LUPONG TAGAPAMAYAPA INCENTIVES AWARD DATABASE SYSTEM FOR DILG CLUSTER A PROVINCE OF LAGUNA

A Capstone Project presented to the Faculty, College of Computer Studies
Laguna State Polytechnic University
Los Baños Campus
Los Baños, Laguna

In Partial Fulfillment of the Requirement for the Degree
Bachelor of Science in Information Technology
Specialized in Web and Mobile Application Development

DAWN LESTER F. ALMADOVAR
JOHN MARK O. MONTECILLO
JACOB B. CORTES

Loyd S. Echalar

June 2025

APPROVAL SHEET

The capstone project entitled **"LUPONG TAGAPAMAYAPA INCENTIVES AWARD DATABASE SYSTEM FOR DILG CLUSTER A PROVINCE OF LAGUNA"** prepared and submitted by **Jacob B. Cortes, John Mark O. Montecillo, and Dawn Lester F. Almadovar** in partial fulfillment requirements for the degree, Bachelor of Science in Information Technology specialized in Web and Mobile Application Development is hereby recommended for approval and acceptance.

LOYD S. ECHALAR, DIT
Adviser

Approved and Accepted by the Committee on Oral Examination with a grade of _____

WILSON B. SUYAT
Member

CAROLINA R. JOVAL, MAEd
Member

JOCELYN O. PADALLAN, MIT
Member

JONARDO R. ASOR, MIT
Research Implementing Unit Head

Accepted and approved as partial fulfillment of the requirements for the degree of Bachelor of Science in Information Technology specialized in Web and Mobile Application Development at Laguna State Polytechnic University-Los Banos Campus

LOYD S. ECHALAR, DIT
Associate Dean, College of Computer Studies

OFELIA B. MANINGAS, Ed.D
Chairperson, Research and Development Office

_____
Date Signed

RESEARCH CONTRIBUTION NO.	

ACKNOWLEDGMENT

The support has been invaluable, and the developers are genuinely thankful for the collaborative efforts that have brought them to this momentous occasion.

This significant achievement in their academic endeavors would not have been possible without the unwavering support, encouragement, and mentorship of their esteemed adviser, Dr. Loyd S. Echalar. His expertise, patience, and valuable insights were instrumental in shaping the project's success. The developers extend heartfelt appreciation to Mr. Jonardo R. Asor for his expertise and valuable input. Also, to express deep gratitude to Ms. Jocelyn O. Padallan, Mrs. Carolina R. Joval, and Mr. Wilson Suyat for providing guidance and support throughout the thesis process.

Acknowledgment is given to the leadership of Dr. Loyd S. Echalar for providing the necessary resources and fostering an environment conducive to learning and innovation.

The researchers express their sincere gratitude to the Almighty for providing wisdom and strength in conceptualizing, developing, and completing the Capstone Project. The researchers also want to thank their families and friends who stood by them with unwavering encouragement and understanding.

The Researchers

DEDICATION

This work is wholeheartedly dedicated to Almighty God, whose strength, wisdom, and guidance have been the researchers constant support throughout this journey.

To the researchers beloved parents:

Mr. and Mrs. Cortes

Mr. and Mrs. Montecillo

Mr. and Mrs. Almadovar

Their unwavering love, encouragement, and support have been the researchers' greatest sources of strength. Their sacrifices, guidance, and belief in the researchers' dreams have inspired them to persevere and strive for excellence. Thank you for instilling to the researchers the values of hard work, integrity, and resilience. This accomplishment would not have been possible without your constant presence and unwavering faith in them. The researcher also extends their heartfelt gratitude to their friends and classmates, whose encouragement and support have uplifted them during challenging times. Your camaraderie and motivation have been invaluable in making this work possible.

D.L.F.A.

J.M.O.M.

J.B.C

ABSTRACT

This capstone project addresses the inefficiencies and security risks associated with the management of Means of Verification (MOV) documents within the Department of the Interior and Local Government (DILG) and Local Government Units (LGUs) in Cluster A, province of Laguna. Moreover, this project aims to develop a data-banking system that will handle documents related to the Lupong Tagapamayapa Incentives Award. Agile Scrum Model was followed to manage the system development life cycle. The development process was structured into sprints, enabling the timely delivery of functional increments. Moreover, system evaluation was done using the ISO 25010 Software Product Quality and the Technology Acceptance Model. Additionally, 2 IT specialists approved firm with an Excellent rating of 4.50 according to the ISO 25010 standard. The system achieved a Highly Acceptable rating of 3.68, combining all categories in the Technology Acceptance Model. Users found the system easy to use and functional. The successful implementation of this system has the potential to significantly improve the efficiency and effectiveness of document management processes within LGUs in the region.

