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Effectiveness of Rwanda Integrated Electronic Case Management System (IECMS) in Rural Areas: A case study of Nyaruguru District

By

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Dedication

I wholeheartedly dedicate this work to my beloved Dad Francois and Mum Thacienne whose unwavering love, support, and guidance have been the driving force behind my academic journey. Their belief in me, encouragement, and sacrifices have shaped me into the person I am today. Their constant presence, unwavering faith, and invaluable lessons have given me the strength and determination to overcome challenges and pursue my dreams. This work is a humble token of my deep gratitude for their unconditional love and unwavering support throughout my academic endeavors. Without them, this achievement would not have been possible, and I am forever grateful for their immense contributions to my personal and academic growth.

- ***Jean Leon Nduwimana***

Declaration

I, **Jean Leon Nduwimana** hereby declare that this thesis research entitled "**Effectiveness of Rwanda Integrated Electronic Case Management System (IECMS) in Rural Areas: A case study of Nyaruguru District** " presented for the purpose of fulfilment of the requirement for the award of Masters of science in information systems, Option of e-Government submitted to the University of Rwanda school of Information and communication Technology is an original work under the supervision of Dr. Christine Niyizamwiyitira, Dr. Emmy Mugisha and Ass. Prof. Rehema Baguma, PhD. No part of this thesis has been previously submitted by me or anyone for the award of any other degree of any university or institution.

List of Acronym

Dr.: Doctor

ECCMIS: Electronic Court Case Management Information System.

E-Government: Electronic Government

FAO: Food and Agriculture Organization

ICT: Information and Communication Technology

IECMS: Integrated Electronic Case Management

ILO: International Labour Organization

IremboGov Agent: Irembo Government Agents

JRLOS: Justice, Reconciliation, Law and Order Sector

MAJ: Maison d'Accès à la Justice (MAJ)/Access to Justice Bureau

MINICT: Ministry of ICT

MINIJUST: Ministry of Justice

NISR: National Institute of Statistics of Rwanda

PhD: Doctor of Philosophy

RDB: Rwanda Development Board

RuTAM: Rural Technology Acceptance Model

SDG: Sustainable Development Goals

TAM: Technology Acceptance Model

UN: United Nations

USA CM/ECF: USA Case Management /Electronic Case Filing

USA: United States of America

USSD: Unstructured Supplementary Service Data

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ABSTRACT

The study examines the effectiveness of the Rwanda Integrated Electronic Case Management System (IECMS) in rural areas, with a focus on the Nyaruguru District. The research investigates the access to justice services provided by IECMS and explores the challenges faced in rural communities. A mixed-method approach is employed, combining quantitative and qualitative research methods to gain comprehensive insights of the study

The literature review establishes the context by defining e-Government and e-Services in Rwanda, as well as examining case management systems in other countries such as the USA, Kenya, Uganda, and Indonesia. The Technology Acceptance Model (TAM) is adopted as a conceptual framework to evaluate user acceptance and attitudes towards the IECMS.

The findings and analysis section includes demographic information of the participants, including district ICT personnel, Abunzi (local mediators representatives), certified IECMS trainees, IremboGov agents, judge, registrar, and residents of Nyaruguru District. The discussion revolves around the various domains of the IECMS, highlighting its advantages, challenges, effectiveness, and system impacts.

At the end, the study reveals the importance of the IECMS in improving access to justice services in rural areas. It highlights the significance of addressing challenges such as ICT literacy and infrastructure limitations. Recommendations are provided to enhance the system's effectiveness, including continuous training for district personnel, improving accessibility, and simplifying the system's complexity. However, the study acknowledges limitations, such as the limited representation of certain demographic groups and the need for further validation of the proposed model.

The study contributes to the ongoing digital transformation of Rwanda's justice system and provides insights for policymakers and stakeholders to enhance the effectiveness of the IECMS in rural areas.

CHAPTER 1: INTRODUCTION

1.1 Overview

Rwanda is a country with high ambitions regarding Information and Communication Technology (ICT) and e-government is one of the priority areas, where ICTs is supposed to facilitate access to information and services to make Rwanda a dynamic and knowledge-based economy [1]. With this approach, Rwanda continues to be the fastest-growing African country in several ICT sectors, including e-services [2]. Terezia et al define e-service as services over ICTs. E-service has many applications in many disciplines, but the dominant applications are E-business (or e-commerce) and E-government (or non-commerce) [3]. Philip R. et al [4]shows that the emergence and increasing prevalence of electronic commerce has played a part in the transition to online government services. Businesses started enabling their clients to carry out transactions using the Internet, including handling payments, transferring money, managing accounts, and granting access to buy goods. While e-government services define an area in the public sector, as well as the institutions, people, and processes that operate within the government area, that are usually presented as the use of ICT to provide easy access to government information and services to citizens and businesses. E-government increases the quality of services, by increasing speed, completeness, and process efficiency; and provides citizens with the opportunity to participate in different kinds of democratic processes [5].

In Rwanda, an effort has been made to invest in network infrastructures and online government services. This has got more citizens online and accessing essential e-services, particularly e-governments. Like in many other domains, Rwanda has created an online e-justice platform called Rwanda Integrated Electronic Case Management System (IECMS). IECMS was developed to improve Judicial Service Delivery by reducing delays and transaction costs associated with judicial case processing through the whole justice chain [6] .

Rwanda’s initiatives to decentralize legal aid services are remarkable [7]. The initiative to decentralize access to Justice Bureaus known as MAJ at every district level where three lawyers assist citizens to access legal service support [8] has blessed many civil litigants (citizens). This initiative involves moving legal services away from the centralized capital, Kigali, to the rest of the country. This is part of the government of Rwanda's broader efforts to increase access to justice. For example, the Maison pour Accès de la Justice (MAJ) initiative was established in 2014 by the

Prime Minister's order [9] to provide public legal aid and promote good governance at the grassroots level through the deployment of MAJ coordinators and assistants in each of Rwanda's 30 districts, as well as a legal Aid Forum (LAF) providing legal assistance and representation [9] [10]

The access to Justice in Rwanda has already been extended to community justice mechanisms, known as Abunzi since 2016, these are local courts made up of elected community members who are trained to resolve minor disputes and conflicts at cell and sector levels [11]. The Abunzi are intended to complement the formal justice system and provide a more accessible and affordable alternative for resolving disputes [12]. To support these initiatives, Rwanda also introduced several legal reforms aimed at strengthening the justice sector, the measures involve creating a new legal framework and aid fund for legal assistance, along with a revised legal education curriculum at ILPD (Institute of Legal Practice and Development) that emphasizes practical skills for legal practitioners, judicial officers, prosecutors, and legislative drafters with a focus on community engagement [10] [13].

Furthermore, the strategies and efforts for easing access to justice and use of the e-justice system countrywide, indicates that the Rwandan population continues to understand the use of e-government services as time goes by, compared to the previous years when the E-government services were initiated. In the 2022 Rwanda Governance Scorecard (RGS), citizen satisfaction with online submission and filing of cases in courts scored 76.10. % out of 73.79% for all services delivery through ICT [14]. However, there is still a gap in the accessibility and use of these e-services by rural people due to the low level of ICT literacy and weak infrastructure related to ICT and internet in rural areas [10].

1.2 Background

Over the years, the world has faced injustice and conflicts that may bring people, organizations, or groups to seek legal services and assistance. Every country can determine the way by which it can deliver justice services to ensure the wellbeing of its citizens including use of ICT for more efficient and quality public administration [15].

Rwanda has put an effort in network infrastructure investments like optic cable and 4G coverage countrywide at great scale [16] and online government services, which has made it possible for more citizens to go online and access essential e-services, particularly e-government services [17]. For example according to itu.int [18], Rwanda "Irembo" the e-government portal (https://www.irembo.gov.rw)" that delivers to citizens e-services hosts over 98 public services since July 2020 [19].

In 2022,the internet subscriptions per hundred inhabitants in Rwanda stood at 60.6% according to the Rwanda Utility and Regulation Authority (RURA) report [20] , while according to the Datareportal.com, in January 2022 [21], the number of social media users in Rwanda was equivalent to 6.9% of the total population. On the other hand, the number of mobile connections in January 2022 was equivalent to 78.7% of the total population [21]. This shows a high increase in the use of the internet and mobile devices in recent decades, which translates to more accessibility of Rwanda's e-government services countrywide.

1.2.1. The use of IECMS in Rwanda

IECMS was developed hand in hand with Rwandan Judicial staff to make sure that the development reflected the Rwanda context namely: procedural laws and regulations, court organizational setup, and roles of all stakeholders in the whole judicial process [22]. The primary objective of the IECMS is to enhance the quality of judicial service delivery by decreasing delays and expenses, providing advantages to both litigants and the justice system [10].

Its use in Rwanda has improved the quality and efficiency of legal services generally, and the country can serve as a model for other African countries that are seeking to implement similar systems to improve their legal systems, as for example since the deployment of IECMS, there has been a remarkable ease communication, generating real-time report and file transfer between courts, this technology integration and innovation lead to the golden award of AAPAM(African Association for Public Administration and Management) [23, 24]. However, continued investment

in the system and addressing the challenges that come with its implementation are critical to ensure its long-term success.

The Minister of ICT and innovation Honorable Paula Ingabire's message in the international conference on case Management System themed "The role of case management system for justice system integration, performance and country development", hosted by Rwanda, from June 11 to June 13, 2019 [24]. Stated to:

"Embrace the use of ICT in justice service delivery as it has proven to contribute to the country's development through speeding up court cases, increasing quality of court decisions, reducing corruption and saving citizens' time and money previously wasted while following up on the court case physically and rather invest it in other developmental work. She mentioned that there is no "One size fits all" solution in IT and hence called upon participating countries to continue learning from each other for future developments in case management system. [24]*".*

In terms of system accessibility, the platform is accessible from any device. Litigants can also track the status of their cases, pay the court fees and file pleadings and other documents online, with the ability to add new evidence after the initial filing which previously required them to come to court.

1.2.2. Motivation

The findings on ICT for Justice, reported by the Legal Aid Forum in 2017, pointed out a number of areas in need of improvement where for example citizens may wait for 454 days on average for a case to be resolved. This is an average of 8 months for a judgment to be enforced by a professional or non-professional bailiff [25]. And according to Maame Efua et al. [26], the E-justice system offers crosscutting benefits for all the users of the system who are the litigants, judges, lawyers, prosecutors, court workers and other judicial staff.

Nyaruguru District which is located in the Southern Province of Rwanda, is one of the most rural and remote areas in the country. The district is home to approximately 318,126 people [27] and covers an area of 1010 square kilometers [28]. With a population density of 409 people per square kilometer [27], The district is divided into 14 sectors and sparsely populated, and its inhabitants are predominantly engaged in subsistence agriculture [29].

In recent years, like any other district of Rwanda, the district has taken steps to improve access to justice for its citizens through the modernization of the Justice sector by using ICT [30]. This was possible through ICT literacy and awareness campaign. The MINICT permanent Secretary, Mbabazi Rose Mary, in 2014, motivated the Nyaruguru citizens by stressing "*Using ICT enables you to easily access a variety service without difficulty. It is in this regard that we all have to be passionate about technology in our daily activities*" pointing out that ICT is as vital as water and Electricity. The author in [31] pinpoints, the use of ICTs in the judicial process enables quick service delivery, highly desirable in a digital society [32].

However, access to the IECMS in the district is still limited because citizens or litigants still have go through trained persons from Rwanda Ministry of Justice [33] or the IremboGov the e-government platform agents. These agents help citizens to register on the system, and to monitor the progress of their cases.

The IECMS accessibility in the district, as quoted by the Kibeho Tribunal court registrar Faustin Ngirimana in a conversation: "*The citizens residing in other sectors of the district find it harder to access the IECMS as they first travel to their neighbor sectors, except the IremboGov agents who are active to provide access to the IECMS system from sectors of Kibeho, Ruheru, Munini, and Busanze*". In addition, "there is lack of a law firm within the district means that citizens who require legal assistance must travel to neighboring districts like Huye and Nyamagabe to access legal services" He added. This can be costly and inconvenient for citizens, particularly those living in remote areas.

Another challenge that the district faces is the low levels of ICT literacy among citizens. Many citizens do not have the necessary knowledge and skills to effectively use the IECMS and other digital tools because in 2018, statistics proved that digital literacy was at 40% and computer literacy among the population aged above 15 years, at 3.6% [34]. Considering those explained challenges related to the IECMS accessibilities, that's where the motivation to assess the system effectiveness in rural areas, so that we can contribute to the digital transformation of the country while proposing a solution to facilitate Rwanda rural areas. As the country the model itself which has made a significant paradigm shift from the classic way of instituting lawsuits as well as making submissions of cases without being physically present at the seat of the Court [35].

1.3 Problem Statement

The use of IECMS in rural areas of Rwanda is a promising approach to improve access to justice services, but its effectiveness in addressing the challenges faced by rural communities remains low. According to the 2019 Rwanda Governance Scorecard [36] which measures public satisfaction with government services, citizens gave a score of 40.70% for satisfaction with online case submission and filing in courts. However, this score is lower compared to the overall score of 80.23% for the use of ICT in justice services. The low rating is due to low ICT literacy among the general population and insufficient ICT infrastructure such as electricity and internet access, particularly in rural areas [36].

The use of ICT in the delivery of government services is still facing some challenges in the rural areas of Rwanda [37]. Key challenges include lack of necessary infrastructure in rural areas like reliable internet connectivity and low ICT literacy [38]. Due to these challenges, IECMS is not yet as helpful to justice seekers in rural areas as it should. In the traditional justice system, most justice seekers still spend lengthy periods of time waiting for their cases to be resolved, in some cases they spend four or more months [39].

1.3.1. Research problem orientation

Nyaruguru District, the case study of this research is among the districts of Rwanda with a big part of rural areas, except Kibeho Sector that is urbanized at 27.6 %. Only 0.2 % of the whole district population is in urban areas [40].

This research study assesses the effectiveness of the IECMS in Nyaruguru District, the challenges faced by the residents in accessing the system, and recommend solutions that can improve the effectiveness and use of the System in Nyaruguru District and other rural areas in Rwanda.

1.4. Study Objectives

1.4.1 General Objective

The general objective of the study is to examine how Rwanda's Integrated Electronic Case Management System (IECMS) can be made more effective in rural areas in the country like Nyaruguru District.

1.4.1.1. Specific Objectives

The specific objectives of the study are:

1. To examine the extent to which residents of Nyaruguru District are satisfied with IECMS
2. To explore ways and effectiveness of IECMS in rural areas like Nyaruguru District community can be improved.
3. To develop a model that can make IECMS more easily accessible to residents of Nyaruguru District.

1.4.1.2. Research questions

Based on the specific objectives, the main research question is "*What is the effectiveness of Rwanda Integrated Electronic Case Management System (IECMS) in improving access to justice services for rural communities in Nyaruguru District, Rwanda?*" this main research is operationalized by the following questions to clarify the concerns of the studies, based on the three objectives:

Question 1: What is the level of satisfaction among residents of Nyaruguru District with the IECMS?

Question 2: How can be made the effectiveness of IECMS for rural communities in Rwanda such as the Nyaruguru District Community?

Question 3: What practical strategies or interventions can be implemented to improve the accessibility of the IECMS for residents in Nyaruguru District, based on related models or best practices?

The research objectives and questions can be mapped as shown in the below diagram:

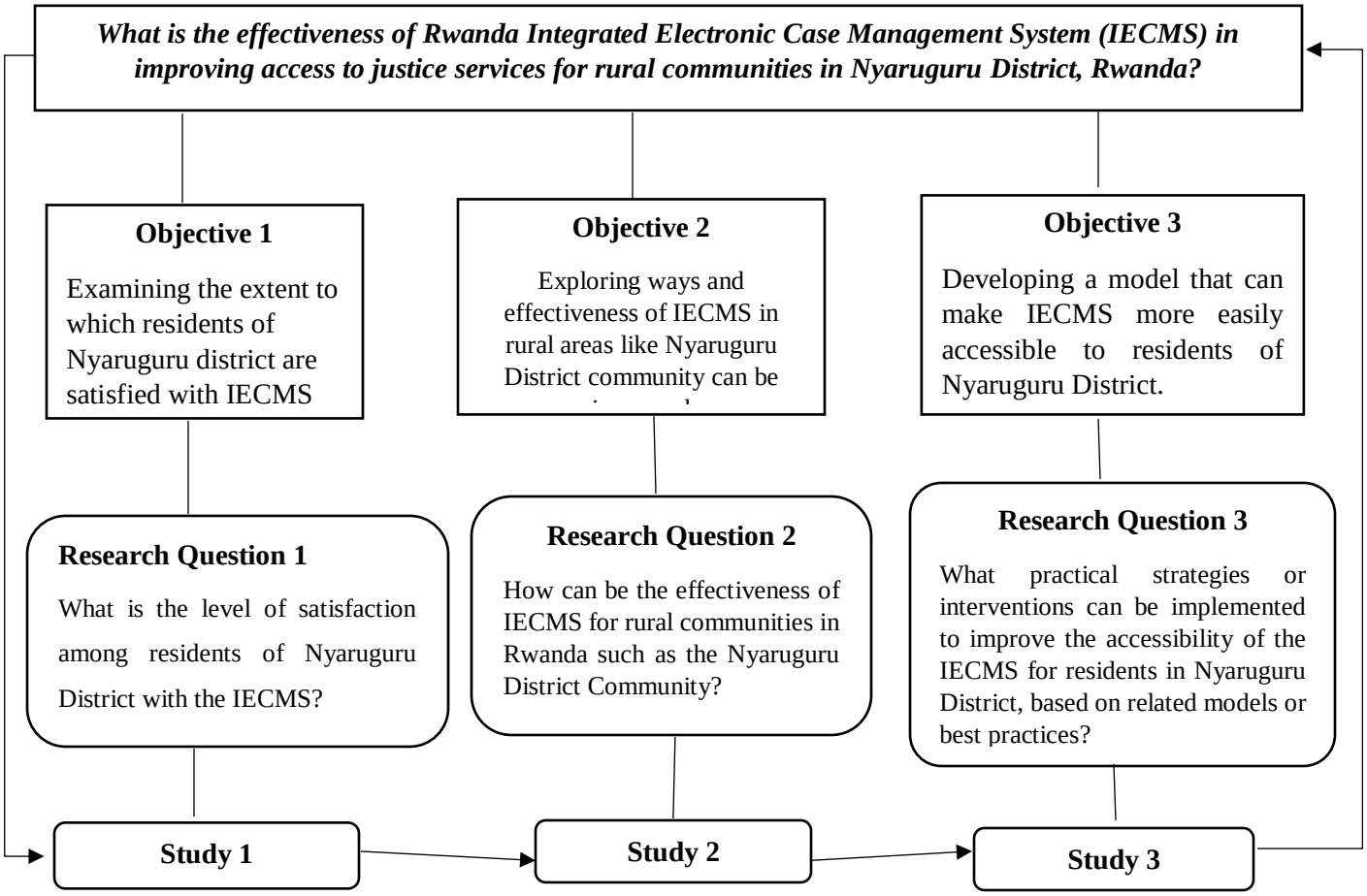

Figure 1: Research Map

1.5 Study Scope

The research study focuses on the implementation, adoption, and impact of IECMS in the legal services in Rwanda, with a specific emphasis on the Nyaruguru District.

The study covers the following aspects:

1. Evaluation of the adoption of IECMS by legal services actors in rural areas of Nyaruguru District, including their attitudes, perceptions, and experiences with the system.
2. Assessment of the impact of IECMS on case management in rural areas of Nyaruguru District, including its effect on case processing time, case accuracy, case backlog, case tracking, and data management.

3. Identification of the challenges and opportunities for effective use of IECMS in rural areas of Nyaruguru District, including technical, and financial, as well as user acceptance and satisfaction.

1.6 Significance of the Study

The significance of the study contributes to the improving access to justice in rural areas through the assessment of the effectiveness of the Integrated Electronic Case Management System (IECMS) in Nyaruguru District. By examining the perceptions and experiences of the community members, legal practitioners, IECMS trained individuals and District ICT personnel regarding the use of the system, the study identifies the status of the current case management processes and suggests the ways to enhance the quality and efficiency of legal services provided to rural communities based on the existing means of legal services accessibilities.

The findings of the study are used to inform policies and strategies aimed at improving the adoption and implementation of IECMS in rural areas, particularly in the Nyaruguru District, and enhancing access to justice for rural communities. The study also contributes to the existing literature on the use of electronic case management systems in legal services and provides insights into the challenges and opportunities of implementing such systems in low-resource settings.

Therefore, the study's significance lies in its potential to improve access to justice in rural areas through the effectiveness of IECMS in the Nyaruguru District and the identification of opportunities for improvement.

1.7. Organization of the Study

The study includes six chapters. The *first chapter* is the Introduction, this section provides an overview of the research problem, research questions, and objectives of the study. It also includes a brief background of the study area, and the significance of the study. It also contains the reason for conducting this research, and the research problem introduced.

The second Chapter provides an overview of the existing literature related to the research problem, including relevant theories, concepts, and studies. The literature review covers various aspects related to the research study. In this section also, there is a need of explaining the existing literature, showing the gaps in the literature and how are going to be addressed.

The third Chapter describes the research design, methods, and procedures used to conduct the study. It covers the research approach, sampling techniques, data collection methods, and data analysis techniques. It also includes a description of the study population and sample, data collection instruments.

The fourth chapter presents findings and its analysis. It presents graphics and tables of data. The chapter also includes a presentation of challenges of the study, a discussion of implications for theory and practice and finally the suggestions and recommendations provided by the respondents.

The fifth chapter discusses the findings of the study. The findings are interpreted in light of the existing literature on the system use assessed.

And *the sixth chapter* presents conclusion, recommendation and limitation of the research study.

CHAPTER 2. LITERATURE REVIEW

2.1. Introduction

The Information and communication technologies (ICT) continue to impact and shape modern society, and e-justice has gained momentum nowadays [41]. For this reason, judicial system is characterized by considerable investments in ICTs in order to improve court's efficiency and effectiveness [42]. To contribute a lot in adding value to reduce the cost of litigation and cutting down the geographical challenges [43], to validate the judicial institution role in the legal system, governance, democracy and other related services [44].

