Development of a Gender-Based Violence Case Management System for Law Enforcement

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Abstract—**Gender-Based Violence (GBV) remains pervasive across the globe and carries along with it tremendous negative consequences for survivors physically, mentally, and financially. In many African countries, law enforcement plays a crucial role in combating crimes that include GBV cases. Individuals living in urban areas and rural areas naturally report all cases to them and decisions are made depending on the magnitude of the case. This entails that law enforcement is the point of initiation for nearly all cases be it criminal, civil and GBV cases. This study realises that and aims to develop a secure, web-based GBV Case Management System specifically intended for law enforcement use. The technology is intended to operate in a private network and empower the police to register, monitor, and analyze GBV occurrences in real time. It interoperates, via secured-APIs, with major external stakeholders, such as judicially, health care, and social service organizations, to access only the data that has been whitelisted to them. It implements role-based access controls for security and to ensure confidentiality. The system implements case manipulation from the point of registration to the point of its conclusion supporting offline data entry where network is poor and synchronizing to a central database once network connectivity is restored. The proposal showed positive responses from the general public, law enforcers and various stake holders of the people of Malawi, with the absence of this system posing as a great challenge from policy makers and commander to efficiently allocate resources towards the cause.**

Index Terms—**Gender-Based Violence (GBV), Case Management System, Law Enforcement, Interagency Coordination, Real-Time Analytics**

1. INTRODUCTION

Gender-Based Violence (GBV) also known as Sexual and Gender-Based Violence (SGBV) is referred to as malicious acts committed against persons based on their gender. It may be due to power imbalance, systemic inequality, and discriminatory social norms. It includes all forms of sexual, emotional, physical, and economic violence such as domestic violence, sexual assault, trafficking, child marriage, and mental cruelty [1]. The greatest proportion of GBV victims are women and girls, but people of all genders can be affected. According to the United Nations [2], GBV stands as one of the most widespread human rights violations, with one out of every three women in the world having had to face physical or sexual violence in their lifetime.

It remains a serious issue despite various global awareness campaigns and initiatives and law enforcement (the police service) does not adequately respond to GBV incidents. Most legal systems accept that the initiation of action, both criminal and civil, lies with law enforcement agencies, which include registration, investigation, classification, and prosecution of cases. In countries like Malawi, the law enforcement continues to use antiquated paper-based systems for all case processes: this method is slow, disjointed, and unreliable. This, in turn, causes delays in case hearings, the mishandling of evidence, poor inter-agency coordination, and evidently denial or delayed delivery of justice to survivors.

Among the digital initiatives that were undertaken, the Development of Virtual Support Application for Sexual and Gender-Based Violence Victims [3] and GBVIMS [4] stood out as means to develop data collection, to raise awareness, and to provide guidance for service providers working on a GBV cases. However, while providing well-structured forms, classification tools, and reporting frameworks, they are typically employed as simple information or administrative tools. They are not operational case management solutions developed for accountability once cases commerce or complaints are lodged. In addition, the systems require internet access which is not always practical for individuals in rural areas. Accountability is therefore at the discretion of law

enforcement but without an automated case management system for real-time analytics and tracking of these cases, it can prove un-reliable. Law enforcement lacks the digital systems that ensure real-time surveillance, secure data-sharing mechanisms with other agencies (courts, hospitals, social welfare, etc.), and the ability to undertake analysis for pattern detection, resource deployment and practical policy making.

This gap brings about the key deficiency across GBV response infrastructure today. While resolving a GBV case, the police need to work with clearly defined protocols and with the right digital tools that must emphasize the complex nature and urgency of the matter. Without assistance from such tools, barriers can arise for the survivor, equally leaving law enforcement unprepared to act in a timely, responsible, and coordinated manner.

To fill in this gap, the study suggests a secure web-based GBV Case Management System for the sole use of law enforcement authorities. The idea of the system is to automate and streamline the entire life span of GBV cases, from report generation to final disposal, with utmost concern for the security of the data, efficiency of operations, and inter-agency coordination. For example, it allows data entry offline and then synchronizes later, automated case classification based on severity and location, role-based access control, real-time analytics, and secure APIs for interaction with external stakeholders. By enhancing the system in place available to police, this system may in turn exponentially improve case traceability, care for survivors, and accountability of institutions.

2. LITERATURE REVIEW

The development of a Gender-Based Violence (GBV) Case Management System for law enforcement is crucial for addressing the inefficiencies in case tracking, data management, and inter-agency coordination. A review of existing literature highlights the need for digital transformation in law enforcement, focusing on data governance, case reporting, and analytical tools to enhance responses to GBV. The following studies and reports provide insights into the challenges, technological solutions, and best practices relevant to this project.

