly Agree/Agree/Not sure/Disagree and Strongly Disagree. According to the results displayed in Table 4-10, majority of the respondents (37) agreed that indeed CATA is effectively using ICTs in delivering its services. This is followed by 18 respondents who disagreed, followed by 17 who strongly disagreed with that sentiment. Fifteen (15) respondents strongly agreed and 12 were not sure.

Kuye and Naidoo (n.d.) stress the importance of defining the metrics that need to be used in order to measure the effectiveness of e-government. In this regard, the three critical metrics that are to be used are application and service relevance, citizen and business satisfaction, and preservation of trust.

- **Question 8.1: Please elaborate**

Table 4-8-1: Factors supporting effectiveness or ineffectiveness of ICTs

	Frequency	Percent
CATA is lagging behind as far as ICT is concerned	1	1.0
Clients are paid on time	2	2.0
Communication effective through utilisation of emails	12	12.1
departmental ICT only used for internal operations	3	3.0
Electronic access control is a problem	1	1.0
ICT levels hampers full delivery of systems	2	2.0
ICT only used for the sake of compliance	1	1.0
ICT strategy is at infancy stage	2	2.0
ICTs used effectively	15	15.2
Most of the operations are currently done manually	12	12.1
Most of the systems available are up to standard	3	3.0
Most of the time the system is faulty	1	1.0
Network slow and internet problems	7	7.1
No comment	16	16.2
No Wi-Fi installed in most public service stations	1	1.0
Not all information is shared through ICT	1	1.0
Not sure how effective is their webmaster	1	1.0
Only used for taking calls	1	1.0
Pension statements online and officials are paid on time	1	1.0
Persal effectively used for appointments and salary payments	1	1.0
Persal system should be enabled to capture claims and garnishees	1	1.0
Procurement of goods and services is well taken care of	2	2.0
Scanner to be made available to everyone	1	1.0
Social media platforms are not used effectively	1	1.0
The system used is very slow and sometimes the network is unavailable	1	1.0
There is a need for more staff to assist employees in districts and service points	1	1.0
There is need for additional systems for example archiving, heritage services, etc.	8	8.1
Total	99	100.0

In order for the question 8 to make better sense, a follow-up question was posed where the respondents were asked to further backup their choice by elaborating. There were many different responses to this question as can be seen by many single frequencies in table 4-8-1. The study, however, focuses on those responses that yielded more frequencies. Majority of the respondents (16) did not comment; 15 felt that ICTs are used effectively; 12 indicated that communication is effective through utilisation of emails; the other 12 respondents cited the fact that most of the departmental operations are done manually.

Eight (8) respondents that felt that there is a need for additional systems such as the ones for archiving and heritage and 7 respondents bemoaned the slow network and internet problems as reasons for not agreeing with the question.

ICTs can also be used to enhance inner efficiencies of the various arms of government like Legislature, Judiciary and Government Administration (Akula et al., 2014). It was, therefore, important to establish the respondents reasoning in relation to factors that support ICTs effectiveness or inefficiency.

- **Question 9: If the answer for the previous question is not in agreement, then what do you deem as the factors that prevent effective public service delivery through ICTs?**

Table 4-9: Factors that prevent effective public service delivery through ICTs

	Frequency	Percent
Budget constraints	2	2.0
Gaps exist between ICT and departmental management/ business	4	4.0
ICT is provincially centred and this hampers innovation	1	1.0
Insufficient ICT structure	11	11.1
Lack of access and control to other ICTs	3	3.0
Lack of relevant ICT tools(systems/ equipment/skills)	7	7.1
Lack of security coverage	1	1.0
Network/ bandwidth constraints	6	6.1
Not in agreement	61	61.6
Outdated website and resources	2	2.0
Slow and old systems	1	1.0
Total	99	100.0

As a follow-up to question 8, question 9 requested the respondents who did not agree with the view that CATA is effectively utilising ICTs in rendering of its public services to cite factors that they believe account for that. As reflected in Table 4-9, 11% of respondents indicated the main factor as insufficient ICT structure; they were followed by 7% who cited lack of relevant ICT tools ranging from systems to equipment and skills. Six per cent of the respondents believe that constraints that relate to network or bandwidth are the causes of non-effective utilisation of ICTs in delivery of CATA's public services and 4% attributed the cause to gaps that exist between ICT function and departmental management/ business.