Keywords: ***Lupong Tagapamayapa Incentives Award, Cluster-A Laguna, Barangay Justice Database Management***

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEFINITION OF TERMS

Attitude Toward Using	Perceptions of usefulness, ease of use, cost, and social influence influence the user's overall positive or negative feelings about using the system.
Behavioral Intention to Use	The user's intention or likelihood to use the system in the future is based on their attitudes and other factors.
Cluster A	it is a group of 10 Municipalities in the Province of Laguna, namely Municipality of Alaminos, Municipality of Bay, City of Biñan, City of Cabuyao, Municipality of Calauan, City of Calamba, Municipality of Los Baños, City of San Pablo, City of San Pedro, and City of Sta. Rosa.
DILG	The Philippine government's executive department is responsible for promoting peace and order, ensuring public safety, and strengthening the local government's capability to deliver essential services to the citizenry effectively.
Compatibility	the ability of a product, system, or component to effectively communicate and execute its necessary tasks within a shared hardware or software environment.
Functional Suitability	Measures the degree to which a software product fulfills its intended use and conforms to established applicable requirements, ensuring that the system performs as expected for its users.
ISO 25010	A standard that provides guidelines for developing, evaluating, and implementing software, emphasizing safety and effectiveness. It aims to ensure the quality and reliability of software applications.
Likert Scale	do researchers use a unidimensional scale to collect respondents' attitudes and opinions

	toward a particular subject, such as a brand or product.
LTIA	Lupon Tagapamayapa Incentives and Award (LTIA) is an annual program that aims to recognize Lupons who have shown outstanding performance in keeping peace and order in their communities.
Maintainability	The level of efficacy and effectiveness. This attribute signifies how a product or system can be modified effectively and efficiently to rectify, enhance, or accommodate alterations in the environment and demands.
Mean	is the average of a set of values. It is calculated by adding up all the values and dividing by the number of values. The mean represents a central or typical value in the dataset.
Performance Efficiency	It evaluates how well a system uses resources to achieve its objectives, ensuring optimal performance and responsiveness.
Perceived Cost	The system's cost or perceived financial burden can affect the user's attitude.
Perceived Ease of Use	How easily users find the system to use impacts their comfort and willingness to adopt it.
Portability	refers to the characteristic of a system or device that allows it to be easily moved or transported from one device to another.
Reliability	a software quality attribute that refers to the capability of a system to maintain its performance under specified conditions for a specified period.
Security	Assessing a system's security using the ISO 25010 standard outlines key attributes like integrity, confidentiality, and availability.

Social Influence	Other people's opinions and behaviors impact the user's decision to adopt or use the system.
TAM	is a theory that predicts the likelihood of someone accepting and using a technology based on their intention to use it. This intention is influenced by the user's perception of how useful the technology is for completing. a task and their perception of how easy it is to use.
Usability	The level to which specific users can effectively, efficiently, and satisfactorily use a product or method to reach specific goals in a particular setting.
Web-Based	It refers to systems, applications, or services accessed through the internet via a web browser. It signifies online functionalities, eliminating the need for local installation or downloading and enhancing accessibility and usability through web browsers.

CHAPTER I

INTRODUCTION

Lupong Tagapamayapa, under the Barangay Justice System, had been working and operating in the Philippines for over a decade. It effectively resolves disputes and conflicts in a barangay (Agustin, C. P. 2018). However, lupong tagapamayapa is still facing various problems. They need more training and seminars about the barangay justice system, which leads to improper conciliation processes and unsatisfied constituents (Mohammed et al.; N. C., 2017). Also, there are numerous instances of case recurrence in Lupong with the same persons involved in the dispute because of the inefficient conciliation process (Local Government Academy 2019, June 03). Furthermore, due to the unwillingness of one party to participate in the conciliation, conciliators need help reaching progress, thus leading to unresolved cases (Booth et al.; S., 2016).