In the study "Improving Law Enforcement Responses to Gender-Based Violence: Domestic and International Perspectives [5] ," emphasis is on the need for law enforcement agencies to enhance their GBV case handling mechanisms through improved data collection, case management, and inter-agency collaboration. The paper highlights that a lack of centralized data systems leads to inefficiencies, impacting the ability to respond effectively to GBV incidents. The authors argue that adopting technology-driven solutions can significantly enhance case tracking, evidence management, and resource allocation in law enforcement.

The conference "Digital Solutions for Crime Control: A Comprehensive Criminal Identification and Reporting Framework [6] " presents a Criminal Identification and Reporting System designed to digitize crime-related processes within law enforcement. The system features an intuitive online complaint submission and tracking mechanism, which highlights the benefits of transitioning from manual, paper-based systems to automated digital solutions. The study demonstrates how law enforcement agencies can leverage digital tools to enhance accessibility, improve data accuracy, and ensure a more structured approach to case management.

In the research titled "Gender-Based Violence, Criminal Law Enforcement, and HIV: Overview of the Evidence and Case Studies of Positive Practices [7]," explored is the intersection of GBV, law enforcement, and public health. The study underscores the importance of structured data management systems in monitoring GBV cases, particularly in identifying patterns, risk factors, and intervention strategies. The authors argue that a lack of organized data storage and retrieval systems affects the ability of law enforcement to provide timely justice and adequate support services to GBV survivors.

The "A Real-Time Crime Records Management System for National Security Agencies [8]," outlines the benefits of replacing traditional paper-based records with a digitized, real-time case tracking system. The study highlights that such systems facilitate data accessibility, secure storage, and better case monitoring, enabling law enforcement to analyze crime trends and allocate resources more efficiently.

A report on "Using Data Governance and Data Management in Law Enforcement [9]," discusses the significance of effective data management in crime

reporting and case tracking. The study emphasizes the importance of structured data governance policies to ensure data security, interoperability, and integration across law enforcement agencies. The findings suggest that well-managed digital case management systems allow for real-time decision-making and improved inter-agency coordination, which are critical in handling GBV cases effectively.

In the paper "Gender, Crime, and the Disparities in the Criminal Justice System [10]," the author examines how gender-based disparities in law enforcement practices affect GBV case outcomes. The study argues that biased legal frameworks and inefficient case tracking mechanisms contribute to a lack of justice for GBV survivors. The research highlights the need for specialized GBV case management systems that ensure standardized reporting, case prioritization, and gender-sensitive law enforcement responses.

The role of alternative justice mechanisms for GBV survivors is explored in The Guardian article "Crime Without Punishment: Can a Different Kind of Justice Offer Something More to Sexual Assault Survivors? [11]" The article highlights the limitations of traditional legal systems in providing justice to GBV survivors and emphasizes the need for integrated case management tools that ensure survivors receive timely support, legal aid, and law enforcement intervention.

Lastly, the study "Addressing Gaps and Limitations in Legal Frameworks and Law Enforcement Related to Technology-Facilitated Gender-Based Violence [12]" discusses how the digital transformation of law enforcement practices can help address online and technology-facilitated GBV cases. The paper highlights the importance of secure data management, automated reporting, and specialized digital tools in handling GBV-related cybercrimes and ensuring justice for victims of technology-facilitated abuse.

These studies collectively emphasize the critical role of technology in transforming GBV case management. Implementing a secure, law enforcement-exclusive GBV Case Management System will bridge the existing gaps in data collection, case tracking, and inter-agency collaboration. By integrating real-time case monitoring, automated analytics, and secure data-sharing capabilities, law enforcement agencies can significantly enhance their ability to respond to GBV cases, ensure transparency, and improve justice delivery.

3. METHODOLOGY

This study utilizes the hybrid methods of Design Science Research (DSR) and Agile-style iterative development in constructing a law enforcement-specific GBV Case Management System. While it is based on DSR's rigorous problem-solving framework (i.e. build-evaluate cycles, artifact creation), the implementation phase includes Agile principles tailored to policing constraints, such as iterative prototyping with feedback coming from police every fortnight, modular security testing, and phased rollouts to balance innovation and regulatory compliance.

This approach differs from textbook Agile - which tends to avoid fixed requirements and embrace change - in that it purposely intends to accommodate non-negotiables (keep all infrastructure on premises with all evidence chain-of-custody protocols intact) through Waterfall style planning phases, and tailors Agile to allow further User Interface changes centered around survivors and backend fine-tuning from real-life station deployments. This pragmatic combination has ensured the system meets evidentiary requirements whilst respecting the concerns of frontline officers and survivors.

This hybrid approach ensures that the solution is based on evidentiary criteria and chain-of-custody regulations while constantly reacting to emergent user demands, such as trauma-informed interface improvements discovered during station-level pilot testing. It also ensures rapid iteration while maintaining rigorous compliance, security, and phased scalability.