In relation to the findings, the following gaps were identified as negatively affecting implementation of e-governance (Akula, 2014:520):

- *“Lack of proper understanding of capacity building requirements;*
  - *Lack of data on human resources requirements to support the state e-governance implementation;*
  - *Inappropriate skill set of personnel already appointed;*
  - *Policy gaps while sourcing from private sector;*
  - *Shortage of expertise and lack of skills within the state training institutions; and*
  - *Inappropriate standards, policy guidelines for e-governance.”*
- **Question 10: In your view, what needs to be improved in order for ICTs to further enhance execution of your official duties?**

Table 4-10: Things that need to be improved in order for ICTs to further enhance execution respondents' official duties

	Frequency	Percent
A controlled Wi-Fi to be installed	1	1.0
Allocate more budget to ICT	1	1.0
Better working relation between ICT and departmental business in order for ICT to enable departmental strategy	10	10.1
Implementation of new ICT systems/ solutions	26	26.3
Improve internet/ network speed in libraries	19	19.2
No comment	10	10.1
Procurement of resources to be effected on time	1	1.0
Prompt response and continued support	1	1.0
Provide advanced workshops to capacitate those still lagging behind	20	20.2
Review ICT structure	9	9.1
The department should be independent	1	1.0
Total	99	100.0

The last question requested the respondents to recommend what needs to be improved in order for ICTs to be used to further enhance the execution of their official duties. As reflected in Table 4-10, 26% of the respondents recommended implementation of new ICT systems/solutions; this is followed by 20% of the respondents who proposed provision of advanced workshops to capacitate departmental officials that are still lagging behind. About 19% of the respondents recommended improvement of the internet/network speed, while 10% felt that the situation can be altered for the better by better working relations between the departmental ICT and the CATA business so that

ICT can enable the departmental strategy. Lastly, 9% of the respondents recommended the reviewing of the departmental ICT structure.

According to van Jaarsveldt (2010: 175) citing SITA's 2008 annual report, shortage of IT skills in the public sector is highlighted as one of the major impediments in the South African public service. Consequently, the report recommended development of IT skills for public servants if government is to be transformed for the better. Also, in 2012, the then Minister of DPSA, Ms. Geraldine Frasier-Moleketi, supported that position by highlighting the need for acquiring new skills to develop the ability of using ICTs in improving public services.

#### **4.3 CONCLUSION**

This chapter focused on presenting the analysed results from data that were captured from the respondents. The results were presented in tables with each table reflecting responses from the various questions that were posed. What followed each table was the interpretation of the outputs from the table – in some instances those views enjoyed popular support from the respondents. The outcomes from the general respondents' responses established a clear link with the research objectives, the literature that has been reviewed and the initially identified research questions that the research sought to respond to.

As an example to establish that link, the responses from the questions that relate to what the information systems used in CATA are used for can be summarised as indicative of the fact that the available computerised information systems are mainly used for internal departmental support operations such as human resources administration/sending and receiving emails and procurement of goods and services referred to as e-administration by Ntetha and Mostert (2011) and Khan (2013). Only six respondents reflected that the system they are using is in relation to executing one of CATA's core mandates which is libraries information management. Kupe and Okello (2012) highlighted that ICTs are not supposed to only be limited for use by governments to improve service delivery, but also need to be utilised by both the government and citizens alike to monitor service delivery, as well as to enhance transparency and accountability. This is the ideal role that needs to be played by ICTs in CATA.

This chapter succeeded in making sense of what the responses from the various respondents were and this has created a proper platform for chapter 5, which discusses the findings in detail.

## **CHAPTER 5**

### **DISCUSSION, CONCLUSION, SUMMARY AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This last chapter of the study is a culmination of the entire work from the initial chapter that was, in essence, about what the study aimed to accomplish, to the theoretical background as covered in the literature review, up to the chapter on data analysis and interpretation. The chapter discusses the findings that came out from the analysed participants' responses, draws conclusions as well as recommendations, and the identified areas for future research.