This part of the literature review refers to other existing research done to assess the effectiveness of e-justice or electronic case management systems in rural areas. The literature explores the current state of research on legal services, with a focus on access to justice and the quality of legal services. The review examines the challenges and barriers to accessing legal services. with aim of providing a comprehensive overview of the current state of research on legal services with focus on access to justice and the quality of legal services provided and ends with a conceptual framework that illustrates the relationship of variables in this study.

2.1.1. Definition of the terms

Rwanda IECMS, Rwanda Integrated Electronic Case Management System is an automated information management system, which is designed within the initiative of modernizing Rwanda's Justice, Reconciliation, Law and Order Sector (JRLOS), aims at facilitating information sharing at key decision points, as well as to improve efficiency and coordination of the police, prosecution, and court activities in the Republic of Rwanda [6].

Rural Areas, the term rural is rooted in a sense of place, and may differ from one country, region area to another. They may define rural areas in their context. FAO defines rural area as the region, which is not urban. It is populated areas with extensive cropland to less densely settled areas of sparse vegetation. Rural areas are more sparsely populated and settled and characterized by remoteness [45]. ILO in *table 2,* has the definitions of rural areas with references to urban areas so that the definitions be much clearer. The countries are Columbia, Ethiopia, France, Malaysia, Pakistan and South Africa.

Table 1: Rural areas definition

Country	Summary Definitional Criteria	Current definition of Urban/Rural Areas
Colombia	Administrative area, unsatisfied basic needs (i.e., poverty criteria) and other criteria	*Urban areas*: capital cities, metropolitan cities, and administrative centers of municipalities (geographical areas defined by an urban perimeter, which boundaries are set by City Council agreements. They correspond to areas where the administrative headquarters of municipalities are located.) with 2000 inhabitants or more. *Rural areas*: all areas not classified as urban (populated rural centres and dispersed rural areas). Other criteria are used to classify urban/rural areas, including the proportion of the population with unsatisfied basic needs.
Ethiopia	Administrative area, population size; predominance of agricultural/nonagricultural activities	*Rural areas* comprise all areas not classified as urban. *Urban areas* are generally defined as localities with 2000 or more inhabitants. In the 1984 Population Housing and Census cartographic work, however, for practical purposes urban areas include the following regardless of the number of inhabitants: (i) All administrative capitals (regional capitals, zonal capitals, and wereda capitals), (ii) Localities with Urban Dweller's Association not included in (i), (iii) All localities which are not included either in (i) or (ii) above having a population of 1000 or more persons and whose inhabitants are generally engaged in non-agricultural activities

Country	Summary Definitional Criteria	Current definition of Urban/Rural Areas
France	Administrative area, settlement type, number of jobs, and whether place of work is an urban area	Predominately rural areas, or rural areas, include all small urban municipalities and rural municipalities not belonging to predominately urban areas (Urban centers, periurban rings and multipolar municipalities). *Urban centers*: urban units with a minimum of 10000 jobs in the centre itself or in adjacent units. Periurban rings: where urbanization is continuous (without enclaves) and a minimum of 40% of the population works in the main urban centre or another municipality of the ring. Multipolar municipalities: are contiguous rural municipalities and urban units outside urban areas, where at least 40% of the active residents work in urban areas, without reaching this percentage for any of them.
Malaysia	Administrative area, population size, predominance of agricultural/nonagricultural activities, existence of modern toilet facilities in the house	Urban Areas: Gazetted areas with their adjoining built-up areas and with a combined population of 10,000 people or more. Built-up areas were areas contiguous to a gazette area and had at least 60 percent of their population (aged 10 years and over) engaged in non-agricultural activities. Areas had also modern toilet facilities in their housing units. Rural areas: all areas not defined as urban.
Pakistan	Administrative areas	Urban areas: Places with municipal corporation, town committee or cantonment. Rural areas: all areas not defined as urban
South Africa	Settlement area, economic activity, and land use	Urban areas: A classification based on dominant settlement type and land use. Cities, towns, townships, suburbs, etc. are typical urban settlements. Enumeration areas comprising informal settlements, hostels, institutions

Country	Summary Definitional Criteria	Current definition of Urban/Rural Areas
		and industrial and recreational areas, and smallholdings within or adjacent to any formal settlement are classified as urban. The 1996 estimate was adjusted to comply with the 2001 census definition. Estimates from 1980, 1985, and 1991 were adjusted to take into consider the populations of Transkei, Bophuthatswana, Venda, and Ciskei. Rural areas: all areas not defined as urban.

Generally, a rural area is an open swath of land that has few homes or other buildings, and not very many people [46]. In Rwanda, according to World Bank report of 2021, 82.43% of population resides in rural areas [47]

E-Government, Sharon Daws definition in the book e-Government of tomorrow [48] , she defines it as the use of information technology to support government operations, engage citizens, and provide government services. Whereas European Commission definition [49] defines e-Government as the use of information and communication technologies in public administration combined with organizational change and new skills in order to improve public services and democratic processes and strengthen support to public policies.

E-service, It is an internet-based application that fulfil service needs by seamlessly bringing together distributed, specialized resources to enable complex, *(often real-time) transactions* [50] *in addition ,* Scupola defined e-services as , services that are produced, provided and/or consumed through the use of ICT-networks such as *Internet-based systems and mobile solutions* [51]

E-justice, E-justice is the use of technology, information, and communications to improve access to justice and effective judicial action. More specifically, e-justice leverages digital technology to improve access to justice, to strengthen the justice system by increasing cooperation between legal authorities such as judges, court staff, prosecutors, police, prison staff, lawyers, and citizens to strengthen legal institutions and improve the overall administration of justice [52]. UNDP also defined E-justice as an umbrella term that captures any effort to administer, deliver, strengthen, or

monitor justice services using digital technologies [53]. It includes efforts by institutions like courts, governments and human rights institutions, individuals like lawyers and human rights defenders, and private and civil society entities like technology providers and community partners**.**

2.2. Rwanda E-Government and E-services accessibilities

Rwanda stands out as one of the beacons of digital government in Africa today [54]. Because Rwanda Development Board (RDB) a government institution, mandated to accelerate Rwanda's economic development by enabling private sector growth [55] explained that the country is ambitious to become a regional hub for top-tier capacity building in ICT and has invested in developing ICT infrastructure to enable service delivery [56]. Following the statement of the President of the Republic of Rwanda Kagame Paul, at Addis Ababa, on the 11th February 2019 [57] mentioned that "*The future of the global economy is digital*". This brings a significant and remarkable milestone to the growth of the ICT deployment in most of Rwanda's services. According to Isabella Hayward [58] , the World Bank Digital Development Specialist through its report of 2020, stated that "*Rwanda has already begun charting an ambitious course for achieving rapid digital transformation and demonstrated a clear commitment to embracing the digital economy as a lever for accelerating growth, improving services delivery and increasing job creation."* Which is a substantial progress.

According to the United Nations report on E-government Survey 2020 [59] through the Rwanda government policy, strategies of Vision 2050 strategy and the Smart Rwanda Master Plan emphasize that there is a strong progress on creating a prosperous and knowledgeable society through the use of smart information and communications technologies. That is like offering public services online, supporting public officials use ICT, encouraging them use the internet extensively in their everyday work, and using the e-government platform to support two-way communication in providing e-services updates and allowing people to have a direct interaction with them.

In this pursuit the government of Rwanda provides services to both citizens and businesses through e-government portals such as IremboGov, an Unstructured Supplementary Service Data (USSD) and web-based platform that Rwandans and foreigners use to apply for public services seamlessly [60].,and other e-services. Many citizens and businesses in rural areas still use traditional physical interactions, and many transactions are in cash [61].

2.3. Electronic Case Management System

Electronic Case management system (ECMS) is among the judicial technological solutions for public policy and administration that is designed to support end-users to care for vulnerable by means of by facilitating them to sort the cases with primary goals of assessing beneficiary needs and working with the beneficiary family to establish specific objectives, goals, and benchmarks. According to Watson [62], the ECMS is the key success factor in the judicial system. The systematic, efficient, and organized case records provide comprehensive information for courts to guarantee unbiased decisions. Due to the autonomous of ECMS, it provides the transparent information system and good case management indirectly hinder the misuse of power or corruption, case postponement and delayed decision [63]. It also reflects the good image of judicial system and upholds the rights of individual and society.

2.4. The judicial systems in other countries

The judicial system uses ICTs to improve its efficacy and efficiency; it eases communication among Judicial System parties like ministry, courts, and prisons and help improve access to justice and the efficiency of legal proceedings [64]. Case management is one of the main management activities in use within courts and is aimed at improving the primary processes of Courts, through processing filed cases to adjudication [65]. In addition, we use computer as a tool to ensure the effectiveness to replace the manual processing applications. It captures case data at the point of original filing and tracks all case activity from that point on. Moreover, the extent of the activity data captured dictates the effectiveness of the system.

Case activity data is considered essential for computer-based transaction processing systems in the legal system. These data elements typically include case number, case name, filing date, case type, charges, list of participants such as plaintiffs, defendants, attorneys, judges, scheduled and actual case events, disposition data, and details of the final disposition [66].

The best practices from some country, which use the e-justice system, referred from some countries like USA, Uganda, Kenya, and Indonesia in many countries adopted the system. The table *2* proves that the effectiveness of Electronic case management systems can in one court be implemented or measured at different levels of experience that appear in three levels classified as basic, medium and advanced.

Table 2: Description of levels of experience or sophistication in electronic case management systems

Level of experience or sophistication	Management area	Description of typical effort
ADVANCED	Content management	*Case content automation:* automation of life-cycle of documents, improved analytic aids for judges and improved text editing, multimedia logging
	Procedure management	*Case handling automation*: elimination of duplicate activities and integration of checks into smart documents/forms
	Logistics management	*Caseflow automation:* predefined workflows transport digital files to persons
MEDIUM	Content management	*Case content support*: electronic documents are inserted with case data and standard text blocks are available
	Procedure management	*Case handling checkpoints*: intake of documents and collection of court fees is improved, notifications are made and scheduled automatically and signals on milestones are planned
	Logistics management	*Caseflow support*: scheduling and allocation of capacity are combined, people receive forms, lists and signals that help to prepare forthcoming events

Level of experience or sophistication	Management area	Description of typical effort
BASIC	Administrative management	*Case administration systems:* registration and recording of documents, events and results

2.4.1. USA Case Management /Electronic Case Filing (USA CM/ECF)

The use of ICT as a key element in improving the administration of justice, and case management has originally been developed in the United States of America the developed country and other countries from the rest of the World have adopted it from there [67]

In the United States, case management involves administrative oversight of cases by court managers or administrative personnel, guided by standards and performance expectations. It requires a database of case transaction data and is supported by planning models and performance evaluation techniques. Effective performance evaluation is crucial for successful case management [66]. For Electronic Case Management System, in USA, there is a Case Management /Electronic Case Files (CM/ECF) which is used to manage and maintain electronic case files. It allows courts to maintain electronic case files and offer electronic filing online, making case information immediately available [68]. In addition, CM/ECF allows courts to accept electronically filed documents and provides access to filed documents online [69]. Where the two Ultimate goals CM/ECF achieved are that the entire U.S. federal court community who are judges, administrative personnel, lawyers, and public users are completely comfortable in totally relying on this integrated automation service, and that CM/ECF is the official record eliminating the traditional paper record [70].

2.4.2. e-Government services and adoption of ECMS in rural areas of developing countries

E-government projects in developing countries face significant failure rates, highlighting the vast gap between developed and developing nations. Limited resources, including inadequate ICT infrastructure and a lack of skilled IT professionals, contribute to the slow adoption of ICT [71].

For instance, Sharma et Al. [72] Identified various challenges hindering the implementation of e-governance in India. These challenges include language diversity, low legal and IT literacy, lack of user-friendly government websites, limited-service accessibility, absence of integrated services,

and inadequate public awareness. Other obstacles involve infrastructure and operational costs, cross-platform application transferability, device maintenance, financial constraints, system interoperability, privacy and security concerns, scalability, and geographical limitations. According to Nabafu R. et al [73] in Kenya, the progress of e-government development is impeded by various challenges, including the absence of a comprehensive government ICT policy, inadequate information infrastructure, widespread corruption, the digital divide, and insufficient human skills and capacity. In addition, Uganda faces the challenges in the e-government implementations related to financial resource mobilization, ICT infrastructure development, training, sensitization, and Social political factors. Similarly, many other developing countries face challenges in the implementation process of e-government. Overcoming these challenges is crucial for successful e-government initiatives in these countries. According to Bjørn F. et Al [74] suggested telecentres to function as versatile ICT hubs within communities, providing e-governance, e-commerce, and various other ICT services. These services encompass disseminating information, facilitating transactions between citizens and the government, and delivering entitlements such as certificates and licenses. The telecentres serve as multipurpose centers for community members to access a range of digital resources and services.

On the other hand, the electronic case management systems as among the e-government innovations, are still at an early stage of adoption in many developing countries, but there are examples of developing countries overcoming these pitfalls and producing innovative solutions that surpass government practices in more developed countries [75]. Even though there are still facing some limitations in the system effectiveness in rural areas due to different digital accessibility issues. Some of the selected countries are Kenya, Uganda, and Indonesia.

2.4.2.1. KENYA

The Republic of Kenya built an e-justice platform, called e filing. The e-filing system, provided a platform for the law firms, lawyers and non-lawyers to initiate and complete the process of filing cases online from their offices/remotely, and there is no need to visit the court premises to file cases [76]. The main objective of the system was to improve the courts' efficiency, cost effective, accountable and reduce case backlog and yield faster results for users [77]. However, a 2021 article by Jacob Kinyua [78] highlighted the challenges faced by rural areas in Kenya in accessing digital technologies. The rural-urban divide is a significant issue, with only 17% of rural residents having

internet access compared to 44% of urban dwellers. Limited infrastructure in rural areas, including inadequate power and mobile connectivity, further hampers access to digital services. Digital literacy also poses a barrier, as internet and smartphone penetration rates are hindered by a lack of knowledge and skills. Jacob also added, low incomes in rural communities limit companies' ability to invest in expensive infrastructure for power and mobile connectivity. These challenges collectively contribute to the digital divide, necessitating efforts to improve infrastructure, promote digital literacy, and find cost-effective solutions to bridge the gap between urban and rural access to digital technologies in Kenya.

2.4.2.2. UGANDA

The Ugandan government has made significant progress in adopting e-Government practices that enable them to effectively leverage information and communication technologies in their governance processes [79]. The Judiciary of Uganda has migrated from paper-based filing system to Electronic Court Case Management Information System (ECCMIS), the system is the key success factor in the Uganda judicial system [80]. The system is comprehensive in its functionality as it automates and monitors every stage of a case's life cycle, starting from the initial filing to its conclusion, including appeals, for all types of cases and for each individual party involved. It is built upon the Judiciary's business rules engine and therefore needs little human intervention. The system enables the efficient and accurate collection, organization, distribution, and retrieval of a large volume of case-specific data, as well as the processing of court fees and fines. Additionally, the system can produce reports that aid in making decisions [81] . For system effectiveness, it has numerous features that help users for ease of use, which are e-filing, e-payment; the litigants are able to use USSD codes to follow up on all cases, case management online, reporting and notifications that may be sent to the emails or litigant phone number.

Despite the fact that ECCMIS has already had a significant impact in Uganda, there are plans to extend the system to other regions of the country. This is in response to the statement made by Chief Justice Alfonse Owiny Dollo on May 8th, 2023, revealing a significant backlog of over 50,000 cases in the judiciary [82]. In order to address this issue and extend access to justice beyond Kampala, measures have been implemented to train judges from all levels of the country's courts of appeal and Supreme Court. The objective is to enhance the accessibility, quality, and sustainability of justice services provided to marginalized, vulnerable, and rural communities in

Uganda. Barbara Kilei, the country manager of the International Development Law Organization (IDLO), added to this initiative.

2.4.2.3. INDONESIA

According to Prawidha M. et al. [67] the implementation of Indonesia's Electronic Court (e-Court) system effectively addressed inefficiencies in court proceedings, reducing the time taken for legal processes. The e-Court system specifically targeted challenges such as physical attendance requirements, time-consuming document submission, slow case handling, limited court accessibility, and concerns about the quality and integrity of the judicial system. Table 3, presented in their study highlights the pros and cons of Indonesia's e-Court system, serving as a reference to promote its widespread adoption among advocates across the country.

Table 3: Pros and cons of Indonesia E-Court

PROS	CONS
1. Cost-effective legal proceedings. 2. Faster legal proceedings with technological assistance. 3. Convenient online access for document exchange.	1. Certain hearing agenda items require conventional attendance at the court, limiting the full implementation of the e-Court system. 2. Uncertainty among litigants regarding the readiness of the Supreme Court for e-Court applications, especially when examining overseas witnesses 3. Technical issues have been reported, such as practical challenges during online hearings, including requests for adjournment, strategies of absence, and challenges to court summon validity.

In addition, Indonesia encountered challenges in building a digital society that can be a cause to affect the e-court implementation in the country and in rural areas. Those include regional disparities in technology infrastructure and communities that may not fully embrace technology due to cultural values, resulting in varying technology adoption rates and influences from social structures [83].

Although there are those challenges, in Indonesia, there is a Food and Agriculture Organization (FAO) initiative called “Digital Village” [84]. The concept aimed at advancing digitalization in rural areas, with the goal of benefiting residents by providing them with the means to use and benefit from digital innovations, technologies, services, and solutions. The primary objective is to enhance economic livelihoods, improve individual well-being, and foster social cohesion by ensuring better connectivity and access to digital resources within rural communities.

2.4.2.4. Best practices for effective use of case management information systems

The best practices are referring to different electronic court case management systems measures taken by different countries, and some were discussed on the paragraphs above, and as Erwin J. [85] Highlighted that efficiency in delivering justice requires prompt and cost-effective proceedings, He added that Electronic case management systems play a crucial role in minimizing delays and improving efficiency. The e-Courts project in the Civil Court aims to achieve a paperless office, save resources, ensure immediate access to trial documents, and prevent document counterfeiting.

In addition, J. Michael et al [70] identified various methods to assess the effectiveness of case management. It involves evaluating acceptance by courts, the legal community, and the general public; examining the usage and extent of document transmission to and from the courts; verifying the reliability, validity, and dependability of the service; measuring the efficiency, effectiveness, and staff productivity of the system; and identifying opportunities for enhancing the overall quality of justice.

2.4.3. Rwanda Integrated Case Management System (Rwanda –IECMS)

Although automated Case management Systems are still at an early stage of adoption in many developing countries, Rwanda on its journey of digitalization overcame this pitfall [86]. Rwanda IECMS a unifying platform that connects all institutions belonging to the Justice, Reconciliation, Law and Order Sector (JRLOS) [87], a coordination structure of sectors ambitious to work together effectively to achieve a common objective, without compromising their operational, legal or constitutional independence, the Rwanda Ministry of Justice (MINIJUST) definition [88] to The JRLOS. The platform integrates Criminal Investigation Department (Police) , National Prosecution Authority (NPPA), Rwanda Correctional Services(RCS), Judiciary and the Ministry of Justice(MINIJUST), the *Figure 2* demonstrates the platform interoperability , and Judiciary is the core beneficiary of IECMS. The system is built to provide an interface between Judiciary and

Litigants for Electronic Filing and follow up of cases, and it was initiated to improve Judicial Service delivery to reduce the case delay while also ensuring that it is done in timely, quality and justice accessed at reduced cost from the case inception to the final adjudication [22].

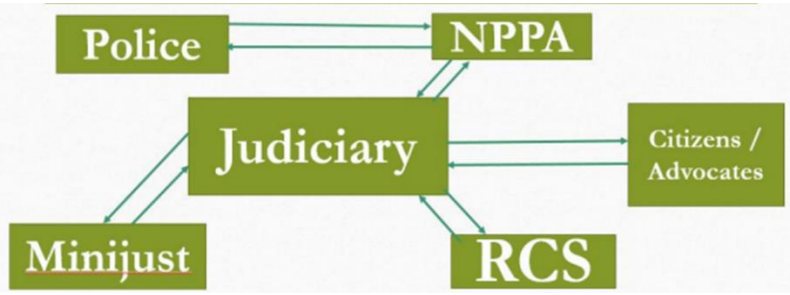

Figure 2: JRLOS interoperability through IECMS (Source: Adopted from the judiciary of Rwanda)

2.4.4. Gap and Challenges of Rwanda IECMS in rural areas

Ensuring access to justice has been recognized as a crucial element of upholding the rule of law and establishing a fair, peaceful, and prosperous society. Rwanda's government program, NST 1 2017-2024, places significant emphasis on enhancing the quality of justice and ensuring its accessibility, aligning with the goal 16 of the 2030 Sustainable Development Goals (SDGs). [89]..

In July 16,2017, the Newtimes (https://www.newtimes.co.rw/article/142388/Opinions/rwandaas-electronic-case-management-system-and-sdg) showed how Rwanda Ministry of Justice, was proven as the very competent organ in the high performing court through the use of ICT tools known as IECMS which are required and necessary to operate efficiently and effectively in conducting the business of the judiciary [90]. This marked a significant e-government milestone to use the technology, information and communication to assist access by citizens to justice and effective judicial action.

However, Andrii Lapkin explained how the people's livelihoods in rural areas face a lot of problems, such as territorial distance of judicial authorities from rural areas, economic problems related to high level of court expenses and low financial well-being of rural citizens. In addition to that, there is an absence of the necessary infrastructure which as a consequence may create lack of transport infrastructure absence of high-speed internet and possibility to use technologies of electronic justice at an expected ratio [91].

The main gap is digital divide that limits to access the e-government platforms include the IECMS. Despite the expanding reach of the internet, a considerable portion of the population remains excluded primarily due to poverty. This exclusion stems from the inability to access digital devices, limited internet connectivity, and insufficient digital literacy skills. Consequently, the persistence of these challenges underscores the existence of the digital divide [92].