The justice system in the Philippines is a complex and multifaceted entity that plays a crucial role in maintaining law and order, upholding the rule of law, and ensuring the protection of citizens' rights and freedoms. As the smallest governmental unit in the Philippines, the barangay is in charge of meeting the needs of its residents and offering essential services. For instance, the barangay might provide health clinics, emergency response services, and community gatherings to foster camaraderie and guarantee the general welfare of its residents. The Philippines barangay system is an excellent illustration of how a government can meet the needs of its people at the local level and offer essential services. The Katarungang Pambarangay System was established to settle conflicts amicably at the barangay level, doing away with traditional court

procedures' expensive and time-consuming nature. The Katarungang Pambarangay system, which provides a peaceful means of resolving conflicts at the barangay level, has also contributed to developing an efficient justice system within communities. This legal system, intrinsic to Philippine culture and customs, has helped communities establish efficient justice systems while simultaneously relieving the load on judicial authorities (Tabucanon et al., 2008).

The Lupong Tagapamayapa represents a community-based arbitration system that is distinctive to the Philippines. The initiative was established to promptly, efficiently, and cost-effectively address disputes at the barangay level. Republic Act No. 7160 (1991) designates elected community members as mediators to resolve minor conflicts among residents within their jurisdiction (Bueno, 2018). This system can potentially reduce the burden on regular courts and enhance community relations; however, its usefulness and efficiency have been questioned for various reasons.

Furthermore, the necessity for a training program for Lupong Tagapamayapa arbitrators is apparent, although more thorough research into its content is needed. Preliminary studies suggest overarching ideas for capacity building (Sobradil, 2019). However, scholarly discussions must include a comprehensive, concrete strategy that accounts for the specific cultural, social, and legal contexts in which the Lupong Tagapamayapa functions. Local news reports underscore the necessity for additional research in these domains. A 2021 article in the Philippine Daily Inquirer recounted an incident when a quarrel intensified into violence due to a perceived absence of neutrality in the Lupong Tagapamayapa's conflict management. The Manila Times (2022)

reported that numerous arbitrators need help comprehending and applying intricate law requirements owing to their insufficient formal legal education. These real-world instances highlight the necessity of resolving the deficiencies in academic research.

Through incentives, the Lupong Tagapamayapa Incentives Award (LTIA) recognizes the Lupong and barangays as excellent at grassroots conflict resolution and mediation. Additionally, by highlighting the accomplishments of acknowledged barangays, the LTIA fosters public trust and community involvement, ensuring the Barangay Justice System's continued relevance, adaptability, and effectiveness in addressing Filipino communities' evolving needs and challenges. Administered by the Local Government Unit (LGU), the LTIA aligns with the broader objectives of the LGU to promote good governance, transparency, and community empowerment at the local level. By rewarding excellence in barangay governance and mediation, the LTIA strengthens the foundation of the Barangay Justice System, encouraging continuous improvement and innovation in community-based dispute resolution. The local government unit can improve efficiency, transparency, and LGU services by adding the latest technologies. It enhances citizen engagement, satisfaction, and response capabilities, allowing citizens to access various public services online. As technology continues to evolve, it is essential to integrate the transaction and operation of LGU into it. The governance and administration will grow and modernize, making LGU adapt and leverage technological advancement effectively. (DILG, 2022)

Developing a Web portal for the Lupong Tagapamayapa Incentives Award system centralized the information resources, allowing authorized users

to access them online. This also streamlines communications and reduces the time and effort of attaining or submitting documents in real-time. Web portals for LTIA empower community engagement and participation, allowing authorized users to submit disputes, track the status of cases submitted by citizens, and experience real-time feedback. This also promotes active participation in the Barangay Justice system and strengthens the relationship between barangays and their civilians.

General Objectives

The main goal of this capstone project is to develop a particular module intended for the Lupong Tagapamayapa Incentives Award Database System for Cluster a Laguna Province. Specifically, this project aims to:

1. Develop a data banking system that will handle documents related to Lupong Tagapamayapa Incentives Award
2. Design a user-friendly interface that supports the needs of the Lupong Tagapamayapa Incentives Award Database System.
3. To test and evaluate the system using ISO 25010 and the Technology Acceptance Model.