The discussion of the findings is guided by the research questions, their related findings from Chapter 4 and their relevant literature in terms of lessons that can be learned from what has been researched in relation to a particular point in the study. This has assisted in drawing linkages between theory in terms of the literature review and practice in relation to the research findings.

#### **5.2 DISCUSSION**

The main aim of the study was to establish the extent to which the Department of CATA in the North West province is utilising ICTs to enable the rendering of its public services. In an attempt to ascertain the status of CATA's use of ICTs and fulfil the aim of the study, the research questions needed to be responded to. The following sub-sections re-visit the research findings in relation to the research questions outlined and also reflect on the literature that was covered in relation to the respective research questions. The discussions assisted the study in coming up with well-informed recommendations and conclusion.

### **5.2.1 How are ICTs utilised in CATA?**

From the research findings it can be deduced that mainly ICTs in CATA are used for basic office duties like word processing, sending and receiving emails. This usage is followed by transversal systems (Persal/Walker/BAS/ISS) that are used for human resources administration and procurement of goods and services – which are all not departmental systems as they are mainly Provincial and National systems. The computerised information systems that have just been mentioned are used by the departmental support function: Administrative Support and Finance directorates for human resources and financial services of the department. From the findings, it became clear that there is only one computerised system in the form of SLIMS that is utilised to support one of the core functions of the department: library services.

The above is indicative of the fact that even though ICTs are used in the CATA, in the main, they are utilised for internal administrative functions and the computerised information systems are utilised by the department's support functions which, to a limited extent, are used for executing the department's core mandate. This finding is similar to the one from the study conducted by Ntetha and Mostert (2011), which found that in the three government departments researched, ICTs were used more for internal departmental activities than for service delivery. The usage of ICTs in the CATA can, therefore, be classified in the main as e-administration (for internal departmental activities) and not e-service (for delivery of services to the public) as observed in the literature (Ntetha & Mostert, 2011; Khan, 2013).

From the five goals of e-governance that were identified by the Department of Public Service and Administration Mphidi (n.d.:8), it is clear that the one in which the department is doing well has to do with improvement of internal organisational processes of government through its utilisation of financial, human resources administration and electronic mail systems. With regard to the other goals that deal with delivery of services to the public and enforcement of public participation, CATA seems to be found wanting.

The reasons ICTs in the department are utilised more for internal departmental activities may be because of:

- Shortage of relevant IT skills that would lead to transformed public services as highlighted in SITA's 2008 annual report, which recommended the development

of IT skills for public servants if government is to be transformed for the better (van Jaarsveldt, 2010:175);

- Insufficient computer literacy by office managers leading to inability to provide the necessary guidance and leadership with regard to optimal adoption and utilisation of ICTs (Ntetha & Mostert, 2011).

If management is knowledgeable of the benefits that can be realised through ICTs, it would make sure that there are relevant ICT skills in the organisation's setup that would ensure that relevant ICT tools are available to enhance e-services. Rose and Grant (cited in Ziemba and Oblak, 2014) are of the view that successful implementation of Information Systems in the public service means far more than just technology. It requires sufficient attention to policy, processes, structure, laws and regulation. In order for these proper institutional arrangements to be in place, departmental leadership needs to play a central role.

### **5.2.2 Are ICTs used more to enhance the department's service delivery?**

The deliberations of the previous research question reflect that in the Department of CATA, ICTs are used more for internal administrative operational efficiency/e-administration. This, according to a study by Khan (2013) in the Polk Country's state, is one of the three dimensions of e-government which is e-administration that is mainly about internal operations. The other two dimensions that are not adequately covered by CATA's use of ICTs are e-democracy (connectivity with constituencies) and e-services (electronic service rendering). Therefore, in responding to the above research question, it is clear that from the findings ICTs are not used more to enhance the department's service delivery mandate.