3.1. System Functionality

The system is a digital platform for law enforcement bodies to hold themselves accountable amongst their policy makers, respective stakeholders, and most importantly onto the public who seek assistance and have been victimized by ill-treatment meted to them based on gender. It has a role to play for various individuals in order achieve its objective.

Stakeholder	Feature Category	Key Features
Survivors	Police-Assisted Reporting	• Universal access at all stations (urban/rural) • Officers enter case details directly • No tech required from survivor
	Follow-Up Mechanisms	• Case number tracking • Printed referral slips to support services • Scheduled follow-up appointments
Law Enforcement (Primary Users)	End-to-End Case Management	• Digital case jackets from report to resolution • Status flags: new, referred, closed, under court proceedings
	Decision Support Tools	• Real-time dashboards: backlog analytics, clearance rates, demographic trends • Custom report generator for policy makers
	Interagency Coordination	Secure document portal for medical and social service referrals • Audit trails for all shared documents
Admins & Policy Makers	Performance Monitoring	• Station-level efficiency metrics • Officer workload balancing • Resource allocation
	Policy Formulation Suite	• Regional and temporal trend analysis • Impact assessment
	System Administration	• Role-based user management • Audit log review • Anonymized data export for research

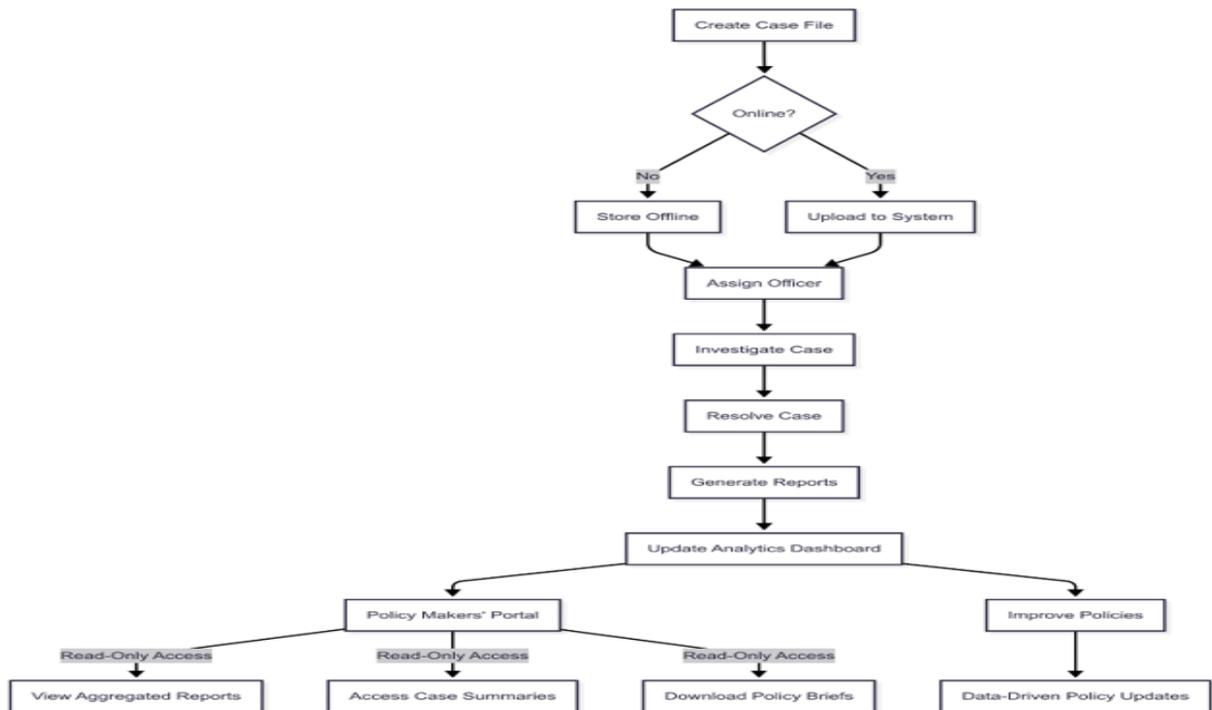Table 1: functional breakdown of stakeholders

Figure 1: System workflow for GBV case lifecycle (reporting, investigation, resolution, reports)