In addition to that, although Rwanda has made progress in digital infrastructure with near universal mobile coverage, but internet penetration is low at 26.3 percent of the total population [93]. While mobile phone usage is widespread, only 15 percent have access to smartphones, limiting digital access. Additionally, low digital literacy at 10 percent poses challenges for sourcing skilled local workforce [94].

Although e-government is advancing, there are still challenges such as those related to literacy, electricity, and internet connectivity. These challenges are the main reason for the frequent use of public and private intermediaries between the government and citizens in the service delivery process. These third parties intervene in providing over 80% of the services [95]

2.6. Conceptual Research Model

2.6.1. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a well-known theoretical framework that has been widely used to explain the acceptance and use of technology in various contexts, including rural areas. The TAM was initially proposed by Davis in 1989 [96]. Figure 3.

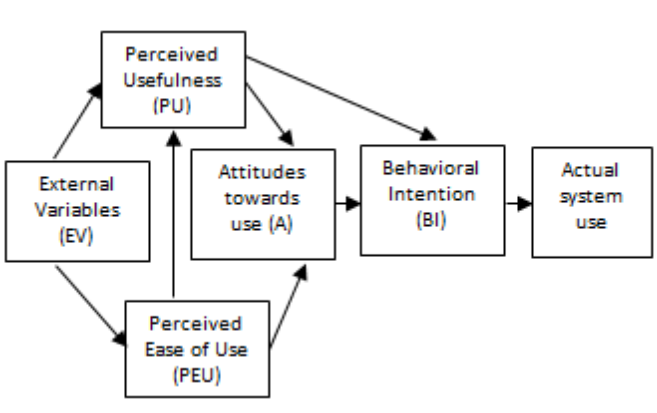

Figure 3: Technology Acceptance Model [96].

According to Fred D. Davis [96], The TAM suggests that individuals' behavioral intention(BI) to use a technology is influenced by their perceived usefulness (PU) defined as the degree to which they believe the technology will enhance their performance or productivity and perceived ease of use(PEU) the degree to which they believe the technology is easy to use. These perceptions are influenced by their attitudes (A) toward using the technology, subjective norms, the social influences, and perceived behavioral control which is the individual's belief in their ability to use the technology.

In the context of rural areas, the TAM is adapted or extended to incorporate additional factors that are relevant to the unique characteristics and context of rural communities, such as access to resources, technological literacy, socio-cultural norms, and infrastructure limitations. This results in a "Rural Technology Acceptance Model" figure 4, (modified RuTAM) that specifically focuses on understanding the factors that influence the acceptance and use of technology in rural areas.

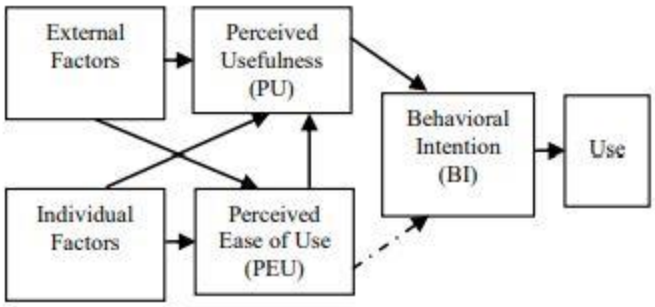

Figure 4: Simplified RuTAM [97]

Based on the figure 4, according to Sirajul et al [97], developed a conceptual Rural Technology Acceptance Model (RuTAM) after analyzing the arguments pertinent to a rural developing country context. Where the modifications were based on the earlier TAM models, resulted to social influence which plays a bigger role than technology at early stages of adoption. 'Tech-service promotion' and 'tech-service attributes' are introduced as external factors which affect the behavioral intentions of an individual by means of perceived usefulness (PU) and perceived ease of use (PEU).

2.6.2. Conceptual research model in a research context

In the context of the research topic, We adopted TAM Model used to investigate the factors that influence the system effectiveness of the Rwanda Integrated Electronic Case Management System in Nyaruguru District, Figure 5. The main constructs are:

a. *Perceived Usefulness (PU)*: refers to the extent to which system users believe that using a technology, in this case, the IECMS, enhances their performance or productivity in managing case management processes in improving the efficiency and effectiveness of case procedures, reducing delays, and increasing access to justice services.

b. *Perceived Ease of Use (PEOU)*: refers to the extent to which system users believe that using IECMS technology, is easy to learn, understand, and use, easy to navigate, user-friendly, and compatible with their existing skills and knowledge.

c. *Attitudes (A)*: It refers to System users' overall evaluations or feelings towards using the system, which can be influenced by their perceived usefulness and perceived ease of use.

d. *Subjective Norms (ATT)*: refers to the perceived social pressure or influence from the community members, to use the IECMS. Social norms and community expectations may shape individuals' intentions to use the system, especially in a rural context where social dynamics and cultural norms play a significant role.

e. *Perceived Behavioral Control (IU)*: It is an individuals' perceived ability to use the IECMS, which is influenced by factors such as their technical skills, training opportunities, and resources.

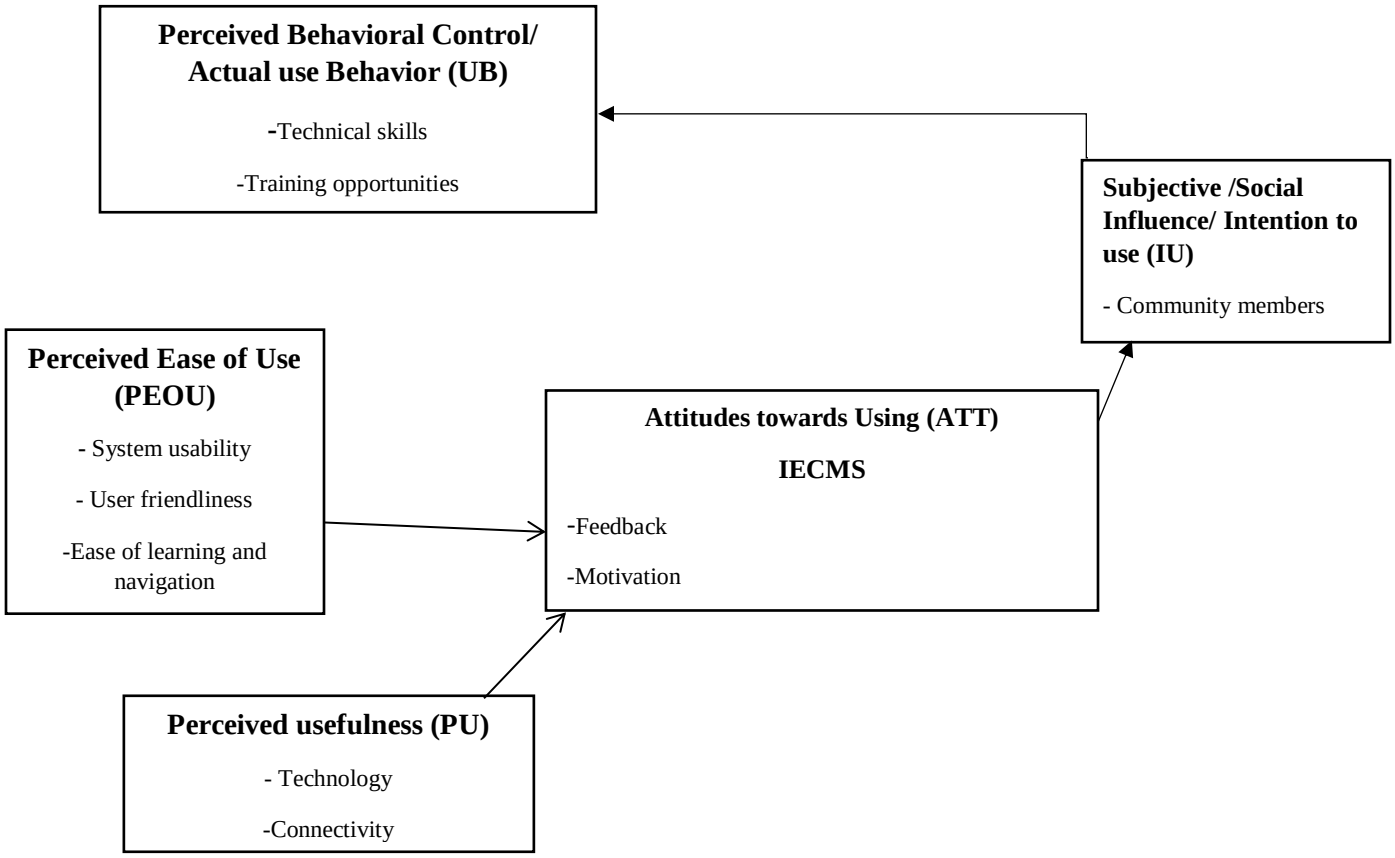

Figure 5: TAM Conceptual model

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

According to Remenyi et al [98],the research methodology is the overall approach to a problem which could be put into practice in a research process, from the theoretical underpinning to the collection and analysis of data [99, 98] [100]. On the other hand, Kothari [101] defined research methodology as a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. Kothari further states that research is an academic activity and as such the term should be used in a technical sense. On the other hand, Kumar [102] defines as a way of thinking, examining critically the various aspects of day-to-day professional work, understanding, and formulating guiding principles that govern a particular procedure, and developing and testing new theories that contribute to the advancement of practice and profession.

Considering our research case study, research methodology is necessary to evaluate the effectiveness of electronic case management system, particularly on how the current use of the IECMS e-justice service is perceived in rural areas in Rwanda. Further, it is necessary to provide valuable insights into how the system can be improved to better meet the needs of citizens in rural areas in an effective, efficient, and impactful way.

Our research used the mixed-method approach in which the quantitative method complements the qualitative research, because mixing the two methods is superior to a single method as it is likely to provide rich insights into the research phenomena that cannot be fully understood by using only qualitative or quantitative methods. The mixed-method approach was useful in integrating and synergizing multiple data sources in study.

This section clearly articulates the chosen sampling strategy, ethical considerations, methods, and their relevance to the research questions covered in this study. It details the procedures for data collection and analysis and formulation of practical recommendations for improvement of the effectiveness of IECMS for rural areas in Rwanda.

Creswell & Plano Clark's convergent parallel design model about collecting, analysing, interpreting, and reporting both qualitative and quantitative data [103] shown in diagram 1 below was adopted.

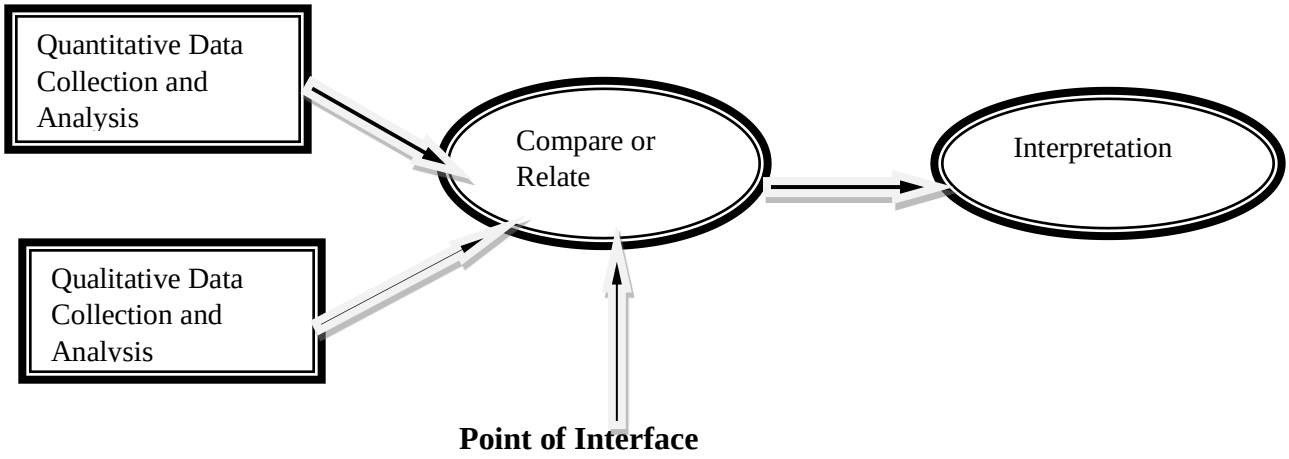

Diagram 1: Convergent parallel design (Adapted from Creswell & Plano Clark, 2011 [99]*).*

The model's aim was implemented to merge both qualitative and quantitative data collection analysis, to compare and relate for better having the suitable interpretation based on the conducted research.

As from the diagram 1, the model is used to implement the quantitative and qualitative strands during the same phase of the research process, prioritizes the methods equally, and keeps the strands independent during analysis and then mixes the results during the overall interpretation [104]. While Fadhilina Mohd et al [105], explained the model that it has the purpose of providing a comprehensive analysis of the research problem by converges or merges quantitative and qualitative data where both methods are prioritized equally, keep the data analysis independent, mix the results during the overall interpretation and try to look for convergence, divergence, contradictions or relationships of two sources of data.

This chapter describes the research area, research population, sampling methods, sample size, research methods, research instruments, data collection, and analysis tools used in developing the proposed solutions to making IECMS more effective for Nyaruguru District.

3.2 Research area

The case study of this research thesis is Nyaruguru District, located in the southern province of Rwanda. Nyaruguru District has 14 sectors which are Cyahinda, Busanze, Kibeho, Mata, Munini, Kivu, Ngera, Ngoma, Nyabimata, Nyagisozi, Muganza, Ruheru, Ruramba and Rusenge [29]. And, referring to NISR [27], Nyaruguru District is one of the most rural and

remote areas in the country. The district is home to approximately 318,126 people and covers an area of 1010 square kilometers [28]. With a population density of 409 people per square kilometer [27]. In regard to the IECMS accessibilities based on the above-stated sectors, through the district active IremboGov agents who effectively provide access to the IECMS. The active agents are located in sectors of Kibeho, Ruheru, Munini, and Busanze compared to the other sectors, this implies that, other sectors of the district find it harder to access the IECMS as they first travel to the neighbor sectors

3.3 Research Population

The population is the group of interest and for whom the results will be applicable. The population needs to be defined in formal and precise terms so that it is clear who falls within the study area and who falls outside of it [106]. Referring to paper [107], population defined as the entire set of objects or people which is the focus of the research and about which the researcher wants to determine some characteristics. Particularly for comparative surveys, it is vital that a clear understanding of the target population is reached well in advance of commencing survey fieldwork. Surveys are complex, challenging, and expensive activities. Without a clear target population, resources will likely be wasted [108]. For this reason, the study targets the district IECMS' users who are citizens, District MAJ staff, Abunzi (Mediation committee member), IECMS certified agents, IremboGov agents and ICT personnel in Nyaruguru district.

3.4 Sampling Methods

Due to insufficient time and resources to analyze the entire population of Nyaruguru District, the target was to collect data from 500 informants. Table 2 is the sample taken that shows the details of informants taken from the District and their profiles. Thus, sampling helped us to reduce the number of informants to the desirable minimum. Singh et al. [109] Clarified that sampling is used for research investigations to better estimate at low cost and less time with greater precision while according to Anita S. et al. [110], In order to ensure that the sample accurately represents the target population and that the results can be generalized to the larger group, appropriate sampling methods should be employed. And they emphasized that these methods are important for achieving both representativeness of the sample and the ability to apply the findings to the broader population.

Table 4: Informants details and profiles

Informants	(n=500)	Profiles
Nyaruguru Citizens	n=438	District residents
Abunzi(Mediation Committee)	n=40	Cell and sectors mediation committees
Irembo Agents	n=6	E-government agents who facilitate the citizens to access the system like Irembo or IECMS
ICT Personel	n=1	District IT technician
IECMS Trainees	n=11	Individuals who have been trained by the MINIJUST on IECMS' use
Judge	n=1	Presides over cases at Kibeho tribunal Court
Registrar	n=2	In case registrations and maintaining them at Kibeho Tribunal court
Maison d'Accès à la Justice (MAJ)/Access to Justice Bureau	n=1	Provides legal and judicial information, advice and assistance to the district needy citizens.

In sampling, it is important to note the distinction between probability and non-probability sampling. As noted by Salkind [111], probability sampling involves a random selection process where each member of the population has an equal chance of being selected, while non-probability sampling does not involve a random process and can lead to bias in the sample.

The sample from the area of interest i.e., Nyaruguru District was selected using a probability sampling which is appropriate for the research questions. The researcher used this probability sampling in the research because Cochran has developed a formula used to calculate sample size for proportion of populations that are large [112].

The required sample size is calculated:

$$\mathbf{n = (z^2 * p * (1\text{-}p)) / E^2} \qquad (1)$$

Where:

n = sample size

z = the standard normal deviation (1.96 for a 95% confidence level)

p = the estimated proportion of the population with the characteristic of interest, such that, following the NISR Rwanda Population House Census fifth edition [27] records 318,126 citizens

E = the desired level of precision, expressed as the margin of error.

It is usual, when using statistics, to plan data size at the same time as planning data collection. This enables you to have high level of confidence as well as a small margin of error
The sample size was the representative of the population to the extent possible, and the results were used to draw conclusions about the population and case study as a whole.

Thus $n = \frac{(1.96)^2 \times 0.76(1-0.76)}{(0.04)^2}$ (2)

$n = 438$ citizens

The remaining 62 sample size collected from other IECMS users, were explained in 3.6 of this chapter, where the researcher used the stratified random sampling.

3.5 Research Approach

Martin [108] states that there are two approaches to research and these are quantitative and qualitative. In 2006, Bless, Higson-Smith stated that qualitative research is conducted using a range of methods which use qualifying words and descriptions to record and investigate aspects of social reality [107]. While Mbugua, states that, quantitative method emphasizes on objective measurements and numerical analysis of data collected. Zainal [113] mentions of case study as a research method that has existed for a long time. Zainal defines a case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used. Case studies, in its true essence, explore a research method and investigate contemporary real-life phenomena through detailed contextual analysis of a limited number of events or conditions, and their relationships

Therefore, while conducting research, it is worth having a clear understanding of the objectives of a research project in order to select the most suitable methodology to accomplish the objectives in question [114]. In this case, to assess the effectiveness of the IECMS, there is a need to use quantitative and qualitative approaches because both will contribute to obtaining ideas and insights on coming up with possible ways of evaluating IECMS's effectiveness in Nyaruguru District and how its effectiveness can be improved.

3.5.1. Quantitative as a research approach

Quantitative research is a systematic and structured approach to gathering and analyzing data. This research approach was used to collect data on the usage and effectiveness of the IECMS in the Nyaruguru District, including the number of cases processed using the system, the time taken to process each case, and the satisfaction of users with the system. Data obtained were analyzed using statistical methods to determine the effectiveness of the IECMS system in Nyaruguru District.

The results obtained were generalized to the Nyaruguru population. As quantitative research provides facts of success and its findings are used to generalize to the targeted population [115]. According to Creswell [116] "*quantitative research seeks to describe relationships between variables, to generalize findings from a sample to a population, and to test hypotheses with data*" (p. 17)

3.5.2. Qualitative as a research approach

In the context of assessing the effectiveness of the Rwanda IECMS in rural areas, qualitative research is a useful approach to our case study to gain insights into the perceptions and experiences of individuals and groups involved. Qualitative research methods such as interviews and focus groups were used to gather in-depth information about the challenges and successes of IECMS in Nyaruguru District. This helped the researcher to identify areas for improvement and how the improvement can be achieved. Additionally, qualitative research provides a more nuanced understanding of the social and cultural factors that may impact the use and effectiveness of IECMS in rural areas. By exploring the perspectives of the users, this research approach helped to ensure that IECMS is contextually relevant and responsive to the needs of the rural population

3.5.3. Mixed research as a research approach

Mixed research methodology is a combination of both quantitative and qualitative research approaches [117]. In the context of this study, a mixed research methodology was used to assess the effectiveness of the Rwanda IECMS in rural areas. The quantitative research approach was used to collect numerical data on the usage and functionality of the IECMS, while the qualitative research approach was used to gather the perspectives and experiences of the users of the IECMS in Nyaruguru District. This mixed research approach allows a more comprehensive understanding of the effectiveness of the case study by combining both objective numerical data and subjective experiential data [118]

3.6 Sample Size

A sample of a research study is a selected group of the target population that is studied [119]. This study targeted 500 samples from citizens, District MAJ staff, Abunzi, IECMS certified users, IremboGov agents, ICT personnel, and Kibeho tribunal base court judges and registrars. Determining sample size, I used both simple random sampling to the district population and stratified random sampling to the remaining IECMS user groups.

For instance, *table 3,* Rwanda Population House Census fifth edition (RPH5) [27] has shown Nyaruguru District population counts and distributed according to their district's sectors of residence.

Table 5: Nyaruguru District, RPH5 Population counts

District/Sector	Counts			Percentage		
	Total	Male	Female	Total	Male	Female
Nyaruguru	**318,126**	**151,980**	**166,146**	**100**	**47.8**	**52.2**
Busanze	29,795	14,369	15,426	100	48.2	51.8
Cyahinda	24,929	11,952	12,977	100	47.9	52.1
Kibeho	25,885	12,326	13,559	100	47.6	52.4
Kivu	19,812	9,536	10,276	100	48.1	51.9
Mata	16,117	7,780	8,337	100	48.3	51.7
Muganza	21,383	10,201	11,182	100	47.7	52.3
Munini	19,760	9,642	10,118	100	48.8	51.2

District/Sector	Counts			Percentage		
	Total	Male	Female	Total	Male	Female
Ngera	24,242	11,477	12,765	100	47.3	52.7
Ngoma	24,358	11,514	12,844	100	47.3	52.7
Nyabimata	18,843	8,850	9,993	100	47	53
Nyagisozi	19,674	9,470	10,204	100	48.1	51.9
Ruheru	27,712	13,095	14,617	100	47.3	52.7
Ruramba	18,705	8,915	9,790	100	47.7	52.3
Rusenge	26,911	12,853	14,058	100	47.8	52.2

Thus, the sample statistics of citizens in every sector is calculated as ***n /14***, where 14 is the number of Nyaruguru District, and ***n = 438*** calculated in **(1).**

Sample population of every sector is **438*/14,*** equal to ***31.2 =~ 31 peoples***

The *table 6* explains about data collection based on sampled district population. It shows how sample n=438 distributed in every sector.