If ICTs in the CATA were used more to enhance departmental service delivery then all the three e-government dimensions could have been equally covered, particularly those for e-democracy and e-services. It is unfortunate that these findings support those from the study by Kupe and Okello (2012) broadly on African governments, as well as the Auditor General's report (The DPSA, 2012:3) for the audit conducted in the 2008/9 and 2009/10 financial years, specifically in South Africa's public institutions. Both the study and the AG's report found that little progress was registered for advancement in e-governance in the public service setup.

The AG's report recommended the development of a government-wide ICT governance framework that would assist in the implementation of a national ICT strategy together with the need to have a clear definition of roles and responsibilities of ICT governance towards adequate enablement of public services by ICTs (The DPSA, 2012:3). According to the findings, not much has been done in the Department of CATA to implement the AG's recommendations and get the correct institutional arrangements for proper ICT governance in place and therefore there is a significant need for this to be fast-tracked if the CATA is to realise full value that can be brought about by ICTs to its service delivery mandate.

A relevant example that can be made to reflect how effective e-service relevant to the Department of CATA can be done is covered in the literature about the European Union funded initiative called Learning Museum. This initiative's main aim is to create a permanent network of museums and cultural heritage organisations around Europe. After the collection of their materials/ artworks, these organisations share it amongst themselves by loading it on the website making it easily accessible to everyone (Sani, 2010). With this approach, museums and cultural heritage material will be easily accessible to the general public should they have access to the internet. This is one initiative that can be made practical for the department for which the study is conducted.

### **5.2.3 What is the knowledge level of ICTs among CATA workforce?**

The majority of the CATA workforce is conversant with basic ICT skills that include using a computer to create documents, and sending and receiving emails. A number of the officials are also able to use the various transversal systems that are there to perform official administrative support duties like procurement of goods and services and human resources administration. It is also apparent that few of the officials are able to use a system that is related to one of the department's core mandates which is library services. This indicates that CATA officials are able to use computers for a variety of functions. Be that as it may, there is still a strong view from the participants that advanced computer workshops must be conducted for those officials that are still lagging behind.

From the responses it also became clear that, in the main, the Department of CATA uses either provincial and/ or national systems, even though there was a number of participants that indicated that they were using departmental systems, from the follow-

up questions, it was not clarified what those systems were. It is, therefore, possible that those participants did not understand the question correctly. This, therefore, points to the fact that there are currently no departmental systems that are developed internally by the CATA, essentially making it generally the systems end-users and not developers. This might be because of lack of relevant ICT skills for developing systems or because of lack of the relevant ICT unit for executing that purpose. This is supported by the findings that cited insufficient ICT organogram as one of the main causes of ICTs not being able to assist in the delivery of public services for the CATA.

Inadequate ICT organogram points to the shortage of relevant ICT skills that would assist in the delivery of CATA services. SITA's 2008 annual report identified the shortage of ICT skills in the public service domain as one of the main inhibitors to ICTs playing a meaningful role in the delivery of public services. This report correctly recommends the development of relevant IT skills for public servants if government is to be transformed for the better (van Jaarsveldt, 2010:175). In order for an organisation to have a sustainable competitive advantage in today's marketplace, it has to prioritize keeping its employees educated so that they are able to respond to future challenges (Kennedy & Daim, 2010:469). This education will need to be on relevant IT skills that are able to drive the government's transformation agenda.

As far as the literature is concerned, much emphasis was placed on correct institutional arrangements that must be put in place if the full value of ICTs was to be realised. Correct institutional arrangements relating to relevant policies, structures and other relevant tools if correctly implemented, will ensure that ICTs are able to play the important role that they are supposed to play. In the case of CATA this means assisting in the delivery of its public services. In terms of the findings, there seems to be lack of correct institutional arrangements in the department. This point is justified by reasons such as inadequate ICT organogram, lack of relevant ICT tools (systems/ skills/ equipment), and gaps that exist between ICT and departmental business attributed to as the causes for ICT's non-delivery of CATA services. A gap that exists between ICT and departmental business means that there is no strategic alignment between CATA business and its ICT. The findings from the study by Alshawi and Alalwani (2009) found that issues that hamper alignment between business and IT have a lot to do with social issues like weak business/IT relationship, poor communication between the two, and

limited knowledge of each other's area of work. This situation therefore needs to be corrected.