4. RESULTS AND DISCUSSION

Figure 2 is a login page that represents the system's secure authentication entry point, emphasizing role-based access control, data integrity, and law enforcement-centered digital infrastructure.
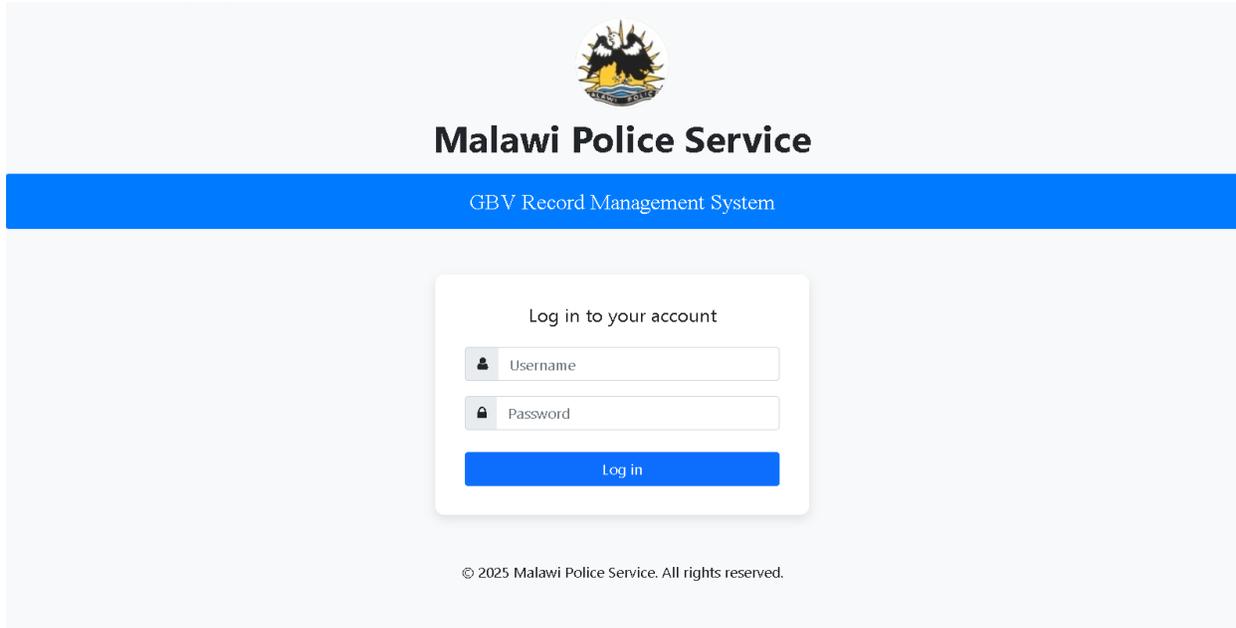

Figure 2: Secure authentication interface for role-based access

Figure 3 depicts the home page as viewed by the administrator who has exclusive rights to the system and is responsible for user management, audit logs and all administrative tasks
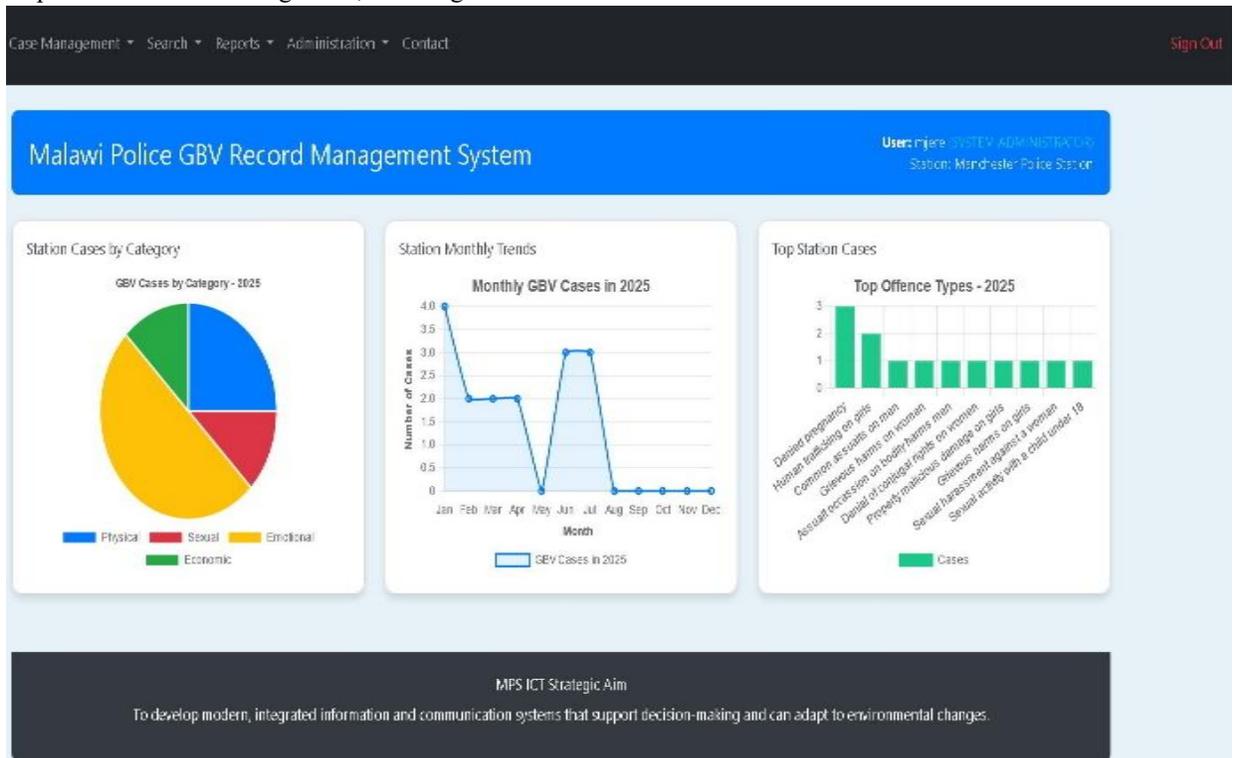