Project Purpose

This study aims to develop a system for monitoring Lupong Tagapamayapa's performance and providing transparent access to information on its performance. This system's development intends to improve the manual process of Lupong Tagapamayapa Incentive Awards. This system aims to contribute to several Sustainable Development Goals (SDGs). It aligns with the SDG of Sustainable Cities and Communities. In turn, it enhances the mechanism of the LTIA, as communities can witness and be incentivized by the

recognition of good governance practices. It addresses the SDG of Peace, Justice, and Strong Institutions, providing access to justice for all and building effective, accountable institutions at all levels. It addresses strengthening institutions by improving the monitoring of Lupong Tagapamayapa's performance and ensuring transparency in their incentive processes. This study aims to increase the efficiency of the awarding process by providing a centralized platform to collect, organize, and evaluate data from Lupong Tagapamayapa Performance and Achievements. It includes data on the number of cases resolved, the effectiveness of mediation efforts, and other relevant metrics. The project will benefit the following:

Lupong Tagapamayapa Units. The primary beneficiaries are the Lupong Tagapamayapa units. The system allows them to monitor their progress, identify areas for improvement, and aim for standards in resolving disputes. Offering incentives as an acknowledgment also encourages mediators to persist in their endeavors to foster harmony within their localities.

DILG A Cluster Head | City and Municipal. The DILG Cluster Head can easily access a wide range of data on the performance of Lupong Tagapamayapa units. Due to its accessibility, the cluster can monitor and evaluate operations more effectively, assessing process units' provision of resources and prioritizing support where it is most needed.

Barangay Secretaries. Barangay secretaries gain access to streamlined data administration, improved monitoring and reporting capabilities, more accountability and transparency, recognition and rewards for excellent Lupong Tagapamayapa units, and chances for capacity building and information sharing in conflict resolution.

Future Researchers. Understanding this database system could allow future researchers to offer insights into the effectiveness of community-based conflict resolution mechanisms, the impact of incentives on the performance of mediation councils, and trends in conflict resolution at the grassroots level. Additionally, it could provide valuable information for policymakers and stakeholders interested in improving the efficiency and outcomes of local dispute-resolution processes.

Scope and Limitations of the Study. The main focus of the study is the Lupong Tagapamayapa Incentives Award Module, a centralized and digital platform created to institutionalize a system of providing financial rewards and other incentives to Lupong Tagapamayapa members who consistently resolve conflicts at the barangay level. It is meant to be used online. It can also operate offline, albeit the drawback is that information entered in offline mode will not sync with the central database until the system is back online. One significant limitation of the system is its incapacity to access previous complaints filed before its installation. Numerous modules, including the nomination and evaluation modules, are part of the web-based system.

MOV Submission Module. This module serves as a vital resource for uploading supporting documents, such as barangay resolutions and settlement agreements, as well as details on the evaluation standards and selection procedure.

Evaluation Module. The main goal of the Evaluation Module's design was to display the LTIA Criteria and an interface for viewing MOV that has been submitted together with any supporting documentation. Nominations are only accessible to and submitted by DILG Evaluators. Only the DILG evaluator has

access to the entire evaluation module.

The outlined scope and limitations effectively clarify the functionalities and target audience for the LTIA Module. It defines the core features while acknowledging potential limitations that can be addressed in future development phases.

CHAPTER II

THEORETICAL FRAMEWORK of the PROJECT

Review of Related Literature, Studies, and Systems

Barangay Justice System in The Philippines

A method used by the community to settle conflicts between its members is the Barangay Justice System. It supports the grassroots communities in the mediation process and provides prompt, economical, and excellent justice through a non-adversarial method. The Katarungang Pambarangay Law, also known as Presidential Decree No. 1508, was initially recognized in 1979. Prior studies had been minimal, and the law's presumptions were supported by little evidence. The main goal of the Barangay Justice System (BJS), a community mediation program in the Philippines, is to use non-adversarial procedures to deliver superior justice in a timely and economical manner. The goal of dispute resolution is to resolve disputes as an underlying unit of authority and how the procedure enables both parties to conciliate a dispute resolution and resolve the conflict peacefully out of court by the parties involved, as opposed to using the very technical tactic of filing petitions and presenting evidence in court. (Mohammed & Caingat, 2017)

The state's final legislation grants local control to the Local Government. An extra-governmental organization that supports the timely and efficient local practice of peaceful dispute settlement and suitable and equitable legislation for the community. Former vice president Robredo asserts, "The law not only equalizes but also provides harmony. It reconciles opposing viewpoints by pointing them toward a single, distinct image of the society they seek to

create—compassionate, just, and fair—rather than by endorsing one side's interests over another (Gonzales L.A, 2022).