The gaps that were cited by Akula et al. (2014) as negatively affecting the implementation of e-governance constitute the main echo of the responses from the respondents regarding the causes for ineffective ICTs in the CATA. The main issues that were raised are, more or less, related to the inadequate capacity within the departmental ICT unit and lack of proper understanding by management of what capacity needs to be developed in order for the department to succeed in effectively implementing e-government services. More often the barriers of business/IT alignment are found on the social side such as: weak business/IT relationship, poor communication, limited knowledge from business of IT and vice versa, lack of leadership and culture (Alaceva & Rusu, 2014).

As far as the study by Ntetha and Mostert (2011) is concerned, managers of offices are very often not ICT literate and, as a result, they are not able to provide the necessary guidance and leadership in terms of optimal adoption and utilisation of ICTs. Their study recommended government to conduct a resource and capacity audit in all the offices, and the results of this audit would assist in accurately assessing the status of ICT tools that are available and the level of skills of the officials that are expected to use these tools. The results from such an audit will give a clear picture of what ICT tools and skills the department currently has versus the ideal situation – leading to informed planning and the way forward.

The findings from the responses generally point to the fact that not much has been done in the CATA to implement the DPSA's Corporate Governance of ICT Framework (CGICTPF) that was developed for implementation by public institutions back in 2012. This framework was developed in order to ensure that the South African public service has correct institutional arrangements in place for effective e-government. With correct institutional arrangements in place, there will ideally be adequate ICT organogram, relevant ICT tools in place, synergy between ICT and departmental business - leading to strategic alignment between IT and business. All these will result in more value being added by ICTs towards effective delivery of departmental services.

According to Saxena and Sharma (2012), in order for ICTs to be successfully applied to the processes of government, not only technology needs to be transformed, but also



what is equally important is transformation of the mind-set of those who have been controlling public service delivery for some time. Their study recommended strong will, particularly at higher political and administrative levels of government, in order for e-government initiatives to become successful. This same sentiment is highlighted in the DPSA's CGICTPF that states that important IT decisions need not be delegated to technologists, but rather to senior political and managerial leadership of government (The DPSA, 2012). If there is this type of development then e-government in CATA will see the light of the day.

#### **5.2.4 What is the level of availability and reliability of ICTs?**

According to the findings, there seems to be adequate availability of basic ICTs such as computers, network, basic software programmes and transversal systems for the relevant officials. This means that for internal administrative efficiency, ICTs are available and reliable. This is also supported by majority of the participants indicating that they are using computers for executing basic official functions followed by those officials that are mainly using their computers for administrative and financial support services.

As far as Mbatha and Lesame (2013) are concerned, from the study they conducted in a number of government departments, it became clear that the availability of the ICT tools does not always amount to effective utilisation of ICTs to deliver the necessary public services. This is because from their findings, ICTs were, in the main, utilised in ways similar to the way that they are utilised in CATA for internal administrative efficiency, rather than for delivery of services.

In supporting the previous point, from the findings, one of the observations was that majority of the departmental operations were done manually, indicating that most of the respondents' acknowledge that there is the need for implementation of additional ICT systems that would add value mostly in the fields that the department specialises such as Archiving/ Heritage. Bettering the network/ internet connectivity speed in community libraries is one of the other suggestions, reflecting that to a certain extent, the network speed in public access areas is not optimal– these are adequately captured where participants were requested to give suggestions in altering the situation for the better. Trimi and Sheng (2008) identified the two challenges that hamper wide adoption and implementation of e-government as:

1. Inadequate technological infrastructure that has to be built by government in order to support transformation to e-government; and
2. The existence of unequal access to the e-government services due to the digital divide that exists demographically, economically, and socially diverse groups of the population within a country and also among different countries.