Table 6: Population sample size distribution per sector

District/Sector	Gender Percentage District wide		Sample population, n=438		
	Male	Female	Sampled Male per Sector	Sampled Female per Sector	Total samples (sector)
Nyaruguru	**47.8**	**52.2**			
Busanze	48.2	51.8	15	16	**31**
Cyahinda	47.9	52.1	15	16	**31**
Kibeho	47.6	52.4	15	16	**31**
Kivu	48.1	51.9	15	16	**31**
Mata	48.3	51.7	15	16	**31**
Muganza	47.7	52.3	15	16	**31**

District/Sector	Gender Percentage District wide		Sample population, n=438		
	Male	**Female**	**Sampled Male per Sector**	**Sampled Female per Sector**	**Total samples (sector)**
Munini	48.8	51.2	15	16	**31**
Ngera	47.3	52.7	15	16	**31**
Ngoma	47.3	52.7	15	16	**31**
Nyabimata	47	53	15	17	**32**
Nyagisozi	48.1	51.9	15	16	**31**
Ruheru	47.3	52.7	15	16	**31**
Ruramba	47.7	52.3	15	16	**31**
Rusenge	47.8	52.2	15	16	**31**

The data were corrected basing on Article 113 that explains the age of the majority of Rwandan Citizen, in the Official Gazette nº37 of 12/09/2016, of LAW Nº32/2016 OF 28/08/2016 GOVERNING PERSONS AND FAMILY [120] states that *"The age of majority is eighteen (18) years, unless provided otherwise by this Law or other laws. A person having attained that age, is fully qualified for all acts involving civil life."*

In addition to the district sample population, the study used stratified random sampling to the remaining groups. As Singh et al [109] stated that stratified sampling is a good method for data collection if the population are heterogeneous. The groups are made of District MAJs, Certified IECMS users, Irembo agents, Kibeho tribunal base court judges and registrars, and Abunzi or Mediation Committee (Hint: the establishment of an "Abunzi or Mediation Committee" is in the article 2 of the Official Gazette No 37 of 12/09/2016 [121] states that "*There is established an Abunzi Committee at the Cell level with jurisdiction over the Cell. An Abunzi Committee of appeal at the Sector level with jurisdiction over the Sector is also established*." Where Nyaruguru district has 14 Sectors and 72 Cells [122] this implies that the district has 86 Abunzi/ Mediation committees). *Table 7* shows the number of each group and sample taken while using stratified random sampling. On the part of "Abunzi", the researcher, preferred to use the group

representative known as the committee president to respond the questionnaire, where the whole group was not possible to be availed for data collection.

Table 7: Stratified sampling for other IECMS Users

Other IECMS User Groups	Number	Sample
District MAJ	3	1
Abunzi	86	40
Certified IECMS users	23	11
Irembo agents	14	6
District ICT Personnel	1	1
Judges	3	1
Registrars	4	2
Total	**134**	**62**

Referring from table 6 and table7, the total sample from the Nyaruguru population and other IECMS Users is 500 citizens.

3.7 Research Instruments

The research instruments are tools used to collect data for the researcher's analysis. These research instruments include and are not limited to the following: questionnaires, interview guides, observation guides and documentary sources [123]. During this study, we used structured questions which cover both open ended and closed-ended questions to collect the required data from the targeted participants or respondents. This method of data collection is quite popular, particularly in the case of big inquiries. Where possible there has to be the use of a questionnaire which is mostly adequate and important because it gives the respondents enough time and freedom to respond to questions independently with little or no interference.

3.8 Data collection

A self-administered questionnaire was used on all the 500 respondents to save time and cost. Also, at the time of the study, the Researcher was at Makerere University, Uganda on a student exchange visit which made it hard to collect data physically. The researcher then collected the completed questionnaires from the respondents. The self-administered questionnaire had both closed and

open-ended questions (attached). A questionnaire was considered the best for this study and collected independent information to reflect the real situation. Quantitative data was collected using closed-ended questionnaires while open-ended questions made it possible for the researcher to collect explanatory information about perceptions and experiences about use of IECMS by Nyaruguru Residents. Kumar [102] states that questionnaires are cost effective and could be distributed to a larger population over a shorter period of time and that they provide data amenable to quantification, either through the simple counting of boxes or through the content analysis of written responses.

3.9 Data analysis

Data analysis is the practice of working with data to glean useful information, which is then be used to make informed decisions [124], and it is also the key of both quantitative and qualitative research. The data was organized around each research question, relating to experiences of respondents who access Rwanda IECMS, and the factors that shape their experiences. The researcher examined the interviews, observations, and archival data for similarities and differences. This research concentrated on users' experiences with the use of Rwanda IECMS in Nyaruguru district.

The data collected were analyzed using both qualitative and quantitative methods. Descriptive statistics were used, and the results are presented using tables and graphs, and interpreted based on the research objectives and questions. The findings provide valuable insights into the extent to which residents of Nyaruguru District are satisfied with IECMS and the reasons for their satisfaction or dissatisfaction.

Objective 1: To reveal the extent to which residents of Nyaruguru District are satisfied with IECMS.

To analyze this objective, data gathered on the level of satisfaction of the residents of Nyaruguru District with the IECMS. Quantitative analysis was used to measure the level of satisfaction of residents. We used a Likert scale to measure satisfaction levels. We also asked open-ended questions to gather residents' opinions and feedback on their satisfaction with the IECMS. Data was analyzed using descriptive statistics to explore the reasons behind the satisfaction or dissatisfaction.

Objective 2: To explore ways and effectiveness of IECMS in rural areas like Nyaruguru District community can be improved

for this objective, qualitative analysis techniques were used to explore the perceptions and experiences of the community about IECMS obtained from the open-ended survey questions.

Objective 3: To develop a model that can make IECMS more easily accessible to residents of Nyaruguru District.

For this objective, this study used a mixed-method approach to analyze the data collected. The quantitative and qualitative data collected were analyzed using both descriptive statistics. The results obtained informed the development of the model for improving the effectiveness of IECMS for residents of Nyaruguru District.

CHAPTER 4: RESEARCH FINDINGS AND ANALYSIS

4.1. Introduction

This chapter focuses on examining and interpreting data collected from the field. The data was collected from a sample of Nyaruguru residents, IECMS trainees, IremboGov Agents, MAJ, IECMS trainees, Abunzi (Mediation committee) representative, registrars, and a judge from Kibeho Tribunal court of Nyaruguru District. The data was collected using questionnaires deployed on google forms. The links of the questionnaires were shared with informants via emails and WhatsApp. The findings were interpreted by using frequency and percentage table while using MS excel. Qualitative findings were analyzed using excel into themes and subthemes to understand the reasons behind respondents' quantitative responses.

4.2. Instruments return rate

The researcher administered eight distinct questionnaires to a group of 500 participants. Out of these, 359 respondents provided feedback, resulting in a response rate of 71.8%. The researcher considered this level of engagement to be satisfactory, considering the geographical distribution of the targeted population.

4.2.1. The group participation of the respondents

On this section, the researcher wanted to establish the participation of each group of the respondents in the study *table 8.* Participants' percentage are represented in the table below as a percentage.

Table 8: Group respondent's participation

Group	Returned responses		Target responses
	Number	Percentage	
District MAJ	0	0%	1
Abunzi	40	100%	40
Certified IECMS' users	7	63.63%	11
Irembo Agents	3	50%	6
District ICT Personnel	1	100%	1
Judges	1	100%	1
Registrars	1	50%	2

Group	Returned responses		Target responses
	Number	Percentage	
Residents	306	69.86%	438
Total	**359**	**71.8%**	**500**

The table 8, showed that there are 0 (0%) district MAJ, 40(100%) are Abunzi, 7 (63.63%) Certified IECMS trainees, three (50%) Irembo Agents, one (100%) ICT personnel, one (100%) Judge, 1(50%) registrars and 306 (69.86%) residents of Nyaruguru district.

The responses obtained from the respondents were enough 359(71.8%) of the total targeted respondents for our research to generalize the issue of challenge and effectiveness of using IECMS in Nyaruguru district.

4.2.2. Gender distribution

The following table presents information regarding the characteristics of the respondents or informants, who participated in the study. The data collected covered the subjects' gender as represented in the table below:

Table 9: Gender distribution

S/N	Group	Gender		Total
		Male	Female	
1	District MAJ	0	0	0
2	Abunzi	25	15	40
3	Certified IECMS users	7	0	7
4	Irembo Agents	2	1	3
5	District ICT Personnel	1	0	1
6	Judges	1	0	1
7	Registrars	1	0	1
8	Residents	147	159	306
Total		**184**	**175**	**359**

Referring to the *table 9* above, out of the 359 respondents, 51.25% (184) were male and 48.74% (175) were females.

The figure below shows the gender distribution of respondents.

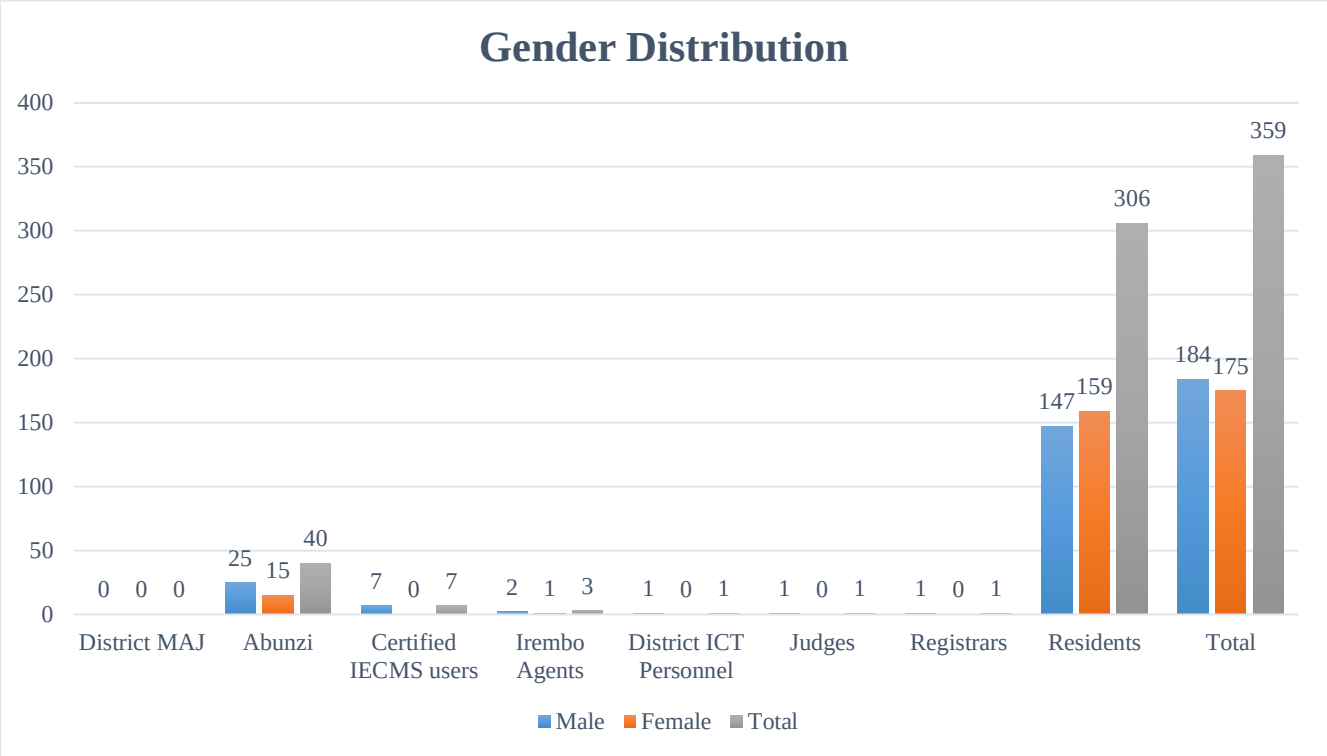

Figure 6: Presentation of demographic data

The total targeted respondents n=500. Blue represents male, orange for female and grey for totals of the gender respondents.

4.3. Presentation of findings on the effectiveness of IECMS in Nyaruguru District

This section presents the users' feedback when they file cases to access the services provided by the system. The section provides the insight on how responsive the system is to the users to get the service, the advantages and challenges the litigants face while using it. The training received by service providers and the intended use of the district users' of IECMS

4.3.1. Abunzi (Mediation Committee Representatives)

4.3.1.1.Mediation committee demographics

The *table 10*, shows the sector of the mediation committee members who responded to the questionnaire.

Table 10: Residence of Mediation committee representative.

Sector	Frequency	Percent
1. Busanze	2	5
2. Nyabimata	3	7.5
3. Nyagisozi	3	7.5
4. Ruheru	5	12.5
5. Ruramba	5	12.5
6. Rusenge	3	7.5
7. Cyahinda	1	2.5
8. Kibeho	2	5
9. Kivu	3	7.5
10. Mata	2	5
11. Muganza	3	7.5
12. Munini	2	5
13. Ngera	2	5
14. Ngoma	4	10
Total	**40**	**100**

4.3.1.2.Mediation committee Gender

The table 11 shows the gender distribution of the respondents. Out of the total 40 respondents, 25 identified as male, representing 62.5% of the sample, while 15 identified as female, representing 37.5% of the sample. This data indicates that there were more male respondents than females respondents in the survey.

Table 11: Mediation committee gender

Gender	Frequency	Percent
Male	25	62.5
Female	15	37.5
Total	40	100

4.3.1.3.Mediation committee IECMS' awareness

In this research, we tried to explore the mediation committee member awareness on the IECMS. Table 12 shows how the respondents reacted.

Table 12: Mediation committee who had heard about IECMS

Feedback	Frequency	Percent
Yes	39	97.5
No	1	2.5
Total	**40**	**100**

It shows that, 97.5% of the respondents (39 out of 40) stated that they have heard about the IECMS, and only 2.5% of the respondents (1 out of 40) were not aware of the IECMS.

4.3.1.4.Mediation committee trainings

Among the respondents who responded that they have heard about the IECMS, *table 13* shows how only 7.5% (3 out of 40) have received the training while the majority 92.5% (37 out of 40) did not.

Table 13: the training status of mediation committee

Feedback	Frequency	Percent
Yes	3	7.5
No	37	92.5
Total	**40**	**100**

4.3.1.5. Mediation committee satisfaction experience from citizens

When the mediation committee members were asked about their level of satisfaction with IECMS, 57.5% of the respondents (23 out of 40) reported being satisfied with the use of IECMS. 35% of the respondents (14 out of 40) expressed a neutral stance, while 7.5% of the respondents (3 out of 40) were unsure about their satisfaction level.

Table 14: Mediation committee's level of satisfaction regarding the use of IECMS

Level of satisfaction	**Frequency**	**Percent**
Satisfied	23	57.5
Neutral	14	35
not sure	3	7.5
Total	40	100

The mediation committee feedback about the great percentage of satisfaction, it indicates that the majority of mediation committee representative have observed positive satisfaction levels among citizens in their use of the IECMS platform.

4.3.1.6.Mediation committee feedback on the quality of justice impact.

Regarding the impact of IECMS on the **quality of justice services** in Nyaruguru district ***(Table 15 and figure 6),*** the responses from the respondents proved that 3% of the respondents (1 out of 40) expressed that IECMS has not contributed to any improvement in the quality of justice services. 55% of the respondents (22 out of 40) noted a slight improvement in the quality.27.5percentage of the respondents (11 out of 40) observed a moderate improvement. While 15% of the respondents (6 out of 40) reported a significant improvement in the quality of justice services.

Table 15: Extent IECMS has improved the quality of justice services delivery in Nyaruguru community

Feedback	Frequency	Percent
Not at all	1	3
slightly improved	22	55
moderately improved	11	28
very much improved	6	15
Total	40	100

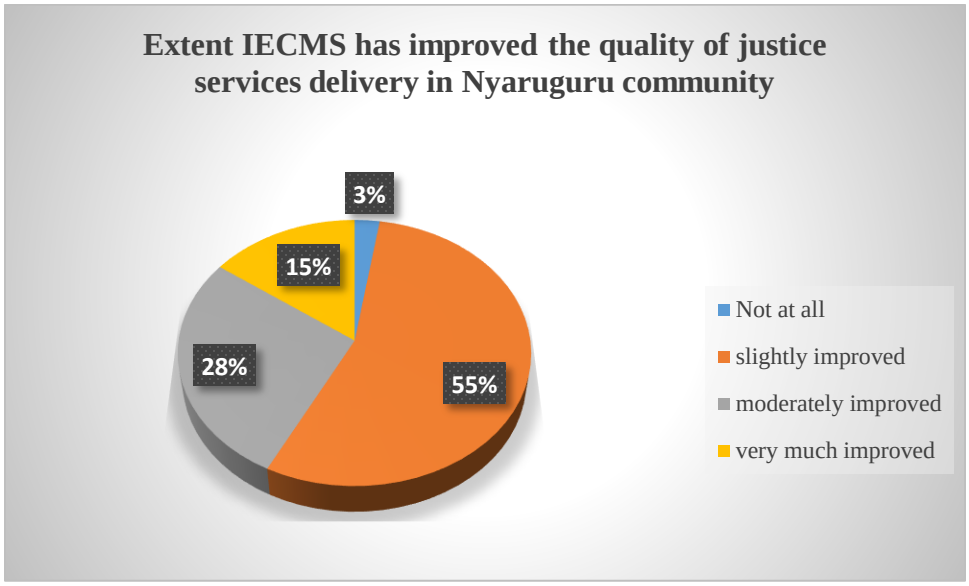

Figure 6: Extent IECMS has improved the quality of justice services delivery in Nyaruguru community

4.3.1.7.Mediation committee feedback on the IremboGov and IECMS trainees' support.

Based on the feedback obtained from the mediation committee participants regarding their satisfaction with the **support provided by IremboGov agents and IECMS trainees** ***(Table 16 and figure 7)*** in relation to IECMS, the following findings were observed:

Very Satisfied: A minority of respondents (2.5%, 1 out of 40) expressed being highly satisfied with the support received. This indicates that a small portion of the participants had a positive experience with the assistance provided.

Satisfied: A considerable proportion of respondents (37.5%, 15 out of 40) reported being satisfied with the support they received. This suggests that a notable number of participants found the assistance provided by IremboGov agents and IECMS trainees to be satisfactory.

Neutral Stance: The majority of respondents (57.5%, 23 out of 40) expressed a neutral stance, indicating neither satisfaction nor dissatisfaction with the support provided. These participants neither strongly praised nor criticized the assistance received

2.5% of the respondents (1 out of 40) reported being **very unsatisfied**.

Table 16: Satisfaction status with the support provided by IremboGov. IECMS Trainees in relation to IECMS?

Satisfaction feedback	Frequency	Percent
Very satisfied	1	2.5
Satisfied	15	37.5
Neutral	23	57.5
Very unsatisfied	1	2.5
Total	40	100

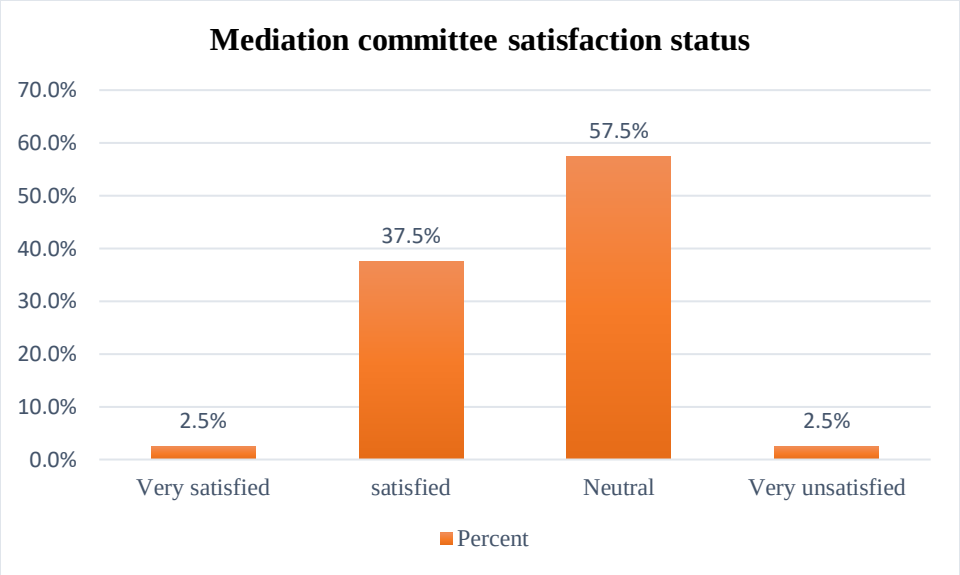

Figure 7: Mediation committee satisfaction status with the support provided by IremboGov. IECMS Trainees in relation to IECMS

Regarding satisfaction with the support provided by IremboGov and IECMS Trainees, qualitative findings indicated that a significant proportion of respondents expressed satisfaction. Some participants reported being very satisfied, while others expressed satisfaction. Additionally, a smaller proportion of respondents had a neutral opinion regarding the support received. These findings suggest that the majority of Abunzi are satisfied with the support provided by IremboGov, IECMS Trainees in relation to the IECMS platform

4.3.2. Nyaruguru Residents

The data from Nyaruguru resident presents a diverse sample related to the IECMS use. This diversity contributed to a richer and more comprehensive understanding of the research topic under investigation. That helped in interpreting and generalizing the findings of the study. explain the participants' demographics.

4.3.2.1. Nyaruguru residents' age groups

The data shows *(in table 17)* a relatively balanced distribution across different age groups. The largest age group is 25-34, accounting for 32.4% of the respondents, followed by 35-44 (22.9%) and 18-24 (17.6%).