There are community-based judicial systems in comparable local situations in Western countries, such as the United States of America, where each state follows a different religious system or mediation procedure. Older mediators have been chosen in several Western nations because of their familiarity with the specific conflicts at hand and their history of facilitating internal conflict resolution within societies to optimize outcomes for a group or tribe. The belief that a dispute affects not just the individuals involved but also the entire tribe, organization, or community in which they are engaged is known as "collectivism" in the West. Not only do the mediators apply "group pressure," but they also use their respective positions to influence the parties to settle the dispute.

This jail system is located within the barangay. It displays an official acknowledgment of past conflict settlements. The Philippines' socialization norms mandate that minor conflicts and criminal infractions be "amicably settled" by the captain or barangay leader without the involvement of attorneys (Sotto, 2021). The parties benefit from the katarungang pambarangay system because it allows them to settle their differences amicably in the barangay without resorting to legal action (Lim, 2019).

The barangay justice system's improved process for amicable conflict settlement significantly advances the delivery of judicial services in the community (Pagandian & Pasule, 2019). Individuals who have previously handled cases have expressed an interest in not providing the records or paperwork related to the case's handling and outcome. However, after training

classes on the barangay justice system, these individuals—barangay officials in particular—realized the flaws and became aware of their inadequacy (Guia & Mangubat, 2021).

The Barangay Justice System is an essential foundation for grassroots peacekeeping and conflict settlement within the Philippines' legal system. This method, based on the ideas of restorative justice, emphasizes reconciliation, mediation, and peaceful resolutions as practical means of resolving disputes within local communities. The Barangay Justice System makes it easier for people to settle conflicts amicably. It promotes collaboration and solidarity among community members by giving them a quick and convenient forum. Its function goes beyond simple court procedures; it represents a dedication to social harmony, dispute settlement, and the advancement of justice in Philippine society. The Barangay Justice System, a fundamental component of local governance, is essential for maintaining the rule of law, encouraging harmony within the community, and guaranteeing that every person has fair access to the legal system (Project Jurisprudence, 2019)

As stated by Metro O. G. et al. (2021), The Katarungang Pambarangay or barrio Justice System is a community-based conflict settlement process that is run by the country's fundamental political unit, the barrio, as stated in the study that reviewed the relevant laws affecting its implementation. The Punong Barangay and other community members (the Lupon members) serve as intermediaries (mediators, conciliators, and, occasionally, arbitrators) in this community-based method of resolving disputes between members of the same community (typically, the same city or municipality).

As stated by J. Benter. (2020), significant regional differences exist in institutionalizing extrajudicial conflict resolution. China and Pakistan are ahead of the US in this regard; the US passed the Dispute Resolution Act very recently. In the Philippines, conflict resolution procedures are handled by lupong tagapamayapa and pangkat ng tagapagkasundo; in other countries, these organizations may be known as conciliation committees, courts, boards, or community centers. A community-based process called "Shalish" is used in Bangladesh to resolve various civil issues, some of which may have criminal implications. Norway and Russia use mediation extensively; each municipality in Norway has its mediation council. Decreased crime and increased justice are the two main objectives of criminal justice policy in the US, UK, Canada, and Sweden. Like the Katarungang Pambarangay in the Philippines, hybrid courts combine traditional dispute resolution methods with Western legal ideas like the Solomon Islands, Papua New Guinea, Nigeria, and South Africa. During the colonial era, these hybrid courts emerged as a means of balancing the increasing authority of central governments with local autonomy.

According to a Nomad Capitalist article, Norway's independent court, which prioritizes impartiality, and its prisoner reform program, which promotes rehabilitation and reintegration, are the main reasons it is ranked first on the World Justice Project's Rule of Law Index. Finland's complex legal system and commitment to judicial independence emphasize the value of diversity and public trust in the legal system. The goals of Sweden's rehabilitative approach to jail align with those of the electronic barangay justice system, which promotes reformation and alternative conflict resolution. The importance of these characteristics in a digital system is modeled after the transparent and effective

Dutch legal system. Developing a fair, user-friendly, and highly effective electronic barangay justice system is possible.