Since the literature bemoans inadequate government's technological infrastructure that was essentially not built to support e-government, mobile technology is the broadly supported alternative as it is moving away from fixed line connectivity that is limited to a more equitable wireless and mobile technology to deliver government services Khan (2013), Akula, Narasimha and Chandrashekar (2014), Trimi and Sheng (2008). M-government has the potential to cover substantial scope when delivering government services to the rural poor (Akula et al., 2014:521). This will come in handy for most of the areas where community libraries are located in the province that are with poor or no network infrastructure at all.

### **5.3 CONCLUSION**

This study was successful in establishing the extent to which ICTs are utilised in the department of CATA. CATA does have ICTs in place, however, these are not used more to deliver the department's services, but rather for internal departmental processes. The reason for this development is non-coherence between the departmental business and ICT, meaning that CATA business is doing its own business and is not enabled by ICT in order for it to be more effective. The study revealed that much needs to be done in order for ICTs to play a more meaningful role in enabling the department's business and not to be used only for internal administration functions.

The key recommendations are that departmental senior management must be adequately capacitated in order for them to be able to lead the e-government transformation agenda and for proper institutional arrangements to be put in place. Already, to the benefit of the department, there is an ICT governance framework that has been developed by the DPSA and adopted by cabinet in 2012 which, if correctly implemented, will lead to proper institutional arrangements for effective e-government. Proper institutional arrangements will not be possible if there is no senior departmental political and managerial leadership buy-in and active participation. This makes capacitation of extreme importance.

## **5.4 RECOMMENDATIONS**

### **5.4.1 Capacitation of senior management**

Looking at these findings, the main issue that comes out is lack of capacity within the department to deliver value through ICTs. This is because of the inadequate ICT systems leading to recommendation of advanced workshops, non-alignment of departmental business and IT, and inadequate ICT structure. Lack of capacity is not only at the level of the technical people but also departmental senior management. As indicated in the literature (Ntetha & Mostert, 2011), it is important for managerial leadership of government to have adequate knowledge of the benefits that can be brought about by ICTs because they are the ones that are central to drive the ICT transformation agenda. The study therefore recommends that CATA senior managers go for training or advanced workshop that will be appropriate to enlighten them on the benefits that can be brought about by ICTs. After being enlightened from the advanced workshops, they will be in a much better position to spearhead the ICT transformation agenda.

### **5.4.2 Proper institutional arrangements for e-governance**

With CATA senior leadership capacitated, the next recommendation is for CATA to have proper institutional arrangements in place for e-governance. DPSA describes proper institutional arrangements as The DPSA describes a better institutional arrangement as the effective and efficient management of IT resources so that they are able to facilitate the achievement of the government's strategic objectives (The DPSA, 2012). To this end, the DPSA has developed an ICT governance framework for public service that will need to be implemented by the department in order to have relevant institutional arrangements in place. Proper institutional arrangements will lead to the development of an ICT strategy that is aligned to the departmental business. This strategy will ideally outline the departmental service delivery priorities and link them with relevant ICT solutions.

### **5.4.3 Review of the ICT organogram and building capacity of the workforce**

With proper institutional arrangements in place, there will be a need to conduct thorough auditing of the department's internal capabilities in relation to ICT tools and skills versus what ideal ICT tools and skills are required as informed by the developed ICT strategy

in order to have more effective ICTs. The results of this assessment will assist the department in terms of reviewing the current departmental ICT organogram and incorporating in it the positions with skills that are necessary but are lacking. This exercise will also help to explore how the departmental workforce can better be capacitated in order to meet future requirements. This recommendation was long supported by SITA's annual report of 2008 that highlighted one of the major impediments in the South African public service as shortage of ICT skills. This report therefore recommends development of IT skills for public servants if government is to be transformed for the better (van Jaarsveldt, 2010:175). The output of this exercise will help the CATA to have a number of departmental IT solutions that are developed internally in the future.