Table 17: Nyaruguru residents' age groups

Age group	Frequency	Percentage
18-24	54	17.6
25-34	99	32.4
35-44	70	22.9
45-54	39	12.7
55+	44	14.4
Total	306	100.0

The older age groups, 45-54 and 55+, represent 12.7% and 14.4% of the respondents, respectively. This suggests a diverse range of participants in the study, covering a wide age range

4.3.2.2. Nyaruguru residents' Education

The *table 18*, the data reveals that a significant proportion of respondents have achieved higher levels of education. The "college or University" category stands out with the highest percentage, comprising 33.0% of the participants. Following this, "Secondary school" accounts for 28.1%, and "Primary school or less" represents 19.3%. Additionally, the "Other" category comprises 19.6% of the respondents.

Table 18: Nyaruguru residents' education

Education	Frequency	Percentage
Primary school or less	59	19.3
Secondary school	86	28.1
college or University	101	33.0
Other	60	19.6
Total	306	100.0

These findings suggest that individuals who were able to comprehend the question format and provide responses using the shared data collection link are predominantly those with college or university backgrounds. This highlights the importance of extending technological accessibility and education to the broader community. By embracing emerging technologies, we can ensure greater inclusion and engagement among individuals with diverse educational backgrounds.

4.3.2.3. Nyaruguru residents' sectors

The data provides information about the distribution of respondents across different sectors *(table 19)*. The sector with the highest frequency is "Busanze" (10.5%), followed by "Kibeho" and "Kivu" (both at 10.1%). Other sectors, such as "Muganza," "Cyahinda," and "Mata," also have notable representation. The remaining sectors have relatively smaller frequencies.

Table 19: Nyaruguru residents sectors

Sector	Frequency	Percentage
Busanze	32	10.5
Nyabimata	17	5.6
Nyagisozi	16	5.2
Ruheru	17	5.6
Ruramba	17	5.6
Rusenge	17	5.6
Cyahinda	22	7.2
Kibeho	28	9.2
Kivu	31	10.1
Mata	27	8.8
Muganza	31	10.1
Munini	16	5.2
Ngera	18	5.9
Ngoma	17	5.6
Total	306	100.0

These findings suggest that the sample includes participants from multiple sectors, with some sectors having higher participation than others do during this study.

4.3.2.4. Type of devices residents use while accessing the System

The data collected from 306 respondents provides insights into the types of devices used to access the system ***(Table 20).*** The analysis examines the frequency and percentages of device usage among the respondents.

Table 20: Type of device the citizens use while accessing the System

Devices	Frequency	Percent
Personal Computer	59	19.3
Personal Tablet	13	4.2
Personal Smartphone	170	55.6
Other	64	20.9
Total	306	100.0

The data indicate that personal smartphones are the most commonly used devices among the group, representing 55.6% of the total devices. Personal computers follow with 19.3%, while personal tablets have the lowest usage at 4.2%. The "Other" category accounts for 20.9% of the devices.

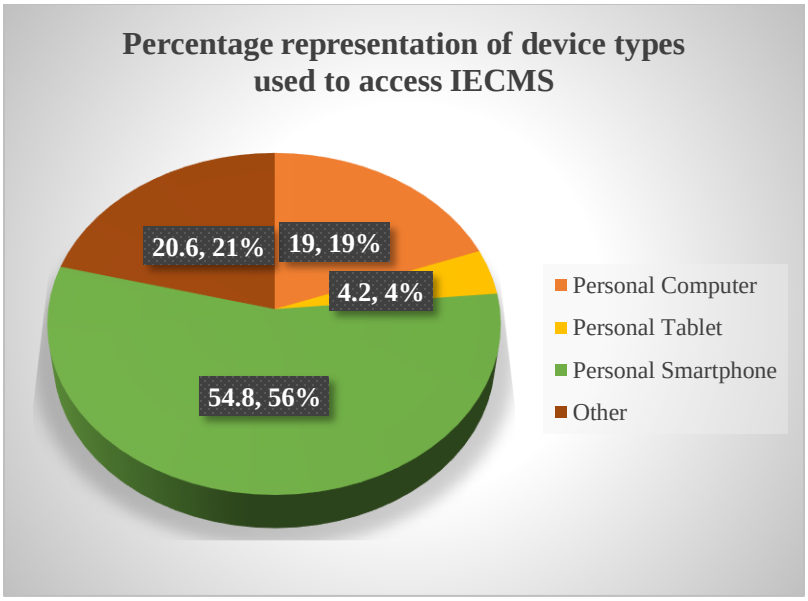

Figure 8: Percentage representation of device Residents use to access IECMS

As from the figure 8, findings suggest that personal smartphones are the most popular choice for accessing the system, with over half of the respondents having reported to using this device. This indicates the importance of mobile accessibility and the convenience offered by smartphones in accessing the system.

4.3.2.5. Residents' perception on the use of IECMS in Nyaruguru District

Table 21 shows that significant portions of respondents (39.5%) have experienced the judicial process in Rwanda, while 60.5% of the respondents did not. This indicates a relevant sample for understanding their perceptions of IECMS and its impact on the judicial system.

Table 21: Nyaruguru residents who have gone through the judicial process in Rwanda

Respondents feedback	Frequency	Percent
Yes	121	39.5
No	185	60.5
Total	306	100.0

4.3.2.6. Citizens' satisfaction who have undergone judicial process

Among those who have responded, only 121 (39.5%) out of 306 expressed their level of satisfaction in the judicial process (*Table 22*). Among the respondents who provided an answer, the satisfaction levels with the judicial process 8.5% (26 out of 122) expressed being **very satisfied** with the judicial process,16% (49 out of 122) reported being satisfied. 11.4% (34 out of 122) had a **neutral stance**. 2.3% (7 out of 122) expressed being **dissatisfied**. 1.6% (5 out of 122) reported being **very dissatisfied.**

Table 22: Satisfaction status of respondents who have gone with the judicial process

Satisfaction status	Frequency	Percent
Very satisfied	26	8.5
Satisfied	49	16
Neutral	34	11.1
Dissatisfied	7	2.3
Very Dissatisfied	5	1.6
Total	**121**	**39.5%**

4.3.2.7. Nyaruguru citizens' IECMS Awareness

The awareness of Rwanda's IECMS *(table 23)* among respondents is relatively high, with nearly half (48.4%) indicating prior knowledge of the system.

Table 23: Respondents who have heard the Rwanda IECMS

Feedback	Frequency	Percentage
Yes	148	48.4
No	158	51.6
Total	**306**	**100**

The findings indicate a positive trend in terms of information dissemination and outreach efforts related to IECMS.

4.3.2.8. How Citizens learnt how to use IECMS

From the way respondents learned about IECMS *(Table 24)*, 16.3% (50 out of 154) learned about IECMS through the media. 14.1% (43 out of 154) discovered IECMS through a government agency. 5.9% (18 out of 154) learned about IECMS from a community leader. 14.1% (43 out of 154) indicated other sources as their means of learning about IECMS.

Table 24: How residents have learned about the IECMS

Channels	Respondents	percentage
Through the media	50	16.3
Through a government agency	43	14.1
Through a community leader	18	5.9
Other	43	14.1
Total	**154**	**50**

Findings show that, the sources through which respondents learned about IECMS vary, 154 respondents (50%) out of 306, learned the IECMS. with media and government agencies being the most common channels. This implies that these communication channels have been effective in disseminating information about IECMS to the target audience.

4.3.2.9. The potential of IECMS to decrease delays and expenses in the judicial process

Table 25 shows 28.1% (86 out of 306) of the respondents expressed that they do not believe IECMS has the potential to decrease delays and expenses. 23.5% (72 out of 306) of the respondents were unsure about the potential of IECMS to decrease delays and expenses in the judicial process.

Table 25: Respondents' opinions regarding the potential of IECMS to decrease delays and expenses in the judicial process

Respondents' opinions	Frequency	Percent
Yes	148	48.4
No	86	28.1
Not Sure	72	23.5
Total	306	100.0

Respondents' opinions on the findings regarding the potential of IECMS to decrease delays and expenses in the judicial process, a significant portion 48.4% (148 out of 306) expresses how IECMS contributes in the judicial process. This suggests how they believe that IECMS has the potential to decrease delays and expenses in the judicial process.

4.3.2.10. Nyaruguru residents on the IECMS' use

When the respondents asked if they or anyone they know has used IECMS, *Table 26* provided the valid responses of their feedback. The percentage of 38.6% means (118 out of 306) of the respondents stated that they or someone they know has used IECMS, while 61.4% (188 out of 306) of the respondents indicated that they or no one they know has used IECMS.

Table 26: IECMS residents' use

Responses	Frequency	Percent
Yes	118	38.6
No	188	61.4
Total	**306**	**100.0**

4.3.2.11. Nyaruguru residents on IECMS Satisfaction feedback

Among the respondents who indicated that they or someone they know has used IECMS, their satisfaction feedback with the judicial process is *in table 27*:

13.7% (42 out of 127) expressed being very satisfied with the IECMS.

21.2% (65 out of 127) reported being satisfied.

3.6% (11 out of 127) had a neutral stance.

2.9% (9 out of 127) expressed being dissatisfied. To note, (41.4%) only 127 out of 306 contributed.

Table 27: IECMS respondents' satisfaction feedback

Variables	Frequency	Percent
Very satisfied	42	13.7
Satisfied	65	21.2
Neutral	11	3.6
Dissatisfied	9	2.9
Total	**127**	**41.4**

4.3.2.12. Nyaruguru district residents' IECMS usefulness

When asked the Nyaruguru resident respondents *(Table 28)* if they have **ever used** the IECMS to access judicial services, 299 (97.7%) out of 306 respondents gave feedback. Where 11.1% (34 out of 299) found the IECMS to be very useful. 8.5% (26 out of 299) found to be useful. 3.3% (10 out of 299) had a neutral opinion. 73.2% (224 out of 299) indicated that they have not used the IECMS, while 1.6% (5 out of 299) considered the IECMS not useful.

Table 28: Respondents from Nyaruguru residents' on the IECMS' usability.

Responses	Frequency	Percent
Very Useful	34	11.1
Useful	26	8.5
Neutral	10	3.3
I have not used the IECMS	224	73.2
Not useful	5	1.6
Total	299	97.7

The qualitative findings based on respondent responses regarding their usage of the IECMS, mentioned as follows:

A majority of the respondents stated that **they have not used the IECMS**. This indicates a lack of personal experience or familiarity with the system.

These are some feedback

" I *didn't use the system, because I think I have been in legal services process, before the system deployment*"

"I didn't use the IECMS"

"I didn't use the IECMS I haven't any information about it"

Some respondents mentioned that **they found the IECMS to be useful** in accessing the judicial process. They may have benefited from features such as reducing travel expenses, case tracking or document submission through the system. Respondent feedback *"Using IECMS system is useful because it decreases delays and expenses to access the judicial services"*

A smaller proportion of respondents expressed that **the IECMS was very useful**. These individuals likely found the system highly effective in streamlining their interaction with the judicial process. *"IECMS helped me a lot. It reduced travel expenses, costs and I use to get the case updates on time*".

A few respondents **had a neutral opinion**, indicating that they have not formed a strong impression of the IECMS and had limited experience with it, as many of them it is their first getting understand the IECMS system.

4.3.2.13. Nyaruguru district residents' IECMS perceived benefits

Table 29 , reflects how 148(48.3%) out of 306, explained in terms of the perceived benefits of the IECMS in accessing justice for people in Nyaruguru District,

Table 29: Feedback on how beneficial IECMS in access to Justice for people in Nyaruguru District is.

Feedback	Frequency	Percent
Saves time	67	21.9

Feedback	Frequency	Percent
Saves cost	38	12.4
Makes the process quick	34	11.1
Others	9	2.9
Total	**148**	**48.4**

The responses from participants are that:

21.9% (67 out of 148) mentioned that the IECMS **saves time in the justice process**. This suggests that the system helps expedite proceedings and reduces delays.

12.4% (38 out of 148) identified **cost savings** as a benefit of using the IECMS. This indicates that the system helps reduce expenses associated with accessing justice.

11.1% (34 out of 148) stated that the **IECMS makes the process quick**. This implies that the system streamlines the process and improves efficiency.

2.9% (9 out of 148) provided responses categorized as **"Others**." These responses likely include additional benefits or advantages of the IECMS that were not specifically mentioned in the given options.

4.3.2.14. Nyaruguru district residents on IECMS' recommendations feedback

The table 30, provides respondents' feedback on the IECMS use. The feedback shows that:

The percentage of 42.8% (131 out of 306) responded with a definite "**Yes**" to recommending the IECMS.

The percentage of 1.3% (4 out of 306) stated that they would not recommend the use of the IECMS.

The percentage of 27.5% (84 out of 306) expressed uncertainty by choosing the option "Not sure."

Table 30 Residents recommendations

Feedback	Frequency	Percent
Yes	131	42.8
No	4	1.3
Not sure	84	28.4
Total	219	71.6

According to the data interpretations, findings indicate that a significant proportion of respondents are in favor of recommending the use of the IECMS to others in their community. However, it is worth noting that a small percentage of respondents are not inclined to recommend it, and a considerable number of respondents are unsure about their recommendation.

4.3.3. IECMS trainees' feedback on the use of IECMS in Nyaruguru District

4.3.3.1 Sectors of Participants

Majority of respondents were from the Busanze sector, representing 42.9% of the sample. Kibeho sector comprises 28.6% of the respondents, while Kivu and Muganza sectors each have 14.3% representation as shown in table 31.

Table 31: IECMS trainees' residents

Sectors	Frequency	Percentage
Busanze	3	42.9
Kibeho	2	28.6
Kivu	1	14.3
Muganza	1	14.3
Total	**7**	**100**

4.3.3.2. Gender of Participants

All respondents *(Table 32)* in the sample are male, accounting for 100% of the participants. This indicates a gender imbalance within the study population.

Table 32: IECMS trainees' respondents' gender

Gender	Frequency	Percentage
Male	7	100
Female	0	0
Total	7	100

4.3.3.3. Education level

Table 33, among the participants, 71.4% have a college or university education, while 28.6% have completed secondary school. No other education levels are represented in the sample.

Table 33: IECMS trainees' education level

Education	Frequency	Percent
Secondary school	2	28.6
college or University	5	71.4
Total	7	100

4.3.3.4. IECMS trainees on familiarity with the IECMS

The table 34, shows that 57.1% of all respondents claim to be very familiar with the IECMS system used in the legal system. 28.6% consider themselves somewhat familiar, and 14.3% indicate being not familiar at all.

Table 34: IECMS trainees on familiarity with the IECMS system use in the legal system

Feedback	Frequency	Percent
Very familiar	4	57.1
Somewhat Familiar	2	28.6
Not Familiar at all	1	14.3
Total	**7**	**100**

4.3.3.5. Kind of training and support received

When asked "*What kind of training and support they have received to manage and maintain the IECMS system in the legal system in Nyaruguru District?"* The qualitative responses indicate that the majority of IECMS trainees' residents in Nyaruguru District ***have received training*** and support to manage and maintain the IECMS system in the legal system. Specifically, 5 out of 6 respondents mentioned receiving training related to the use of IECMS. This demonstrates a high level of engagement and readiness among the trainees to effectively use the system for legal processes.

However, one respondent indicated not receiving any form of training. This suggests the need for ensuring comprehensive and inclusive training programs for all IECMS trainees to ensure uniformity and proficiency in managing and maintaining the system.

4.3.3.6. Impact of IECMS-on-IECMS trainee workload

Regarding the impact of the IECMS *(table 34)*, system on workload, 71.4% of the respondents report a significant impact of the workload increase, 14.3.% indicate a decrease workload, and 14.3% claim no impact due to no change in workload.

Table 35: IECMS impact on IECMS trainee workload in Nyaruguru District.

Impact	Frequency	Percent
Increased Workload	5	71.4
Decreased workload	1	14.3
No change in Workload	1	14.3
Total	7	100.0

The qualitative findings suggest that within the specified sample, the majority of respondents experienced the increased workload, while few experienced decreased and no change in workload.

4.3.3.7. *Type of device IECMS trainees use while accessing the system*

The majority of respondents in ***table 35***, are 85.7%, reported using a personal computer. This indicates that personal computers are the most common device for accessing the system among the respondents. Additionally, 14.3% of the respondents reported using a personal computer and smartphone.

Table 36: IECMS trainees Devices

Devices	Frequency	Percent
Personal Computer	6	85.7
Personal Computer, Personal smartphone	1	14.3
Total	**7**	**100.0**

These findings suggest that a significant portion of the respondents prefer using personal computers for accessing the system, which might be due to factors such as screen size, ease of use, or specific software requirements. However, from the respondent only one IECMS trainee use both a personal computer and a personal smartphone, indicating a multi-device usage pattern that can help him to serve many citizens.

4.3.4. IremboGov Agents feedback

4.3.4.1. IremboGov Agents gender

Table 37. The participants in IremboGov agents survey 66.7% were male, 33.3% was female in 3 (50%) participants out of 6 (100%) were expected during the survey to contribute.

Table 37: IremboGov participant Gender

Gender	Male	Female	**Total**
Frequency	2	1	**3**
Percentage	66.7	33.3	**100.0**

4.3.4.2. IremboGov Agents' sectors

Regarding the sector, ***table 38***, the data shows that each sector (Busanze, Muganza, and Ngoma) had an equal representation, with 33.3% of respondents from each sector.

Table 38: IremboGov agents' sectors

Sectors	Busanze	Muganza	Ngoma	**Total**
Frequency	1	1	1	**3**
Percentage	33.3	33.3	33.3	**100.0**

4.3.4.3. IremboGov Agents' education

Table 39 shows the IremboGov agents' education, among them 66.7% of the respondents had a secondary school education while 33.3% had a college or university education

Table 39: IremboGov agents' education

Education	Secondary school	college or University	**Total**
Frequency	2	1	**3**
Percentage	66.7	33.3	**100.0**

The findings suggest that the majority of the respondents had a secondary school level of education.

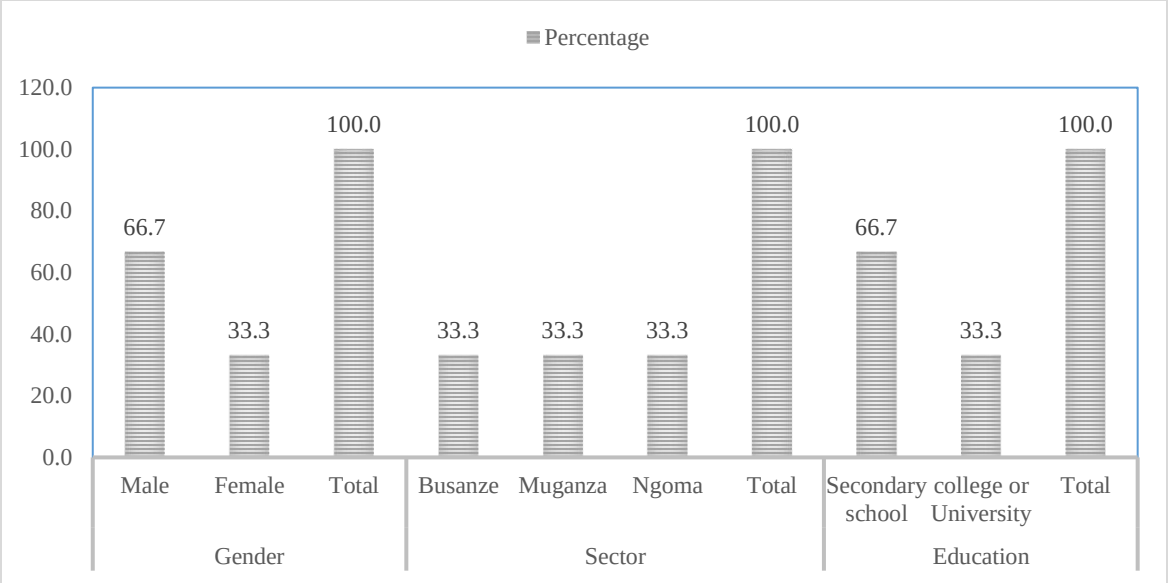

Figure 9: Bar chart representation of the IremboGov survey participants

4.3.4.4. IremboGov Agents on IECMS' perceptions

The table 40 explains the IremboGov agents' perceptions on the IECMS. All three agents have been working as IremboGov agents for 1-3 years. This implies a moderate level of experience among the agents in using the IECMS.

Table 40: IremboGov agents' perception on the IECMS Use

Period they served as an IremboGov Agents	Frequency	Percentage
1-3 years	3	100.0

4.3.4.5. IremboGov agents' IECMS usability, Effectiveness and responsiveness feedback

Table (41) only one agent (33.3%) reported finding the IECMS somewhat easy to use, indicating a potential usability concern. As, the majority of agents (66.7%) had a neutral opinion, implying that further investigation may be needed to understand their specific usability challenges.

Table 41: Usability rate of IremboGov Agents

IECMS Usability rate	Feedback	Frequency	Percent
	Somewhat easy to use	1	33.3
	Neutral	2	66.7
	Total	3	100.0

4.3.4.6. How often IremboGov use IECMS.

The two IremboGov agents *(Table 42)* respondents (66.7%) reported using the IECMS on a daily basis, while one agent (33.3%) reported using it rarely. The information indicates that the majority of agents use the system frequently.

Table 42: How often IremboGov use IECMS.

How often IECMS is used	Frequency	Percentage
Daily	2	66.7
Rarely	1	33.3
Total	3	100.0

4.3.4.7. IremboGov agents training status.

One agent (33.3%) reported receiving training on how to use the IECMS, while the other two agents (66.7%) did not receive any training in ***table 43***. This suggests a potential need for training programs to improve the agents' proficiency in using the system

Table 43: IremboGov agents training status

Feedback on training	Frequency	Percentage
Yes	1	33.3
No	2	66.7
Total	3	100.0

4.3.4.8. IremboGov agents on IECMS effectiveness rate

Table 44 shows that among the agents who responded the survey two agents (66.7%) rated the IECMS as very effective. This indicates that although the training program had equipped one IremboGov agent, there is a probability that the other respondent has a positive feedback the perception of the system's effectiveness.