Figure 3: Admin Interface

Figure 4 represent a home page as viewed by field officers based at police stations, these are the ground officers that are responsible for data entry and basic case file management at their respective formations.
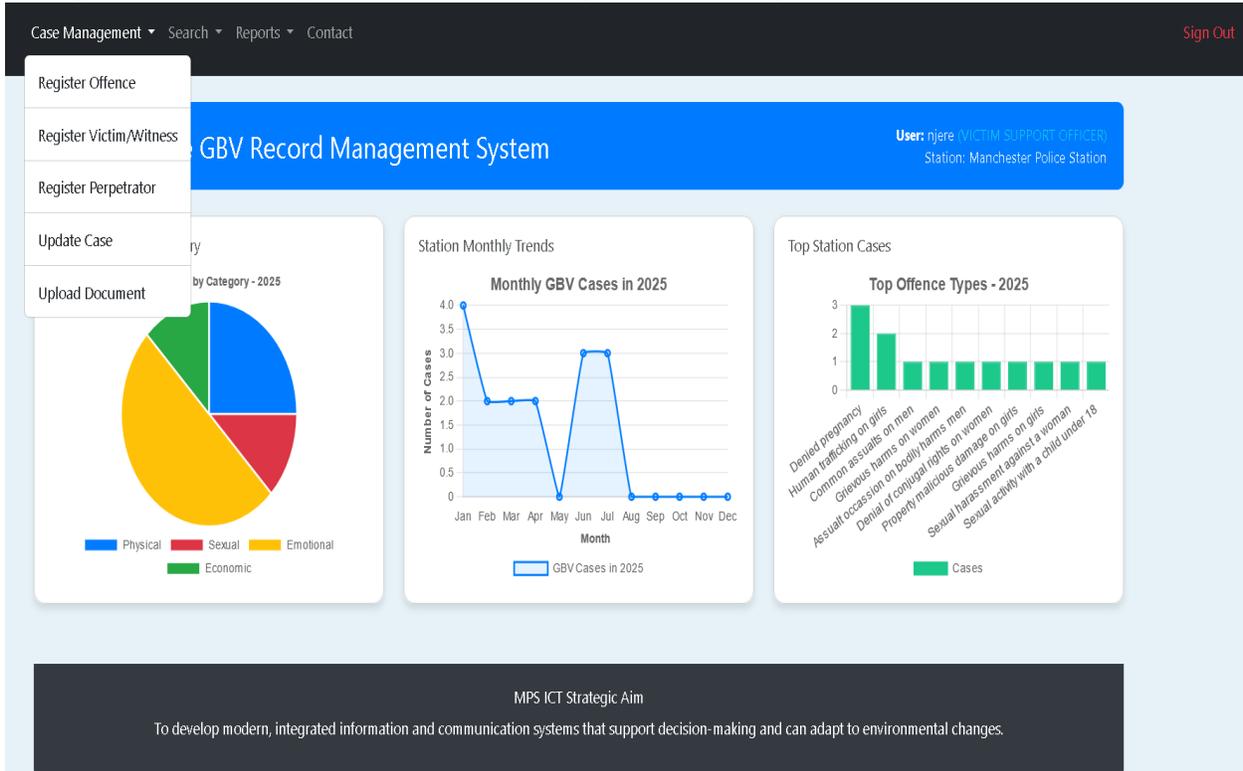