## **5.5 LIMITATIONS OF THE STUDY**

The following are the identified limitations of the study:

- Due to time constraints the study was only focussed on officials that are based at head office while the department has presence across the province. The perspectives from the officials in the far flung areas were not sourced making the study biased towards the head office;
- The study was not able to establish the official level at which the departmental governance of IT is. The assumption is that it is either poor or non-existent;
- Even though respondents indicated their level of responsibility, the study was not able to directly draw distinction between the views of different managerial levels;
- The study was also not able to establish the level of education of the participants in relation to IT related courses whether basic or advanced. This information would have assisted to determine the gaps and assist the study to come up with more informed recommendations.

## **5.6 AREAS FOR FUTURE RESEARCH**

The following areas have been identified for future research

- The extent to which DPSA's Corporate Governance of ICT Policy Framework is implemented in public institutions for effective IT governance;

- The extent to which State Information Technology Agency is able to meet its set objectives;
- Skills that are relevant to capacitate senior management on the benefits of e-governance;

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## **APPENDIX A - QUESTIONNAIRE**

### **Questionnaire introductory letter**

#### **Research Topic: Knowledge and use of Information & Communication Technology (ICT) in the Provincial department of Culture, Arts & Traditional Affairs (CATA)**

Good day,

Thank you for taking time to complete this questionnaire. My name is Mokete Patrick Kolojane (Mr.) and I am studying towards completion of Master of Business Administration (MBA) degree with the North West University (Mahikeng campus). As part of the requirements to completing this degree, I am required to conduct a research project in relation to any organisation in any area of interest. In this regard my organisation of choice is CATA and area of interest is ICT.

The aim of this study is to examine the level of knowledge and usage of Information and Communications Technologies (ICTs) in the department of Culture, Arts and Traditional Affairs (CATA) in its operations and rendering of public services. The information that is gathered will assist in coming up with a true picture of ICT usage in the department, this information will also assist the study in recommending on how best the ICTs can be used to better CATA service delivery and operations.

The study needs your participation since as the employee of CATA you are best positioned to can respond to the questions that are posed in relation to your day-to-day official duties. This questionnaire is comprised of 10 questions that may take at most 20 minutes of your valuable time to complete.

Your confidentiality will not be compromised as participants are not required to identify themselves in any way other than just by stating their level of responsibility. Your responses will not in any way lead to punitive measures against you, therefore your honest responses are extremely important to the study.

In case you seek clarity on any of the questions please don't hesitate to contact the researcher on (018)388 2751 (office) or 0735062175 (mobile).

**Please respond by ticking on the appropriate box with X**

1. Participant's level of responsibility in the department:

Senior Manager (Salary level 13-15)	
Middle Manager (Salary level 9-12)	
Operational Staff (Salary level below 9)	

2. What is your knowledge level of ICTs?

Do not use a computer for performing official duties	
Use a computer mainly for basic official duties (developing documents, emails, printing, scanning, etc.)	
Use a computer mainly for advanced official duties (work-related systems e.g. Persal/ BAS/ Walker/ SLIMS/ etc.)	
Use a computer mainly to develop work-related systems	
Other, please specify:	

3. Do you have all the necessary ICTs to enable you in executing your duties? [**Yes**] or [**No**]

4. If the response for the above is **No**, please select those ICTs that you do not have that are necessary for your duties:

Computer	
Printer	
Scanner	
Internet	
Email	
ICT system/ software application	
Other	Please specify:

5. Are there Computerised Information Systems utilised in your unit to enhance your operations? [**Yes**] or [**No**]

6. If the answer is **Yes** for the question above, please state the name of the software application/s, whether they are Departmental **D**, Provincial **P**, or National **N** systems and then briefly describe what they are used for:

Name of software application	D/ P/ N	Briefly describe what this application is used for


7. If ICTs are available, please select the level of responsiveness of internet, emails and/ or systems below:

Slow	
Normal	
Fast	

8. In your view, is CATA effectively using ICTs in their delivery of public services?

Strongly Agree		Agree		Not Sure		Disagree		Strongly Disagree	
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Please elaborate below:

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9. If the answer for the previous question is not in agreement, then what do you deem as the factors that prevent effective public service delivery through ICTs?

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10. In your view, what needs to be improved in order for ICTs to further enhance execution of your official duties?

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**Thank you very much for your time and valuable contribution**