Table 44: IremboGov on IECMS effectiveness rate

IECMS effectiveness rate	Frequency	Percentage
Very effective	2	66.7
Total	2	66.7

Qualitative feedback on the cause of the IECMS effectiveness rate, the respondents answered that the main reason was observed through the reduction of travel expenses, which is at high rate.

4.3.4.9. IremboGov agents on IECMS responsiveness feedback from citizens

Table 45 is about how the perception of citizen, responsiveness on IECMS varied. One agent (33.3%) reported citizens as very responsive, one agent (33.3%) reported them as neutral, and one agent (33.3%) reported them as somewhat unresponsive.

Table 45: IremboGov responsiveness feedback from citizens to the IECMS use

Responsiveness feedback from the citizens to the IECMS use	Frequency	Percentage
Very responsive	1	33.3
Neutral	1	33.3
Somewhat unresponsive	1	33.3
Total	**3**	**100.0**

4.3.4.10. IremboGov agents on IECMS Technical feedback

Two agents (66.7%) reported encountering technical problems occasionally **(*Table 46),*** while one agent (33.3%) reported encountering them frequently. This highlights the need for technical support and troubleshooting to ensure smooth system usage.

Table 46: IremboGov agents on IECMS technical feedback

Technical problems feedback on the IECMS use	Frequency	Percentage
Occasionally	2	66.7
Frequently	1	33.3
Total	**3**	**100.0**

4.3.4.11. IremboGov agents on IECMS impact in Nyaruguru Community

All three agents (100%) rated the overall impact *(Table 47)* of the IECMS on the justice system in Nyaruguru District as very positive. This indicates a positive perception of the system's contribution to the justice system.

Table 47: The overall impact of the IECMS on the justice system in Nyaruguru District

Impact feedback	Frequency	Percentage
Very positive	3	100.0

4.3.4.12. IremboGov feedback on IECMS' use

The *table 48*, In terms of usability, there is a number of the respondents who rated the IECMS as usable, while others considered it as not usable. Regarding the responsiveness of citizens towards using the IECMS, found citizens to be responsive, while were uncertain about their level of responsiveness.

Table 48: IremboGov agents' key feedback

Category	Sub-category	Descriptions
1. IECMS Usability	Usable	The respondents reported that the system is usable to both the citizens and IremboGov agents
2. IECMS' Effectiveness	Reduce travel expenses	The respondents confirmed that the system reduces the ravel expenses
	System reduced cost	The IremboGov agents' experience, they are certain that the system has contributed in reducing cost to the citizens.
3. Responsive	Responsive	Respondent they are certain that the system Is responsive and others they are unsure if the system is responsive as to the fact that they did not go through it.

4.3.5. Kibeho tribunal court Judge and Registrar contribution

During the survey, it was anticipated that both a judge and two registrars from Kibeho tribunal court would participate. However, only one registrar (50%) and a judge actually took part in the survey.

4.3.5.1. The Registrar

The registrar who responded to the questionnaire has over 10 years of experience and is highly familiar with the IECMS system. He has received training on how to use the IECMS and primarily accesses the system using a personal computer. According to his feedback, the IECMS is highly effective in his work. However, he mentioned that the use of IECMS has resulted in an increased workload for him.

The Registrar has actively used the IECMS for legal purposes, specifically for filing legal cases, accepting cases, and recording related service activities, with the exception of judicial adjudication. Based on the registrar's experience, the IECMS plays a crucial role in processing services quickly and efficiently. However, the main challenge encountered while using the system for legal purposes in Nyaruguru District is the issue of slow internet connection. Despite this challenge, the registrar emphasizes the effectiveness of the IECMS, as it allows access to the system from anywhere, including during holidays, without the need to visit the office.

To further enhance the IECMS for legal purposes in Nyaruguru District, the registrar highlights the importance of training to ensure proficiency in processing daily reports within the system. Such training and support would greatly contribute to improving the overall functionality of the IECMS. Additionally, the registrar notes that the system has increased the workload, as citizens are now able to file their cases conveniently from their homes, resulting in time savings.

The impact of the IECMS on the efficiency and effectiveness of the legal system in Nyaruguru District is significant. It enables fast processing of services and enhances transparency. To improve the use of the IECMS not only in Nyaruguru District but also in other rural areas of Rwanda, the registrar recommends addressing the internet connectivity infrastructure to ensure a reliable and stable connection. Furthermore, comprehensive training for IremboGov agents, who play a crucial role in assisting citizens, is deemed essential for the successful use of the IECMS.

4.3.5.2. The Judge

The judge, with over 10 years of experience, is highly familiar with the IECMS and regularly uses it to access the system. He has received training on its usage and acknowledges that the IECMS has the potential to reduce delays and expenses in the judicial process. From the litigants' perspective, the IECMS provides better access to information and has improved transparency in the justice system. One challenge the judge faces is the slow internet, which causes processing delays. However, he affirmed that he has never encountered a situation where someone was denied justice due to delays or expenses in the judicial process.

In Nyaruguru District, citizens actively use the IECMS to access judicial services. The judge observed a significant improvement in the quality-of-service delivery compared to the traditional system. Delays in dispensing justice services through the IECMS are rare, unlike the traditional system. In addition, he confirmed that, the IECMS offers advantages in terms of accessing justice services and contributes to faster service delivery.

The judge expressed that the IECMS has the potential to significantly reduce delays and expenses in the judicial process. One of the highlighted was the **system's speed** and **accessibility**, as individuals can request judicial *key advantages* services anytime and from anywhere, even on holidays, without the need to travel to the courts. However, a challenge faced by the judge was the slow internet connection, which affected the system's performance. ***To address this***, the judge suggested improving the IECMS by enhancing the internet infrastructure and providing comprehensive training to IremboGov agents to ensure their proficiency in the system use.

The judge shared a personal experience of how the IECMS has effectively addressed the issue of delayed services. Previously, there were instances when justice was denied due to delays, especially during holidays when traveling was not feasible. However, with the introduction of the IECMS, individuals can file cases and access judicial services even during holidays. This has significantly improved the quality-of-service delivery. The judge emphasized that the IECMS has brought about various benefits, including ***reduced travel expenses***, ***increased transparency, fast case processing,*** and ***easy service requests and provision***. When comparing the IECMS to the traditional system, the judge stated that there are no disadvantages.

To promote and encourage the use of the IECMS in rural areas of Nyaruguru district, the judge recommended training for all IremboGov service providers. This approach would ensure that

individuals in remote areas have access to reliable and efficient judicial services through the IECMS.

These findings underscore the importance of ongoing support mechanisms to address technical issues, provide continuous training, and offer reliable customer service, thus facilitating the smooth operation of the IECMS system.

4.3.6. Nyaruguru District ICT Personnel feedback

The feedback received from the ICT personnel in Nyaruguru District regarding the implementation of the Rwanda IECMS provides valuable insights into the adequacy of ICT infrastructure, challenges faced, effectiveness, reliability, and suggestions for improvement. The ICT personnel, who has been involved in implementing the IECMS for 1-3 years, reported that the ICT infrastructure in Nyaruguru District is considered very adequate for the effective implementation of the system, with internet facilities available at all administrative levels.

Although specific challenges encountered in implementing the IECMS were not mentioned, the ICT personnel highlighted the system's effectiveness in meeting user needs, while noting that its effectiveness depends on the users themselves. The IECMS was reported to be highly reliable, as all information entered into the system is directly visible in the judiciary.

However, the feedback did not provide any specific suggestions for improving the IECMS, observations on user adoption, or plans for enhancing its use in the future. Further research and analysis are necessary to gain a comprehensive understanding of these aspects and to identify opportunities for enhancing the implementation and use of the IECMS in Nyaruguru District.

4.4. Advantages of the IECMS' uses

4.4.1. Nyaruguru residents' feedback on advantages of using the IECMS

From the ***table 49*** provided the advantages of IECMS in the community while filing cases. The respondents 26.8% (82 out of 152) mentioned faster processing times as an advantage. 2.9% (9 out of 152) highlighted reduced costs. 15.7% (48 out of 152) reported better access to information. 4.2% (13 out of 152) provided responses categorized as "other".

Table 49: Advantages of using the IECMS for citizen while filing a case

Advantages	Respondents	Percentage
Faster processing times	82	26.8
Reduced costs	9	2.9
Better access to information	48	15.7
Other	13	4.2
Total	**152**	**49.6**

Respondents identified several advantages of using IECMS for citizens during the case filing process, including faster processing times and reduced costs. These findings indicate that IECMS is perceived as a tool that can enhance efficiency and accessibility in the judicial system. 152 respondents (49.6%) out of 306.

In addition, qualitative findings proved the *main advantages of using the IECMS in rural areas*.

Their data demonstrated that the main advantages of using the IECMS in rural areas, include time and money saving, system usefulness, reduction of corruption, system responsiveness and information updates, and the reduction of travel expenses to courts. These advantages indicate the potential for the IECMS to bring efficiency, cost-effectiveness, and improved access to justice in rural communities.

System Time and Money Saving: A significant proportion of respondents recognized the system's ability to streamline processes and reduce costs associated with case management.

System Usefulness: This indicates that a small proportion of respondents found the system valuable in facilitating case management tasks and processes.

System Reduce Corruption: A few respondents acknowledged the system's potential in mitigating corrupt practices within the judicial process.

System responsiveness and information updates: This indicates that a significant portion of respondents appreciated the system's ability to provide timely updates and efficient communication channels for case-related information.

System reduce travel expenses to courts: A notable proportion of respondents found the system beneficial in minimizing the need for physical travel, thus reducing associated costs.

Quoted **"***IECMS is very good and easy to access it by reducing: transport cost, remove long time waiting service, it reduce corruption, but traditional system was very difficult to access service for example in rural areas where transport is expensive***".**

4.4.2. IECMS trainees' feedback on the advantage of using IECMS.

When asked, "*In your experience, what are some of the advantages of using IECMS in the legal system in Nyaruguru District from a technical perspective?*" The qualitative analysis of findings, The IECMS trainees' respondents emphasized that the **IECMS enables fast processing and monitoring of cases**.

Quoted "*quick solving and easy monitoring of case"," it quickens the services"*

This suggests that the system provides efficient tools and functionalities that allow for streamlined case management and real-time tracking of progress. By eliminating manual processes and paperwork, the IECMS contributes to faster and more efficient handling of legal proceedings.

The reduction in travel expenses for citizens was also mentioned as a significant advantage. The IECMS eliminates the need for individuals to physically visit legal offices or courts, as they can access and interact with the system remotely. This not only saves time and effort but also helps reduce the financial burden associated with travel, making the justice system more accessible and inclusive. Quoted *"It reduces travel expenses"*

Additionally, some IECMS trainees highlighted the potential *income increase* associated with the use of IECMS. The system provides opportunities for trainees to offer specialized services related to IECMS management and support. This additional source of income can contribute to the economic well-being of trainees and further incentivize their engagement and commitment to the platform.

IECMS trainees mentioned that the IECMS helps **save time**. The system automates various administrative tasks, simplifies processes, and provides efficient tools for data management and communication.

4.5. Challenges associated with the use of IECMS

4.5.1. Mediation committee challenges

Based on the feedback received from the mediation committee participants regarding the challenges citizens face while using IECMS, the following findings were observed, table 50:

Table 50: Mediation committee challenges on the use of IECMS

	Frequency	Percent
Technical difficulties	1	2.5
Insufficient training	34	85
Other	5	12.5
Total	40	100

Technical Difficulties: A small proportion of respondents (2.5%, 1 out of 40) reported experiencing technical difficulties while utilizing IECMS. These issues could potentially hinder the smooth usage of the system.

Insufficient Training: The majority of respondents (85%, 34 out of 40) identified insufficient training as a significant challenge. This suggests that citizens may not have received adequate guidance or education on how to effectively use IECMS, which could impede their ability to navigate the system and access justice services.

Other Unspecified Challenges: A portion of respondents (12.5%, 5 out of 40) mentioned facing challenges that were not specifically mentioned in the questionnaire. Although these challenges were not elaborated upon, it indicates the presence of additional obstacles that citizens encounter while using IECMS.

In addition to these challenges, qualitative findings revealed that the majority of respondents acknowledged the encountering of difficulties primarily due **to insufficient training** while using the IECMS.

4.5.2. Challenges Faced by Nyaruguru Residents: Insights from Respondents

The data in ***table 51*** highlights that the overall percentage (47.1%) face challenges to varying degrees, with a significant proportion experiencing them sometimes. And in particular:

29 respondents (9.5%) reported experiencing challenges "**almost never**." The data suggests that these challenges are infrequent or rarely encountered by this group of respondents.

33 respondents (10.8%) stated that they face challenges "**rarely**." It indicates that the mentioned difficulties are not a common occurrence for these individuals.

The majority of respondents, 71 (23.2%), reported facing challenges "**sometimes.**" It indicates that these difficulties occur periodically or intermittently in their experiences.

Only 11 respondents (3.6%) mentioned facing challenges "**often**." The data suggests that a smaller proportion of participants encounter these challenges on a regular or frequent basis.

Table 51: Nyaruguru residents' challenges

Feedback	Frequency	Percent
Almost never	29	9.5
Rarely	33	10.8
Sometimes	71	23.2
Often	11	3.6
Total	**144**	**47.1**

Therefore, the findings indicate that challenges are not consistently present but do occur intermittently for a majority of the respondents in Nyaruguru.

In addition, the qualitative findings provide insights into the challenges voiced by users when using the IECMS compared to the traditional system of accessing justice services. This were marked when asked, "*What are the main challenges of using the IECMS compared to the traditional system of accessing justice services?"*

Internet Connection Infrastructure: Respondents mentioned that the availability and reliability of internet connection pose challenges in using the IECMS effectively. For example, 51 out of 72, of the respondents on the internet connection infrastructure issue reported, this is one of the quotes "*Internet in rural areas is expensive and the network is also a problem".*

Digital Divide: Some individuals face difficulties due to disparities in access to technology and digital skills, limiting their ability to fully benefit from the IECMS. For example, *"ICT skills problems, Internet and technology devices, inadequate ICT skills" or "Insufficient skills or little knowledge on the use of system".*

Lack of training: Users expressed the need for more comprehensive training to navigate and use the IECMS efficiently; 41 respondents reported the *lack of training* as a challenge.

Lack of e-services center: The absence of physical infrastructure or dedicated support centers hampers users' ability to access assistance related to the IECMS, · respondent reported *"Internet, long distance traveling while seeking the assistance".*

Illiteracy: Individuals with limited reading or writing skills find it challenging to understand and use the IECMS effectively, this challenge was reported *"As I told you in the above response rural citizen who didn't study is very difficult to get information through IECMS ".*

System Complexity: Some users find the intricacies and complexities of the IECMS to be challenging in terms of navigation and usage, "*sometimes it is found in foreign languages which is difficult to the local resident to understand the system functionality*". " *The system account creation has many steps, as to the fact that filling some information in it is a problem to the new user".*

User Friendliness: A few respondents mentioned that they did not encounter any challenges related to user friendliness, indicating that they found the IECMS to be intuitive and easy to use. The responses like "*none", "I haven't seen some challenges"," There isn't".*

4.5.3. IECMS trainees Challenges

When the IECMS trainees asked, *"What are some of the challenges you have encountered while using the IECMS system for legal purposes in Nyaruguru District, and how have you addressed them?"* the respondents evaluated the challenge differently.

Users of the IECMS in Nyaruguru District faced several challenges, including a need for

Technical support

"At times, the IECMS site experiences intermittent outages, leading to difficulties in accessing the system. Similarly, delays and obstacles have been reported when submitting cases and

related information to the courts, affecting both the processing timeline and the reviewers involved."

"Inefficient IT support"

Advanced training in using the system, and

Access to training manual.

What type of support is needed to ensure the smooth functioning of the IECMS system in the legal system in the Nyaruguru District?

The qualitative findings indicate that there are **three key types of support** needed to ensure the smooth functioning of the IECMS system in the legal system of the Nyaruguru District.

- Firstly, IECMS technical support is crucial to address any technical issues that may arise during the operation of the system. A respondent quoted a word *"support".*

This support ensures that any technical glitches or problems with the system can be promptly resolved, minimizing disruptions to the workflow.

- Secondly, three respondents in six suggested IECMS **advanced training** is necessary to equip users with the necessary knowledge and skills to effectively use the system. The respondents highlighted the importance of receiving advanced training to fully understand and use the features and functionalities of the IECMS system. Quoted *"Regular training", "trainings", "more trainings "were* suggested.

This training can enhance the efficiency and effectiveness of users in managing and maintaining the system.

- Third, IECMS customer service support plays a vital role in helping and guidance to users. Respondents emphasized the need for reliable customer service support to address their queries, concerns, and challenges while using the IECMS system.
  Quoted *"Establish a dedicated WhatsApp group for IECMS service providers to facilitate effective communication and provide online training for skill enhancement.*"

This support ensures that users have access to the necessary help and guidance whenever they encounter any difficulties or require clarification on system-related matters.

4.5.4. IremboGov agents challenges

Through the open questions asked by the IremboGov agents, they reported that, the main challenges faced in promoting the use of IECMS in Nyaruguru district were related to skills, as mentioned by all respondents. These are the responses q*uoted* after the questions asked of "**What challenges do you face in promoting the use of IECMS in the Nyaruguru District?** "*"Inadequate skills of using the legal system". " inefficient skills".*

At the end, all respondents emphasized the importance of training as a means to improve the use and effectiveness of the IECMS in the district

4.6. Interpretation of results in light of the research questions

This section involves analyzing data to draw meaningful conclusions that directly address the research objectives, considering their implications and relevance to the research questions.

4.6.1. What is the level of satisfaction among residents of Nyaruguru District with the IECMS?

The level of satisfaction among residents of Nyaruguru indicates the satisfaction levels of respondents towards the IECMS. Out of the total 127 respondents, 42 (13.7%) expressed being "Very satisfied," while 65 (21.2%) reported being "Satisfied." A smaller proportion of respondents, 11 (3.6%), had a "Neutral" stance, and 9 (2.9%) were "Dissatisfied."

These findings suggest that a significant portion of the respondents have positive sentiments regarding the IECMS, with a combined 34.9% expressing high levels of satisfaction. However, there is still room for improvement, as 6.5% of the respondents reported being either neutral or dissatisfied.

Citizen feedback on IECMS revealed themes of satisfaction, including timesaving and streamlined case filing, reduced corruption, improved information updates and communication, reduced travel expenses, and perceived cost-effectiveness. Respondents appreciated the system's efficiency, its positive impact on reducing corruption, timely information sharing, cost savings, and money-saving aspects.

4.6.2. How can be the effectiveness of IECMS for rural communities in Rwanda such as the Nyaruguru District Community be increased?

To ensure the effectiveness of the Integrated Electronic Case Management System (IECMS) for rural communities in Rwanda, such as the Nyaruguru District Community, the following strategies can be implemented:

Accessibility and Infrastructure: Improve access to the IECMS by ensuring reliable and affordable internet connectivity in rural areas. Establish computer centers or provide mobile devices with preloaded IECMS software in community centers, local government offices, or courts to facilitate access for residents who may not have personal computers or internet access at home.

Apply digital literacy: Digital liters crucial for the effectiveness of the IECMS in rural communities. It influences user proficiency, system adoption, and equitable access.

Training and Capacity Building: Conduct regular training programs for Nyaruguru community. Ensure that users receive adequate training on how to navigate the IECMS, file cases, access information, and use the system's features effectively. Training should be hands-on, practical, and ongoing to build confidence and proficiency among users.

Local Language Support: Provide language support in local languages to overcome language barriers faced by rural community members. Translate the IECMS interface, user manuals, and training materials into local languages to enhance understanding and usability.

Awareness and Outreach: Conduct targeted awareness campaigns and outreach programs to educate rural communities about the benefits and functionalities of the IECMS. Use a combination of traditional and digital communication channels to reach community members effectively, including local radio, community gatherings, posters, and social media platforms.

Stakeholder Engagement: Involve local leaders, community representatives, and justice system stakeholders in the design, implementation, and evaluation of the IECMS. Seek their input, address concerns, and incorporate their feedback to ensure the system meets the specific needs of the rural communities.

Support and Helpdesk: Establish a dedicated support system, including a helpdesk or helpline, to assist users in troubleshooting issues, answering queries, and providing ongoing technical

support. This support system should be easily accessible and responsive to ensure users receive prompt assistance when needed.

Continuous Evaluation and Improvement: Regularly evaluate the effectiveness of the IECMS in rural communities through user feedback, surveys, and monitoring. Identify areas for improvement and make necessary adjustments based on the feedback received. Engage in continuous learning and adapt the system to address the evolving needs and challenges of the rural communities.

4.6.3. What practical strategies or interventions can be implemented to improve the accessibility of the IECMS for residents in Nyaruguru District, based on related models or best practices?

Suggestions regarding the use of the IECMS in rural areas like Nyaruguru district, are based on the best practices can be referred as a practical strategies to improve the IECMS accessibilities.

4.6.3.1. Nyaruguru residents

Respondents' suggestions regarding the use of IECMS in rural areas like Nyaruguru, specifically in the Nyaruguru District. The interpretation of the data, are specifically detailed below:

IECMS Training: This indicates that a significant proportion of respondents believe that training programs should be implemented to ensure that users, such as judicial staff and community members, are adequately equipped with the necessary knowledge and skills to effectively use the system.

IECMS Mobilization in the District: This suggests that a large number of respondents expressed the importance of actively promoting and deploying the system throughout the district to ensure its accessibility and benefits for all relevant stakeholders.

E-Services Center and IECMS Agents: This indicates that a few respondents proposed the creation of dedicated centers and personnel to provide support, assistance, and guidance to users in using the IECMS effectively.

Internet network Infrastructure: This suggests that several respondents identified the need for a reliable and robust internet connection to ensure smooth and uninterrupted access to the IECMS

4.6.3.2.IremboGov Agents.

When asked about improvements to better serve the citizens of Nyaruguru District, the majority of the respondents suggested ***mobilization***, and ***recommended additional training***.