Figure 4: Field Officers Interface

Figure 5 represent a home page as viewed by supervisor officers based at police stations, these users have extended rights for edits, and approvals of cases they also person station level analytics.
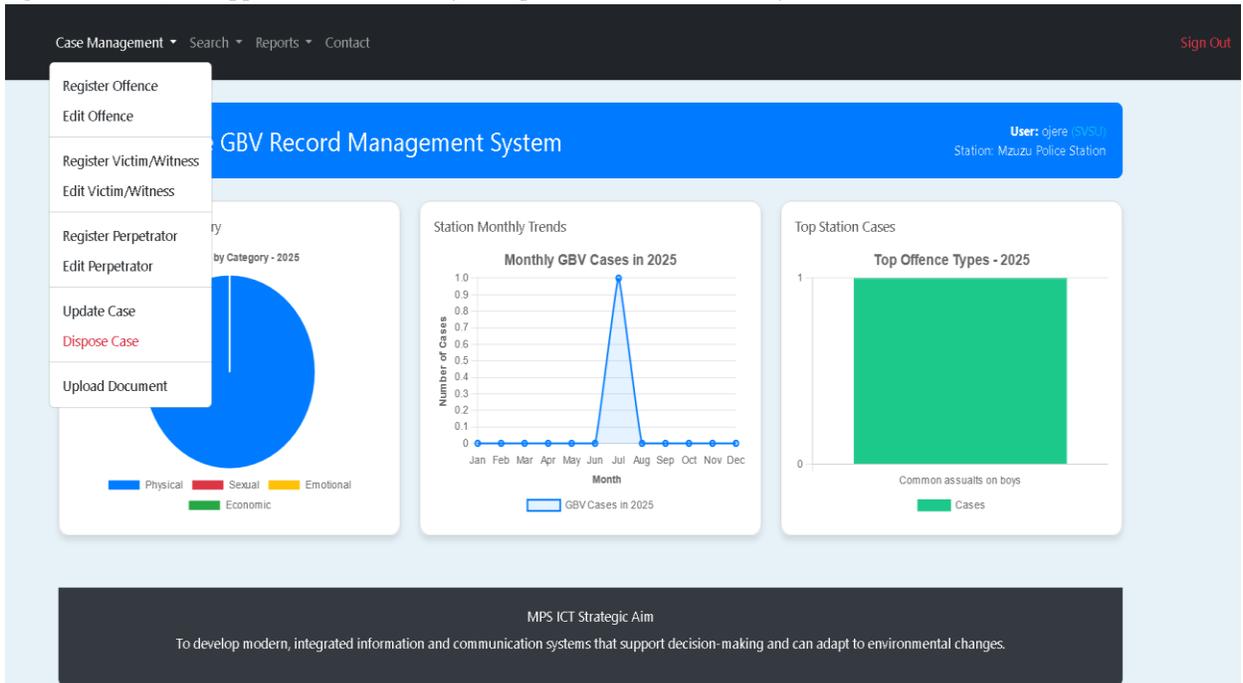

Figure 5: Station Level Supervisors Interface

Figure 6 repents a home page interface as viewed by stakeholders, policy makers and have read-only rights in the system
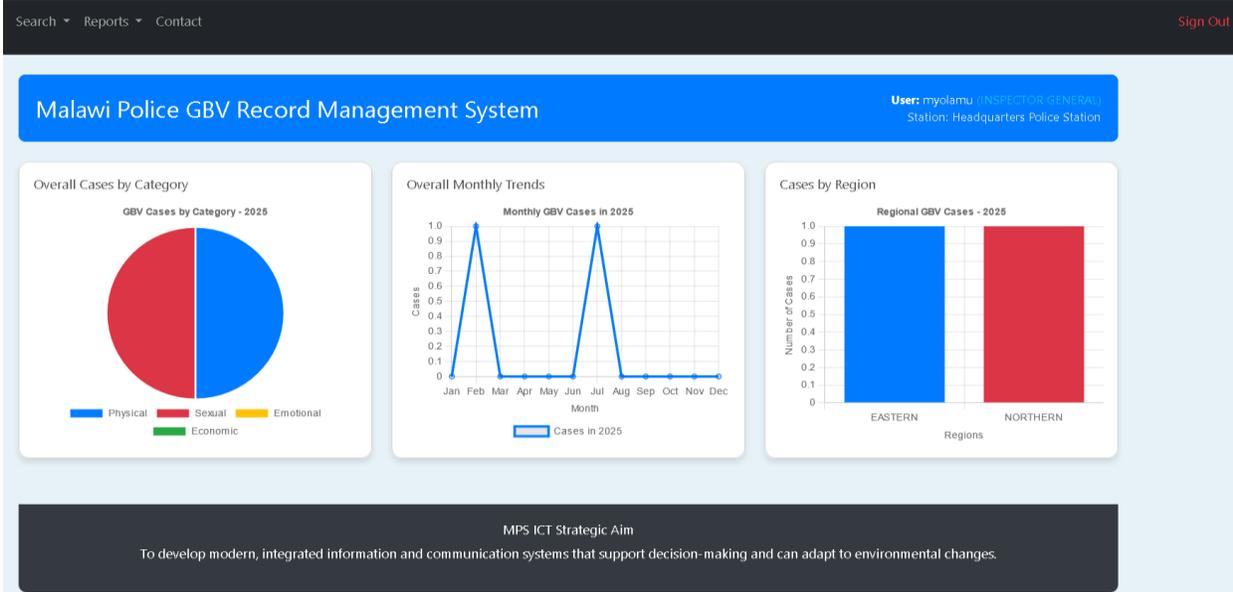