CHAPTER 5: DISCUSSION

This chapter discusses the key insights from the study about the effectiveness of IECMS in Nyaruguru district.

5.1 Most users of IECMS in Nyaruguru District have not received required training

A notable limitation observed in the use of the Rwanda IECMS in Nyaruguru District is the insufficient training received by its users. Out of the 40 Abunzi (Mediation Committee Members) who took part in the study, a mere 3 individuals had received the necessary training on how to effectively use IECMS. Similarly, among the 3 Irembo Agents who participated in the study, only 1 had undergone the required training. On the other hand, a more positive trend was observed among the IECMS Trainees, with 5 out of the 6 participants having received the appropriate training. Additionally, the Court judge and registrar had also been trained in the use of the system.

This highlights a significant gap in training provision, particularly among key stakeholders involved in the justice process. The limited training received by most users, especially the Abunzi and Irembo Agents, may impede their ability to fully leverage the potential of IECMS.

5.2 IECMS provides several benefits to those who have been able to use it

The IECMS has demonstrated numerous advantages for those who have had the opportunity to use it. Among the Nyaruguru residents who participated in our study, a considerable number of respondents, specifically 34 out of 148, acknowledged that IECMS significantly expedites the judicial process. Furthermore, 67 participants reported that the system saves considerable time throughout the entire justice proceedings. In addition to time efficiency, 38 respondents recognized the system's role in contributing to cost savings. The respondents also highlighted the system's usefulness, particularly its ability to reduce travel expenses, enable case tracking, and facilitate document submission. The positive impact of IECMS was further emphasized by a judge, who highlighted benefits such as reduced travel costs, enhanced transparency, faster case processing, and improved service request and provision, The ICT personnel affirms the high reliability of IECMS, emphasizing that any information entered into the system becomes immediately visible within the judiciary.

Therefore, the study affirms the effectiveness of IECMS in improving the efficiency and accessibility of the justice system. By streamlining processes and offering convenient features, the system has demonstrated tangible benefits for its users. These advantages include time savings,

cost reductions, increased transparency, and enhanced service delivery. The insights gathered from the respondents underscore the practical benefits that IECMS brings to both legal professionals and residents of Nyaruguru.

5.3. IECMS users experienced system impacts

The implementation of the Rwanda IECMS has had varying impacts on the workload of IECMS trainees. Among the respondents, 5 out of 7 (71.4%) reported a significant increase in workload, while 1 out of 7 (14.3%) indicated a decrease, and 1 out of 7 (14.3%) claimed no impact due to no change in workload. The majority of trainees experienced an increased workload, while a few experienced a decreased workload or no change.

Responses from the Mediation committee participants indicated mixed perceptions regarding the impact of IECMS on the quality of justice services. Among the 40 respondents, 1 expressed no improvement, 22 noted a slight improvement, 11 observed a moderate improvement, and 6 reported a significant improvement in the quality of justice services. On the other hand, all three Irembo agents (100%) rated the overall impact of IECMS on the justice system in Nyaruguru District as very positive, indicating a positive perception of the system's contribution.

According to the registrar, the impact of IECMS on the efficiency and effectiveness of the legal system in Nyaruguru District is significant. The system enables fast processing of services and enhances transparency, leading to improved overall efficiency.

5.4. Users' satisfaction on the IECMS' use

A total of 121 respondents, representing 39.5% of the participants who underwent the judicial process, expressed their satisfaction levels. Out of the 122 respondents, 8.5% indicated being highly satisfied, 16% reported being satisfied, 11.4% had a neutral stance, 2.3% expressed dissatisfaction, and 1.6% reported being very dissatisfied with the judicial process. Among those who had experience with the IECMS, 3.7% expressed being very satisfied, 21.2% reported satisfaction, 3.6% had a neutral stance, and 2.9% expressed dissatisfaction. It is important to note that only 127 out of the total 306 respondents provided their feedback on this aspect.

Regarding the satisfaction of the mediation committee members, 57.5% (23 out of 40) expressed satisfaction with the IECMS usage. Additionally, 35% (14 out of 40) had a neutral stance, while 7.5% (3 out of 40) were unsure about their satisfaction level. This indicates that the majority of

mediation committee representatives have observed positive satisfaction levels among citizens using the IECMS platform.

Qualitative findings revealed that the mediation committee members were generally satisfied with the support provided by IremboGov and IECMS Trainees. Some participants expressed being highly satisfied, while others reported satisfaction. A smaller proportion of respondents had a neutral opinion regarding the support received. The mediation committee findings suggest that the majority are content with the assistance provided by IremboGov and IECMS Trainees in relation to the IECMS platform.

5.5. Several challenges are hindering use/effective use of IECMS

The effective use of the Rwanda IECMS in Nyaruguru District is hindered with several challenges, as highlighted by the responses from the residents. Out of the 144 respondents, 29 stated that they almost never encounter challenges, while 33 mentioned rarely facing challenges, and 71 reported experiencing challenges sometimes. These qualitative findings proved those challenges that were compared to the traditional system and identified as issues related to internet connectivity infrastructure, digital divide, and lack of training, absence of e-services centers, illiteracy, system complexity, and user-friendliness.

In addition to that, IECMS trainees findings identified several challenges, including a lack of technical support, the need for advanced training, and limited access to training manuals. IremboGov users also faced challenges related to inadequate skills in using the legal system and inefficiency in their skills. Among the mediation committees, technical difficulties were mentioned by one out of 40 participants, while insufficient training was reported by 34 out of 40 participants. ICT personnel did not mention any challenges encountered in implementing IECMS.

Furthermore, the Nyaruguru Registrar and Judge reported the challenge of slow internet connection, which results in delays in case processing.

These challenges pose significant obstacles to the effective use of IECMS in Nyaruguru District.

CHAPTER 6: CONCLUSION AND RECOMMENDATION

6.1. Conclusion

The study contribution was to examine how Rwanda's IECMS can be made more effective in rural areas in the country like Nyaruguru District. It successfully addressed the three objectives and corresponding research questions it set out to investigate. The first objective focused on assessing the satisfaction levels of Nyaruguru residents who have engaged with the IECMS. The findings revealed that the system brought various advantages, such as reduced service and processing times, as well as decreased travel expenses. However, challenges related to the district's rural location, digital divides, illiteracy, and limited ICT skills were identified as crucial factors that need attention to ensure accessibility for citizens.

The second objective aimed to explore ways to enhance the effectiveness of the IECMS in rural areas like Nyaruguru District, considering the specific challenges and circumstances present. It was suggested that continuous training and mobilization efforts should be implemented to familiarize a larger number of residents, Abunzi, IECMS trainees, and agents with the system. Additionally, efforts should be made to improve the user-friendliness of the system by simplifying its complex functionalities.

Furthermore, the developed model with reference to Technology Acceptance Model proposes that all system users in rural area should be able to access the IECMS easily, without any hindrances that may have been experienced in the past.

In order to establish an effective system in rural areas, it is recommended that the justice sector and partners, such as the Ministry of Justice (MINIJUST), Ministry of ICT (MINICT) continually assess and review the different challenges faced by system users in rural areas both in terms of its objectives and needed infrastructures. This assessment should inform the implementation of various recommendations and suggestions identified in the study to address the identified issues effectively.

6.2. Recommendations

This section explores the insights and suggestions offered by individuals who have used the IECMS in Nyaruguru District and incorporates the researcher's viewpoint. By considering both user feedback and the researcher's perspective, a comprehensive understanding of the recommendations related to the IECMS in the specific context of Nyaruguru District can be attained.

6.2.1. Nyaruguru residents recommendations

Nyaruguru residents who responded the questionnaire, 71.6% (219 out of 306) indicated that they would recommend the use of the IECMS, *Table 52.*

Table 52 Residents recommendations

Resident recommendation	Frequency	Percent
Yes	131	42.8
No	4	1.3
Not sure	84	27.5
Total	**219**	**71.6**

42.8% (131 out of 306) responded with a definite "Yes" to recommending the IECMS.

1.3% (4 out of 306) stated that they would not recommend the use of the IECMS.

27.5% (84 out of 306) expressed uncertainty by choosing the option "Not sure."

Among the respondents who participated in the survey, a considerable number provided feedback on the recommendation of the IECMS to others in the community.

The qualitative analysis revealed several key themes that motivate the recommendations:

System Responsiveness and Confidentiality: Many respondents expressed positive views regarding the system's responsiveness and its ability to maintain the confidentiality of case-related information. This indicates that the IECMS is perceived as efficient in handling cases while ensuring data security.

System Usefulness: Some respondents found the IECMS to be useful in managing and processing cases, highlighting its practical value in the legal system. This suggests that the system provides tangible benefits to users.

Time and Cost Savings: Several respondents acknowledged the system's potential to save time and money. They recognized the efficiency and cost-effectiveness associated with the IECMS, indicating its positive impact on case management.

Reduction of Travel Expenses: Some respondents specifically mentioned that the IECMS has helped reduce travel expenses. By minimizing the need for physical travel, the system offers convenience and financial savings to users.

When considering these findings, they indicate that a significant proportion of respondents are in favor of recommending the use of the IECMS to others in their community. However, a small percentage of respondents are not inclined to recommend it, and a considerable number of respondents are unsure about their recommendation.

6.2.2. IECMS trainees recommendations

The IECMS trainees have shown the recommendations of the IECMS use in the community when asked "*What type of support is needed to ensure the smooth functioning of the IECMS system in the legal system in the Nyaruguru District*?"

The qualitative findings indicate that there are **three key types of support** needed to ensure the smooth functioning of the IECMS system in the legal system of the Nyaruguru District.

Firstly, IECMS technical support is crucial to address any technical issues that may arise during the operation of the system. A respondent quoted a word *"support".*

Support ensures that any technical glitches or problems with the system can be promptly resolved, minimizing disruptions to the workflow.

Secondly, three respondents in six suggested IECMS **advanced training** is necessary to equip users with the necessary knowledge and skills to effectively use the system. The respondents highlighted the importance of receiving advanced training to fully understand and use the features and functionalities of the IECMS system. Quoted *"Regular training", "trainings", "more trainings "*were suggested.

The training can enhance the efficiency and effectiveness of users in managing and maintaining the system.

Third, IECMS customer service support plays a vital role in **providing assistance and guidance to users.** Respondents emphasized the need for reliable customer service support to address their queries, concerns, and challenges while using the IECMS system.

Quoted *"Establish a dedicated WhatsApp group for IECMS service providers to facilitate effective communication and provide online training for skill enhancement.*"

This support ensures that users have access to the necessary help and guidance whenever they encounter any difficulties or require clarification on system-related matters.

6.2.3. Recommendations for effective Implementation of IECMS in rural area: a researcher's viewpoint

Based on the findings, and the recommendations given by the Nyaruguru district system users, several recommendations can be made to enhance the effectiveness and usage of the Rwanda IECMS in Nyaruguru District**:**

Improve infrastructure and connectivity: Given the challenges related to internet connectivity and infrastructure reported by the residents, IremboGov, IECMS trainees, it is crucial to invest in improving the availability and reliability of internet connections in rural areas. Particularly, by increasing the number of e-service centers like telecenters at cell level. This will ensure smoother access to the IECMS and reduce the barriers faced by users.

Address digital divides and promote digital literacy: Efforts should be made to bridge the digital divide by providing training and resources to enhance digital literacy skills among the residents. This can be achieved through community-based training programs, awareness campaigns, and collaborations with local educational institutions.

Simplify the user interface and enhance user-friendliness: To encourage widespread adoption and usage of the IECMS, it is important to streamline the user interface and make it more intuitive and user-friendly. Conducting user testing and gathering feedback from the users can help identify areas of improvement and make necessary adjustments to enhance usability.

Continuous training and support: Ongoing training and support programs should be implemented to ensure that users, including residents, Abunzi, IECMS trainees, and IremboGov agents, are well-equipped to effectively use the system. Training sessions can focus on system navigation, data entry, and other relevant skills necessary for use the IECMS.

Collaboration and partnerships: Nyaruguru district in collaboration with government agency, NGOs, and relevant stakeholders in justice sector, can help to address the challenges and improve the effectiveness of the IECMS. Partnerships can help in mobilizing resources, sharing best practices, and implementing targeted interventions to overcome the identified barriers.

A recommendation for improvement is to provide training specifically tailored to the District ICT personnel on the usage of the IECMS. As the designated ICT agent in the district, this individual plays a crucial role in providing system support and technical assistance

6.3. Best practices for effective use of Rwanda IECMS in Nyaruguru rural areas

The best practice of the IECMS use in rural areas is an approach developed to consider factors such as Perceived behavioral control, Perceived usefulness, Attitudes towards Using IECMS, Intention to use (IU), and Perceived Ease of Use (PEOU).

This approach draws inspiration from technological acceptance model which is a key model in understanding the factors that influence in accepting or rejecting a technology [125].

By adopting this approach, we can strive to achieve the most effective and efficient means of attaining desired IECMS system outcomes and results.

6.3.1. Perceived Behavioral Control/ Actual use Behavior (UB)

Refer to D.A Gayan N. et al [126]Perceived behavioral control represents an individual's belief in their ability to control a particular behavior. According to the theory of planned behavior [127], individuals are more likely to intend to engage in behaviors when they perceive that they have the capability to successfully carry them out. Perceived behavioral control is influenced by two dimensions: self-efficacy and controllability [128]. Self-efficacy refers to one's belief in their own competence to perform the behavior [126] in the context of our research is the Nyaruguru technical skills users' to use the IECMS system, while controllability [129] pertains to the perception of personal control over the behavior, considering external factors, in our context we have the training opportunities that can be reported.

Regarding the technical skills and training opportunities findings from our respondents, Nyaruguru residents in using the IECMS revealed several challenges. Illiteracy was identified as a significant barrier, particularly among individuals who had not received formal education. Additionally, a lack of training opportunities was observed, indicating the need for increased mobilization efforts. Only 7.5% of Abunzi (Mediation committee representatives) had received training, and while 5 out of 6 IECMS trainees had undergone training, they expressed the need for advanced training as a challenge. Furthermore, only 33.3% of respondents from IremboGov reported being trained, and they expressed inadequate and inefficient skills in using the IECMS. However, Nyaruguru Tribunal court judges and registrars emphasized that the training they received played a vital role in enhancing their performance in fulfilling their daily responsibilities. Icek Ajzen [129] found that when an individual has a high level of perceived behavioral control, they possess increased confidence in their capacity to successfully execute the specific behavior.

6.3.2. Perceived usefulness (PU)

According to Fred D. [96] Perceived usefulness relates to the extent to which an individual perceives that use a specific system will positively impact their job performance, while Osama Isaac et al [130] defined it, as the one of the fundamental antecedent factors of technology usage and adoption. In our case we have technology, connectivity, and enjoyment of the system.

Technology, specifically in information technology, technology encompasses software and hardware solutions for managing, operating, and strategizing within organizations, aiming to boost productivity and efficiency [131]. In our context, the findings regarding hardware usage for accessing the system in the context of Nyaruguru provide valuable insights. The data indicates that personal smartphones are widely used by residents, representing 55.6% of the total devices, highlighting their convenience and accessibility. This suggests that the mobile nature of smartphones allows for greater flexibility in accessing the system. On the other hand, the preference for personal computers among IECMS trainees' rates 85.7% could be attributed to factors such as larger screen size, ease of use, or specific software requirements necessary for efficient system navigation. Additionally, the usage of personal computers by the Kibeho tribunal court registrar indicates the importance of desktop devices in certain professional settings.

Connectivity, in the Technology Acceptance Model, connectivity is defined as the degree to which an information technology system is connected to other IT systems [132]. When stated about the

connectivity in Nyaruguru District, According to Nyaruguru residents who participated in the study, the effectiveness of using the IECMS is hindered by the challenges related to the availability and reliability of internet connection. Out of the 72 respondents, 51 of them mentioned concerns regarding the infrastructure of internet connectivity. One respondent stated, "Internet in rural areas is costly, and network issues are also a problem." This pauses an issue in terms of connectivity across the district.

Enjoyment, in terms of Technology acceptance model, it is defined as the degree to which information systems are perceived to be enjoyable and the level of effort the systems require to complete specific tasks [133]. All the respondents group have shown that the system saves time and money, it's useful, it reduces corruption, it's responsive and information updates and also reduces travel expenses**.**

6.3.3. Attitudes towards Using IECMS

While according to Muhammad Mitsal I. et al [134]Users' positive attitude towards an information system, driven by their perception of its benefits, encourages greater use and optimization of the system. In the context of IECMS, the system attitudes assessed through the users' feedback and motivation

Feedback, in the technology discourse, feedback is a process, not an input, which regulates a system, necessarily influencing the output of that system [135]. The feedback reveals noteworthy findings. Among the respondents who have experienced the judicial process in Rwanda, 39.5% reported using the IECMS. In the case of IremboGov agents, the usage rate of the IECMS was reported at 100%. Furthermore, 66.6% of respondents acknowledged the system as highly effective in reducing travel expenses, while 33.3% noted its responsiveness. Notably, all IremboGov agents rated the overall impact of the system positively, indicating a favourable perception of its contribution to the justice system. The registrar's feedback on the IECMS is highly effective in his work. However, he mentioned that the use of IECMS has resulted in an increased workload for him. Generally, when considered the overall group who contributed in the survey from Nyaruguru District, they gave positive feedback on the system deployment in the community, although there is a need and willingness of using the system, still the users report the challenges of lacking the training and mobilization of the system use.

Motivation, this can be defined as the driving force behind individuals' actions, desires, and needs. It serves as a guiding factor that directs behavior and influences the inclination of individuals to repeat certain actions [136]. Nyaruguru residents' findings revealed significant motivations in form of advantages offered by the IECMS in the community. Among the respondents, 26.8% highlighted the system's ability to expedite processing times. Additionally, 2.9% emphasized the benefit of reduced costs. Improved access to information was reported by 15.7%. Furthermore, 4.2% provided additional responses categorized showcasing diverse benefits not previously identified. The system has contributed to the IECMS trainees as the extra income generating tool as it enhances the economic welfare of trainees and provides additional motivation for their active involvement and dedication to the IECMS platform. The judge responded the IECMS offers advantages in terms of accessing justice services and contributes to faster service delivery, and also highlighted the system's speed and accessibility anywhere, anytime, that may be referred as ubiquitous or pervasive access, the way system provides users the ability to access services and resources all the time and irrespective to their location(ubiquitous) or the way system provide spontaneous emergent services created on the fly by mobiles that interact by ad hoc connections [137].

6.3.4. Intention to use (IU)

According to Ajzen, intentions are considered to encompass the motivational elements that impact behavior. They serve as indicators of the level of determination individuals have in terms of putting in effort and exerting themselves to perform a particular behavior. Intentions reflect the willingness and planned commitment individuals have towards engaging in the behavior at hand. [138], Iustin Priescu et al [139] the concept of intention to use can be described as a subjective belief that ultimately influences future behavior, it has been demonstrated through studies that the quality of information plays a crucial role in stimulating discussions and interactions among members within a community. The findings reveal that Nyaruguru residents' sources of learning about IECMS were diverse, with 50% of the respondents acquiring knowledge about the system. Media and government agencies emerged as the primary communication channels, suggesting their effectiveness in effectively disseminating information about IECMS to the intended audience.

6.3.5. Perceived Ease of Use (PEOU)

Perceived ease of Use, as discussed by Muhammad Mitsal I. et al [134], refers to an individual's belief that the use of information systems is effortless and does not require significant effort. This perception of ease and convenience is crucial for users to perceive the system as valuable and beneficial. Jennifer et al [140] highlight the concept of Perceived Ease of Use (PEOU), emphasizing that individuals are more likely to adopt and engage with technologies when they find them easy to use, she proved that when users perceive a system as user-friendly and intuitive, they are more motivated to incorporate it into their daily routines. These factors underscore the importance of users' perceptions regarding the simplicity and ease of using information systems, which play a significant role in determining their acceptance and effectiveness. In relationship with the IECMS effectiveness, there is three variables assessed, system usability, user friendliness, ease of learning and navigation.

System usability, the effectiveness, efficiency, and satisfaction with which specified users achieve specified goals in particular environments [141]. Nyaruguru residents, in terms of system usability of 38.6% the respondents stated that they or someone they know has used IECMS, while 11.1% of the respondents indicated that they found IECMS is very useful, 8.5 % commented as useful. Consider the IECMS usability rate reported by the IremboGov agents, 33.3% of the respondents proved that the system is somewhat easy to use.

User friendliness, friendliness is the level of tolerance built into a system that enables the user to cope with complexity and permits minor error and variable performance on the part of the user [142] . Nyaruguru residents expressed concerns about the user-friendliness of the system, citing it as a primary issue they encountered. However, the feedback from IremboGov experience respondents revealed that both citizens and IremboGov agents found the system to be highly usable and easily accessible. These findings emphasize the importance of considering user perspectives and addressing user-friendliness concerns to ensure widespread acceptance and effective use of the system by all district users.

Ease of learning and navigation, ease of learning in our context can be referred to the degree of simplicity and convenience that a user experiences when using a particular technology while ease of navigation consists of allowing to easily return to previously , viewed pages and can always allow the user to tell where is currently navigating [143]**.** The IECMS trainees reported that they

encounter the technical difficulties challenges that lead to difficulties in accessing the system. While participants, most of the challenge on the system ease of learning and navigation proved are related to the digital divide, illiteracy and inefficient skills of the IECMS system.