Figure 6: Whitelisted Stakeholders and Policy Makers

Figure 7 shows graphical reports that can be filtered based on a specified criterion
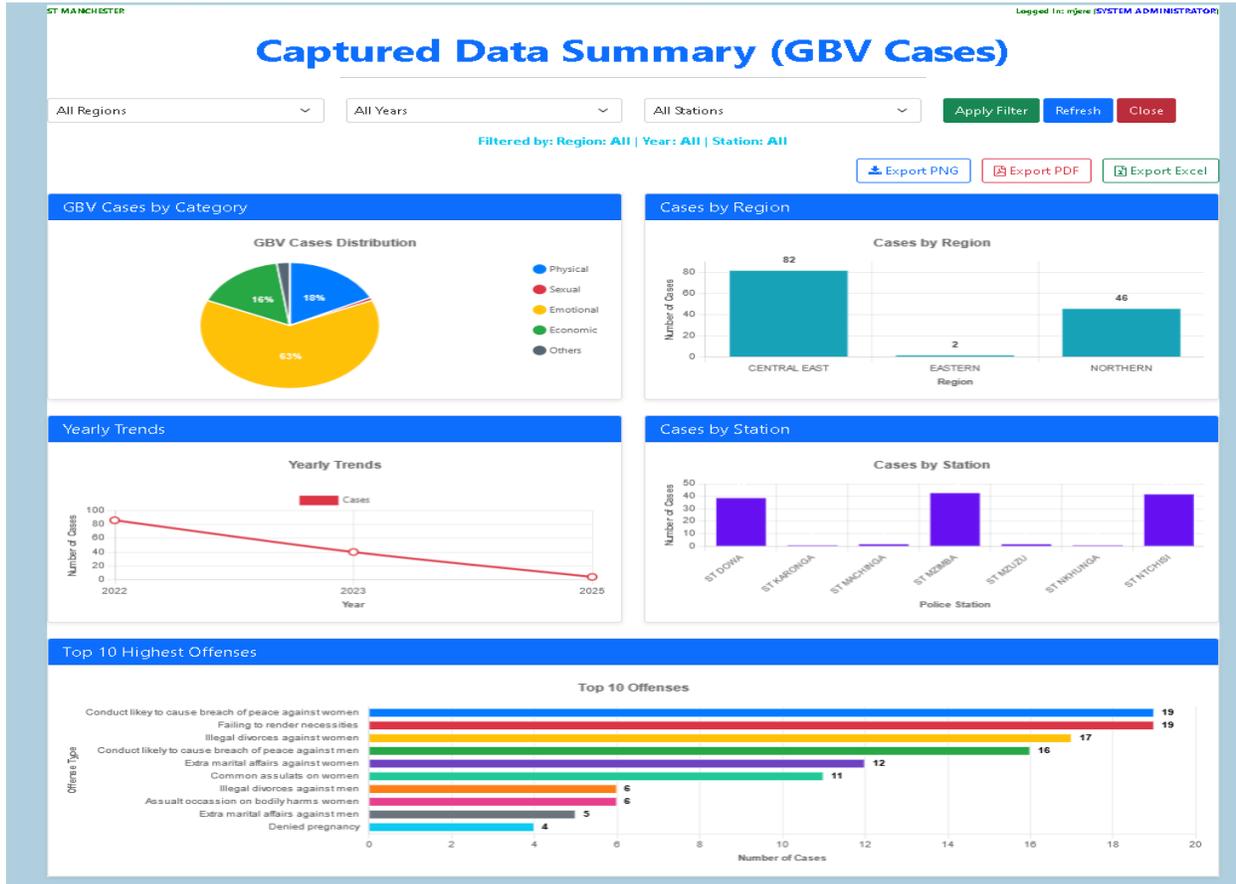

Figure 7: Graphic Reports

The system is designed to offer efficiency in case registration, management, analysis, access to real-time data, inter-agency collaboration, and allows realistic decision-making from policy makers, commanders for an efficient response to GBV cases by law enforcement hence the solution.

More insight was gathered through Google forms that were designed and distributed in three categories for the public, for law enforcers, and for respective stakeholders.

Table 2 shows rating and equivalent interpretation utilized in the evaluation. Using this scale, a user could rate the significance of the system out of a maximum score of five. The table also shows, along with explanations for each of the five possible scores.

Score	Range	Rating	Interpretation
5	4.50 – 5.00	Strongly Agree	Strongly believes the system will greatly improve access to justice.
4	3.50 – 4.49	Agree	Believes the system would improve justice access with minor reservations.
3	2.50 – 3.49	Neutral	Uncertain or believes improvement would be limited without further adjustments.
2	1.50 – 2.49	Disagree	Believes the system may not meaningfully impact justice access in its current form.
1	1.00 – 1.49	Strongly Disagree	Strongly believes the system would not improve or may hinder access to justice.

Table 2: Likert Scale

The following tables illustrate the results of the survey from the perspective of various individual category.

4.1. Public Perception

Rating	Frequency	Percentage	Score
Strongly Agree	32	50.0%	5
Agree	24	37.5%	4
Neutral	8	12.5%	3
Disagree	0	0.0%	2
Strongly Disagree	0	0.0%	1
Total	64	100%	

Table 3: Public Perception

4.2. Stakeholder Perception

Rating	Frequency	Percentage	Score
Strongly Agree	20	52.6%	5
Agree	14	36.8%	4
Neutral	4	10.5%	3
Disagree	0	0%	2
Strongly Disagree	0	0%	1
Total	38	100%	

Table 4: Stakeholder Perception

4.3. Law Enforcers' Perception

Rating	Frequency	Percentage	Score
Strongly Agree	25	54.3%	5
Agree	17	37.0%	4
Neutral	4	8.7%	3

Disagree	0	0%	2
Strongly Disagree	0	0%	1
Total	46	100%	

Table 5: Law Enforcers' Perception

4.4. Interpretation

The perception of a computerized case tracking system as a mechanism to improve access to justice runs universally in favour of all respondent groups as per summarized results.

Table 3 consolidates public opinion, where out of 64 expressed views, 87.5% either strongly agreed or agreed that the introduction of such a system would be advantageous. Only 12.5% remained indifferent, with none registering their difference in opinion. The mean score of 4.38 gave this group Northward positioning on the Likert scale in the Agree category, which endorses a generally positive attitude about the potential of digital tools in the delivery of justice.

Table 4, which summarized the responses of 38 stakeholders, also showed ample support for the system. A total of 89.4% agreed or strongly agreed with the idea, with the rest 10.5% abstaining with a neutral viewpoint. The resulting mean score of 4.42 sits in the Agree category units, denoting stakeholders-from social services, legal advocacy, and health care-perspective that the system has the potential to heighten accountability, case monitoring, and timely service delivery.

With 46 law enforcement officers in total, Table 5 displayed the highest degree of support, with 91.3% agreeing and 8.7% remaining neutral. The respondents gave a mean score of 4.46 and expressed confidence in the system being useful in streamlining operations for case follow-up that would reduce administrative inefficiencies.

Additional qualitative information acquired alongside these survey responses indicated existing obstacles that are still preventing efficient case management. All participant categories raised concerns about manually handling files, losing or misplacing important documents quite often, and the absence of a central tool for tracking purposes. The system impeded or delayed the delivery of justice and often became a source of irritation among the victims, providers, and law enforcement. These situations establish the necessity for a digitalized, reliable, and traceable case information system with real-time access that would promote trust and efficiency in the legal system.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The study has demonstrated that there is a clear gap in the fight against GBV cases particularly in the biggest stakeholder, law enforcement. It therefore bridges that gap with the solution with technology solution that can be effectively utilized for real-time case tracking, structured workflows, and secure inter-agency collaboration through a secure web-based Case Management System. The system is crucial in providing the police the ability to make informed decisions and promote survivor-centered delivery of justice. Beyond the immediate solution, this study thus provides a replicable model of merging criminological and systems design theories into digital innovations for justice. Such findings affirm that carefully designed technology can play a transformative role in enhancing institutional accountability and improving justice outcomes for GBV survivors. It also addresses that gap that existed with current responses to GBV cases whereby victims are only given instructions and directives through online platforms but with this system victims can be assisted promptly and law enforcement has the necessary tool to handle cases efficiently.

5.2. Recommendations

Several key recommendations can advance the successful scaling and integration of the GBV Case Management System. It could be made part of the national GBV response protocols and mandated for use in every GBV-related case to ensure standardized documentation, transparency, and no loss of case files. Continuous training should be provided to law enforcement officers working with digital tools and systems with respect to learning how to utilize such tools in their day-to-day operation in the most effective manner. Such a program should be extended through innovative logistical means such as scalable e-

learning, peer-led sessions, and digital literacy training targeted at rural areas and other disadvantaged locales. Besides this, actively consulting policy makers and familiarizing them with the system's potential shall ensure their support and commitment toward adopting digital technologies to improve justice sector operations. The stakeholder network should ideally consist of courts, health facilities, social services, and law enforcement, carefully constructed on a solid foundation and diligently sustained to ensure collaboration and data sharing occur seamlessly. So, this work essentially is a strategic framework for renovating GBV case management, delivering justice, and rebuilding the public's trust in institutional responses and not merely a technical tool.

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