6.3.6. Proposed model of IECMS accessibility in rural areas

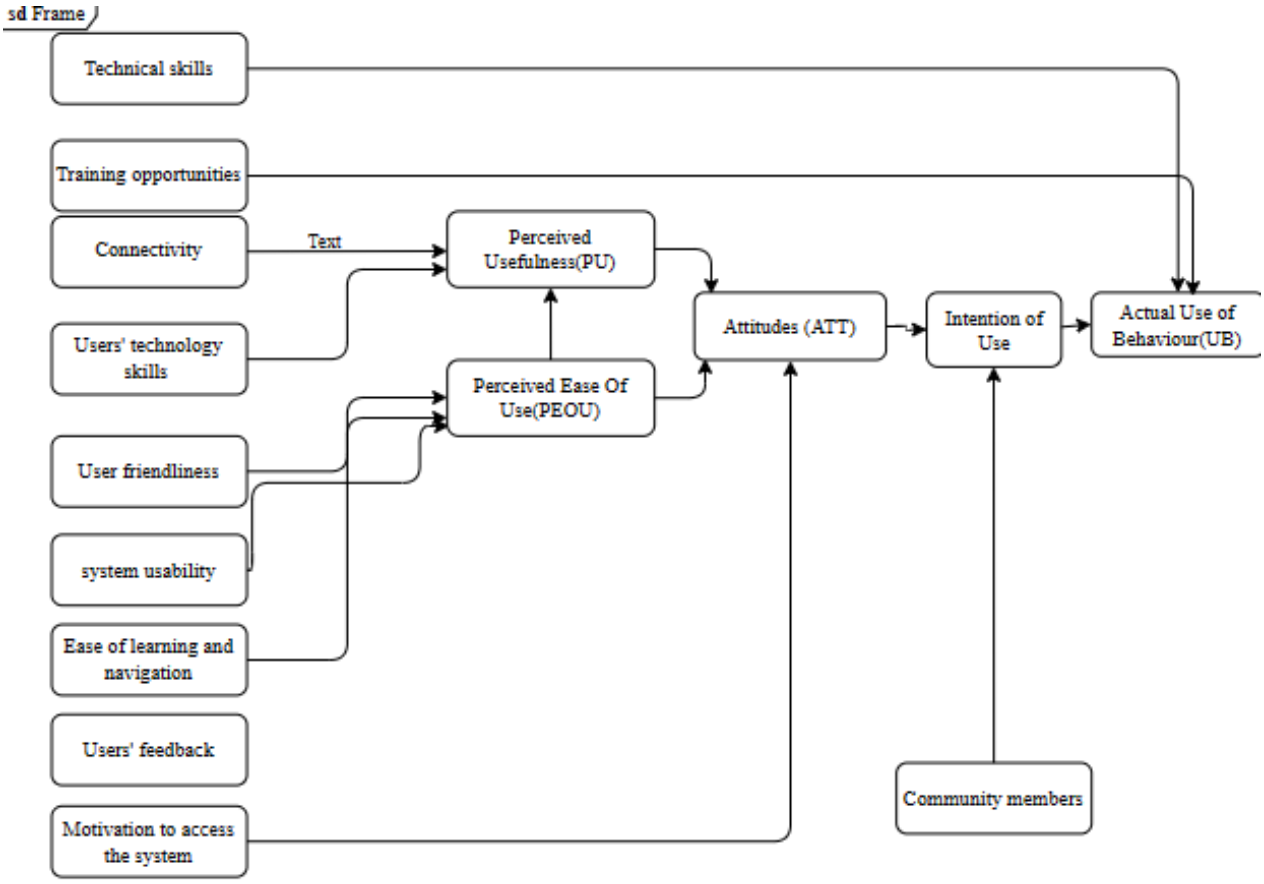

Figure 10: the proposed IECMS Model

The diagram is proposed based on the discussions held on 5.1 to 5.6 of the chapter.

6.4. Research limitation

The survey administration relied on online questionnaires, necessitating the use of devices such as smartphones, tablets, or computers, as well as an internet connection. Unfortunately, this approach limited our ability to capture the perspectives of individuals who lack access to such resources. It is important to acknowledge that the challenges faced by these individuals in relation to the IECMS could differ from those expressed by the respondents in our study. Therefore, it is crucial to recognize that our data collection efforts faced significant challenges in rural areas of Nyaruguru District, and future research should employ alternative methods to ensure the inclusion of a broader range of perspectives, particularly from individuals who may face barriers to accessing technology and the internet.

In addition, due to time constraints, the researcher was unable to validate the proposed model. Therefore, it is recommended that future researchers dedicate further efforts to explore and validate the model in order to enhance its reliability and applicability. Conducting additional research in this area will contribute to a deeper understanding of the subject matter and provide valuable insights for future studies.

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APPENDIX: DATA COLLECTION INSTRUMENTS

a. NYARUGURU RESIDENTS

1. What is your gender?
    a) Male
    b) Female
2. What is your age group?
    a. 18-24
    b. 25-34
    c. 35-44
    d. 45-54
    e. 55 and above
3. What is your level of education?
    a) Primary school or less
    b) Secondary school
    c) College or university
    d) Other (Please specify)
4. Have you ever had to go through the judicial process in Rwanda?
    a. Yes
    b. No
5. If yes, how satisfied were you with the judicial process?
    a. Very satisfied
    b. Satisfied
    c. Neutral
    d. Dissatisfied

e. Very dissatisfied

6. Have you heard of the Integrated Electronic Case Management System (IECMS)?

   a. Yes
   b. No

7. If yes, how did you learn about IECMS?

   a. Through the media
   b. Through a government agency
   c. Through a community leader
   d. Other (please specify)

8. Do you think IECMS has the potential to decrease delays and expenses in the judicial process?

   a. Yes
   b. No
   c. Not sure

9. Have you or anyone you know used IECMS?

   a. Yes
   b. No

10. If yes, how satisfied were you or the person you know with IECMS?

    a. Very satisfied
    b. Satisfied
    c. Neutral
    d. Dissatisfied
    e. Very dissatisfied

11. Please briefly explain your answer in question 10 above

……

12. In your opinion, what are the advantages of using IECMS for citizen while filing a case?

    a. Faster processing times
    b. Reduced costs
    c. Better access to information

d.Other

13. Have you ever used the IECMS to access judicial services in Nyaruguru District?

    a. Yes

    b. No

14. If yes, How useful was this compared to the traditional process

    a. Very useful

    b. Useful

    c. Neuteral

    d. Not useful

15. Explain your answer in (14):_____

16. What type of device do you use while accessing the system?

    a. Personal computer
    b. Personal Tablet
    c. Personal Smartphone
    d. Other

17. How beneficial is IECMIS in access to Justice for people in Nyaruguru District like you?

    a. Saves time

    b. Saves cost

    c. Makes the process quick

    d. Others

18. What challenges have you or others that used IECMS faced?

    a. Almost never

    b. Rarely

    c. Sometimes

d. Often

e. Almost always

19. As a Rural Citizen, what are the main advantages of using the IECMS compared to the traditional system of accessing justice services?

    _____

20. What are the main disadvantages of using the IECMS compared to the traditional system of accessing justice services?

    _____

21. Would you recommend the use of the IECMS to others in your community?

    a. Yes

    b. No

    c. Not sure

22. Explain your answer in question 21 above

……

23. Provide any additional comments or suggestions regarding the use of the IECMS in rural areas like Nyaruguru District

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b. Abunzi(Mediation Committee)

1. Have you heard about IECMS as an Abunzi/Mediation Committee Member?

    a) Yes

    b) No

2. If yes, have you been trained about the use of IECMS features and how it works ?

    a) Yes

    b) No

3. In your experience and daily duties, how satisfied are the citizens you live with in the use of the IECMS platform?

    a) Very satisfied

    b) Satisfied

    c) Neutral

    d) Unsatisfied

    e) Very unsatisfied

4. Explain your answer in (3)

    _____

5. In your experience and duties, What aspects of IECMS do you find most useful?

    a) Accessibility

    b) Speed of processing cases

    c) Cost-effectiveness

    d) Accuracy

    e) Other (Please specify)

6. In your experience and duties, What challenges have you faced with the citizens using IECMS ?

    a) Technical difficulties

    b) Insufficient training

    c) Slow response time

    d) Other (Please specify)

7. Explain your answer in (6)_____…..

8. Rate the extent IECMS has improved the quality of justice services delivery in your community?

    a) Not at all
    b) slightly improved
    c) moderately improved
    d) very much improved
    e) significantly improved

9. How satisfied are you with the support provided by IremboGov. IECMS Trainees in relation to IECMS?

    a) Very satisfied
    b) Satisfied
    c) Neutral
    d) Unsatisfied
    e) Very unsatisfied

10. Explain your answer in. (9).

c. Irembo Agents

1. What is your gender?

a. Male
b. Female

2. What is your level of education?

a. Primary school or less
b. Secondary school
c. College or university
d. Other (Please specify)

3. How long have you been working as an IremboGov agent?

a. Less than 1 year
b. 1-3 years
c. 4-6 years
d. More than 6 years

4. What type of device do you use while accessing the system either IECMS or Irembo?

a. Personal Computer
b. Personal Tablet
c. Personal Smartphone
d. Other

5. How often do you use the IECMS in your work, when helping the citizens?

a. Daily
b. Weekly
c. Monthly
d. Rarely

6. How would you rate the usability of the IECMS when assisting the citizens?

a. Very easy to use

b. Somewhat easy to use

c. Neutral

d. Somewhat difficult to use

e. Very difficult to use

7. Explain your answer in (6)_____

8. Have you received training on how to use the IECMS?

a. Yes

b. No

9. If yes, how would you rate the effectiveness of the IECMS while serving the Citizens?

a. Very effective

b. Somewhat effective

c. Neutral

d. Somewhat ineffective

e. Very ineffective

f. Explain your answer

10. How responsive have citizens been to using the IECMS?

a. Very responsive

b. Somewhat responsive

c. Neutral

d. Somewhat unresponsive

e. Very unresponsive

f. Explain your answer

11. How often do you encounter technical problems when using the IECMS?

a. Never

b. Rarely

c. Occasionally

d. Frequently

12. In your experience, how effective is IECMS for citizens?

a. Very effective

b. Somewhat effective

c. Neutral

13. Explain your answer in (12)_____

14. What improvements do you suggest for the IECMS to better serve the citizens of Nyaruguru District?

15. According to the feedback experience, how would you rate the overall impact of the IECMS on the justice system in Nyaruguru District?

a. Very positive

b. Somewhat positive

c. Neutral

d. Somewhat negative

e. Very negative

f. Explain….

16. What challenges do you face in promoting the use of IECMS in the Nyaruguru District?

17. Provide any other relevant information about use of IECMIS in Nyaruguru District and ways it can be made more effective

d. ICT personnel

Section 1: General Information

2. What is your gender?
    e. Male
    f. Female
3. What is your age?
    a. 18-24
    b. 25-34
    c. 35-44
    d. 45-54
    e. 55 and above
4. How long have you been involved in implementing the Rwanda IECMS in rural areas, specifically in Nyaruguru District?
        a. Less than 1 year
        b. 1-3 years
        c. 3-5 years
        d. 5 years or more

Section 2: ICT Infrastructure

5. How adequate is the ICT infrastructure in Nyaruguru District for effective implementation of the IECMS?
        a. Very adequate
        b. Adequate
        c. Inadequate

d. Very inadequatee.

6. Explain your answer in (5):_____

7. What challenges have you encountered in implementing the IECMS in Nyaruguru District?

……

Section 3: System Performance

8. How effective is the IECMS in Nyaruguru District in terms of meeting user needs?

    a. Very effective

    b. Effective

    c. Ineffective

    d. Very ineffective

9. Explain your answer in (8)…..….

10. How reliable is the IECMS in Nyaruguru District?

    a. Very reliable

    b. Reliable

    c. Unreliable

    d. Very unreliable

11. Explain the answer in (10)_____

11. Suggest improvements that should be made to the IECMS in Nyaruguru District to enhance its performance?

Section 4: User Experience

12. What challenges have you observed in user adoption of the IECMS in Nyaruguru District?

Section 5: Future Plans

12. What plans do you have for improving the use of IECMS in Nyaruguru District in the future?

13. Provide suggestions on how the effectiveness of the IECMS in Nyaruguru District could be improved?

14. Provide any other relevant information

e. IECMS Trainees

1. What is your gender?
    a. Male
    b. Female
2. What is your level of education?
    a. Primary school or less
    b. Secondary school
    c. College or university
    d. Other (Please specify)
3. How long have you been working on the IECMS system in the legal system in Nyaruguru District?
    a. Less than 1 year
    b. 1-5 years
    c. 6-10 years
    d. More than 10 years
4. What kind of technical knowledge and skills do you have in relation to the IECMS system?
        i. Basic Computer skills(e.g. Using a computer , internet browsing)
        ii. Intermediate computer skills(e.g data entry, basic software usage)
        iii. Advanced computer skills (e.g. troubleshooting, system administration)
        iv. I have no technical knowledge or skills related to the IECMS system
5. What type of device do you use while accessing the system (tick all that apply)?
        i. Personal Computer
        ii. Personal Tablet
        iii. Personal Smartphone
        iv. Other
6. How familiar are you with the IECMS system used in the legal system?

a. Very familiar
b. Somewhat familiar
c. Not familiar at all

7. What kind of training and support have you received to manage and maintain the IECMS system in the legal system in Nyaruguru District?

   _____

8. In your experience, what are some of the advantages of using IECMS in the legal system in Nyaruguru District from a technical perspective?

   _____

9. What are some of the challenges you have encountered while using the IECMS system for legal purposes in Nyaruguru District, and how have you addressed them?

   _____

10. What type of support is needed to ensure the smooth functioning of the IECMS system in the legal system in the Nyaruguru District? .....

11. How has the use of IECMS impacted your workload as an IECMS trainee in Nyaruguru District?

    a. Increased workload
    b. Decreased workload
    c. No change in workload

12. What impact do you think IECMS has had on the efficiency and effectiveness of the legal system in Nyaruguru District from a technical perspective?

    _____

f. Kibeho tribunal court Judge

1. What is your gender?

a. Male

b. Female

2. How long have you been working in the legal system in Nyaruguru District?

a. Less than 1 year

b. 1-5 years

c. 6-10 years

d. More than 10 years

3. How familiar are you with the Integrated Electronic Case Management System (IECMS) used in the Rwanda legal system,

a. Very familiar

b. Somewhat familiar

c. Not familiar at all

4. What type of device do you use while accessing the system? (tick all that apply)

i. Personal Computer

ii. Personal Tablet

iii. Personal Smartphone

iv. Other (Specify)_____

5. Have you received any training or support to use IECMS for legal purposes?

a. Yes

b. No

6. Have you heard of the Integrated Electronic Case Management System (IECMS)?

a. Yes

b. No

7. If yes, how did you learn about IECMS?

a. Through the media

b. Through a government agency

c. Through a community leader

d. Other (please specify)

8.Do you think IECMS has the potential to decrease delays and expenses in the judicial process?

a. Yes

b. No

c. Not sure

9. Explain your answer in (8):_____

10. In your opinion, what are the advantages of using IECMS for litigants?

a. Faster processing times

b. Reduced costs

c. Better access to information

d. Other (please specify)

11.In your opinion, what are the advantages of using IECMS for the justice system?

a. Increased efficiency

b. Reduced workload for court staff

c. Improved transparency

d. Other (please specify)

12.Have you faced any challenges with IECMS?

a. Yes

b. No

13.If yes, please explain the challenges you faced with IECMS.____

14.How could the use of IECMS be improved to better serve citizens in Nyaruguru District?

_____

15. As a Judge in Nyaruguru, has anyone you know ever been denied justice due to delays or expenses in the judicial process?

    a. Yes

    b. No

16. If yes, how do you think the use of IECMS could have prevented this situation?_____

17. Do citizens use the IECMS to access judicial services in Nyaruguru District?

    a. Yes

    b. No

18. If yes, did you experience any improvements in the quality of service delivery compared to the traditional system?

    a. Yes

    b. No

    c. Not sure

19. Explain your answer in (18)_____

20. In your experience, what are the advantages of using IECMS in the legal system in Nyaruguru District?

21. How often do you experience delays dispensing justice services through the IECMS?

    a. Almost never

    b. Rarely

c. Sometimes

d. Often

e. Almost always

22. What are the main advantages of using the IECMS compared to the traditional system of accessing justice services?

    a. Faster service delivery

    b. Reduced costs

    c. Convenience

    d. Accessibility

    e. Other (please specify): _____

23. What are the main disadvantages of using the IECMS compared to the traditional system of accessing justice services?

    ……

24. How can the use of the IECMS be promoted and encouraged in rural areas of Nyaruguru District?

    …….

g. Kibeho tribunal court Registrar

1. What is your gender?
    a. Male
    b. Female
2. How long have you been working in the legal system in Nyaruguru District?
    a. Less than 1 year
    b. 1-5 years
    c. 6-10 years
    d. More than 10 years
3. How familiar are you with the Integrated Electronic Case Management System (IECMS) used in the Rwanda legal system ,
    a. Very familiar
    b. Somewhat familiar
    c. Not familiar at all
4. Have you received any training or support to use IECMS for legal purposes?
    a. Yes
    b. No
5. Do you use the IECMS system?
    a. yes
    b. No
5. What type of device do you use while accessing the system? (tick all that apply)
    i. Personal Computer
    ii. Personal Tablet
    iii. Personal Smartphone
    iv. Other (Specify)_____
6. Can you describe any specific instances where you have used the IECMS system for legal purposes in Nyaruguru District? _____
7. In your experience, what are the advantages of using IECMS in the legal system in Nyaruguru District?

8. What obstacles or challenges have you encountered while using the IECMS system for legal purposes in Nyaruguru District?
9. How effective do you think the IECMS system is in supporting the legal system in Nyaruguru District?
    a. Very effective
    b. Somewhat effective
    c. Not effective at all
10. Explain your answer in (9)…
11. What kind of training and support do you think would be helpful to improve the use of IECMS for legal purposes in Nyaruguru District?
12. How has the use of IECMS affected your workload as a registrar in Nyaruguru District?
    a. Increased workload
    b. Decreased workload
    c. No change in workload
13. Explain your answer in (12)……
14. What impact has IECMS had on the efficiency and effectiveness of the legal system in the Nyaruguru District?
15. What recommendations would you make for improving the use of IECMS in the legal system in Nyaruguru District and in other rural areas in Rwanda?

g. MAJ

1. What is your gender?
    a. Male
    b. Female
2. How long have you been working in Nyaruguru District as MAJ?
    a. Less than 1 year
    b. 1-5 years
    c. 6-10 years
    d. More than 10 years
3. How familiar are you with the Integrated Electronic Case Management System (IECMS) used in the Rwanda legal system,
    a. Very familiar
    b. Somewhat familiar
    c. Not familiar at all
4. How often do you use the Rwanda IECMS in your work?
    i. Daily
    ii. Weekly
    iii. Monthly
    iv. Rarely
    v. Never
5. What type of device do you use while accessing the system?
    i. Computer
    ii. Tablet
    iii. Smartphone
    iv. Other

6. In your opinion, how effective is the Rwanda IECMS in improving access to justice in rural areas?
    i. Very effective
    ii. Somewhat effective
    iii. Not very effective
    iv. Not at all effective
7. Explain your answer in (6)……
8. What are some of the challenges you face in using the Rwanda IECMS?
    i. Technical difficulties
    ii. Lack of training
    iii. Limited access to internet or electricity
    iv. Language barriers
    v. Other (please specify): _____
9. How can the Rwanda IECMS be improved to better serve rural communities like Nyaruguru district?
    i. Improved training and support for users
    ii. Increased access to internet and electricity
    iii. More languages added to the system
    iv. Other (please specify): _____
10. Have you ever faced any ethical or legal challenges while using the Rwanda IECMS?
    i. Yes
    ii. No
11. If yes, please describe the nature of the challenge:

12. How did you address the challenge?

---

13. In your opinion, how accessible is the Rwanda IECMS to rural residents who may not have access to the internet or other technologies?
    i. Very accessible
    ii. Somewhat accessible
    iii. Not very accessible
    iv. Not at all accessible
14. Have you received any feedback from rural residents regarding the Rwanda IECMS?
    i. Yes
    ii. No
15. If yes, what was the feedback?

---

16. How can the MAJ assist in improving the effectiveness of the Rwanda IECMS in rural areas?
    i. Providing training and support for users
    ii. Advocating for increased access to internet and electricity
    iii. Collaborating with other organizations to address language barriers
    iv. Other (please specify): _____
17. How satisfied are you with the Rwanda IECMS? In its contribution to addressing Citizens' disputes?
    i. Very satisfied

ii. Somewhat satisfied

iii. Neutral

iv. Somewhat dissatisfied

v. Very dissatisfied

18. Explain your answer in (17)

_____

19. What suggestions do you have for improving the Rwanda IECMS for more effectiveness in rural areas?
20. Provide any additional comments or feedback?

h. Kibeho tribunal court Registrar

1. What is your gender?
    a. Male
    b. Female
2. How long have you been working in the legal system in Nyaruguru District?
    a. Less than 1 year
    b. 1-5 years
    c. 6-10 years
    d. More than 10 years
3. How familiar are you with the Integrated Electronic Case Management System (IECMS) used in the Rwanda legal system ,
    a. Very familiar
    b. Somewhat familiar
    c. Not familiar at all
4. Have you received any training or support to use IECMS for legal purposes?
    a. Yes
    b. No
5. Do you use the IECMS system?

    a. yes

    b. No

6. What type of device do you use while accessing the system? (tick all that apply)
    i. Personal Computer
    ii. Personal Tablet
    iii. Personal Smartphone
    iv. Other (Specify)_____
7. Can you describe any specific instances where you have used the IECMS system for legal purposes in Nyaruguru District?
8. In your experience, what are the advantages of using IECMS in the legal system in Nyaruguru District?

9. What obstacles or challenges have you encountered while using the IECMS system for legal purposes in Nyaruguru District?
10. How effective do you think the IECMS system is in supporting the legal system in Nyaruguru District?
    a. Very effective
    b. Somewhat effective
    c. Not effective at all
11. Explain your answer in (9)…
12. What kind of training and support do you think would be helpful to improve the use of IECMS for legal purposes in Nyaruguru District?
13. How has the use of IECMS affected your workload as a registrar in Nyaruguru District?
    a. Increased workload
    b. Decreased workload
    c. No change in workload
14. Explain your answer in (12)……
15. What impact has IECMS had on the efficiency and effectiveness of the legal system in the Nyaruguru District?
16. What recommendations would you make for improving the use of IECMS in the legal system in Nyaruguru District and in other rural areas in Rwanda?