DILG

Peaceful, safe, self-reliant, and development-dominated communities improve local governments' performance in governance, administration, social and economic development, and environmental management. Good governance and the protection and promotion of human rights directly contribute to peacebuilding, conflict prevention, and post-conflict recovery. By strengthening community partnerships, the government will foster efficient, inclusive, and accountable LGUs to boost people's confidence in the government and human rights-based security institutions. (DILG, 2022)

Additionally, we will implement appropriate penalties for violators and intensify mainstreaming efforts through improved reward schemes. Maintain peace and order, as well as ensure public safety. In pursuing economic transformation, the manifestation of peace and security is necessary for implementing development activities that could bring in more and better opportunities for the people. We can achieve if we protect and develop conflict-vulnerable areas, safeguard the quality of life from criminality, and ensure communities are safe from natural hazards and other security threats. Likewise, an efficient administration of justice is critical to ensuring sustained economic progress. Whether traditional or alternative, a stable and accountable justice system must inspire trust and confidence among stakeholders through integrity, fairness, and accessibility. The Philippine Development Plan (PDP) 2023–2028 assumes that a whole-of-government approach with cross-cutting strategies is required to ensure peace and security. The plan asserts that economic justice

is a pillar of a robust and vibrant economy, necessitating a sector-based approach based on strong coordination among justice sector institutions, agencies, and actors to foster public engagement and trust in the justice system. (PDP NEDA, 2023)

The Department of Justice (DOJ) and the Department of Interior and Local Government (DILG) pledged to collaborate to create a criminal justice system that is stronger and more effective. DOJ Secretary Jesus Crispin C. Remulla and DILG Secretary Benjamin C. Abalos, Jr. observed during a joint press conference at Camp Crame that enforcement and prosecution do not now appear to collaborate well. Both authorities concurred that a "drastic" improvement to the current system is required.

Secretary Remulla said that among the areas he and Secretary Abalos have agreed to pursue is the re-training of law enforcement units in both remedial and substantive laws to avoid cases being returned “for further investigation.” On the part of the prosecution, he observed that there seems to be confusion on the quasi-judicial functions of the prosecutors. He said prosecutors’ quasi-judicial functions should not take precedence over their primary role to prosecute cases such that people guilty of crimes are convicted and punished.

Sec. Remulla reiterated the need for the law enforcers and prosecutors to work well together to achieve a stronger criminal justice system. Further, SOJ said, “Ang gusto sana namin ang piskal at pulis, magkakampi lagi. Nagtutulungan, hindi sila nagtuturuan.” (DOJ, 2022)

The justice system's fragmentation is still an issue. Law enforcement, prosecution, courts, corrections, and the community—the five pillars of the

justice system—all historically carried out their respective functions independently but with a restricted focus on their particular areas of jurisdiction. This led to gaps in policy advice and procedural discrepancies. The Department of Justice (DOJ), the Department of the Interior and Local Government (DILG), and the Judiciary, along with any pertinent attached agencies, have formed the Justice Sector Coordinating Council (JSCC). This crucial initiative is now fully operational as a cooperative mechanism for the justice sector agenda. Furthermore, the National Judicial Information System (NJIS) was established to aid in coordinating entities within the judicial sector. Even if the successes above helped to reduce fragmentation, more has to be done to build on and scale up the achievements. The PDP 2017–2022 aims to guarantee justice's prompt and equitable administration. There will be an overhaul of current systems to solve the system's enduring and widespread problems. A simplified procedure that acknowledges the institutions within the justice sector's distinct mandates and jurisdictions forms the basis of this methodological change. (PDP NEDA , 2018)

Barangay Justice System in Laguna and Cluster A

Implementation of katarungang pambarangay currently, 80 barangays in San Pablo have the resources they need to execute ICT initiatives. Since the Philippine government intends to revolutionize its services, everyone is given and provided with various ICT devices and internet technologies. Despite government help and resources, some formal barangay transactions still require manual processing. The Katarungang Pambarangay, or the Barangay Justice System, involves manual transactions. (Joanna E. De Torres and Marco Jr. N. Del Rosario, 2019)

To ensure the continued usefulness of e-services, it is critical to assess the preparedness of the government's in-house and online infrastructure. According to DILG data, all 80 barangays of San Pablo are equipped with essential ICT capabilities. Having stated that, it is clear that 100% of the barangay has the essential equipment to facilitate using an information system. Examples of such equipment include desktop PCs, printers, and scanners. However, it is unclear whether all of these barangays have internet access. A survey was performed to determine the availability of internet access in all barangays in San Pablo City. The survey results show that 75% of the barangay is fully equipped with ICT facilities and stable internet connectivity. On the other hand, it shows that 25% of barangay still, unfortunately, lack internet connectivity. Twenty Barangays still do not have a stable internet connection.

However, based on interviews with some respondents, the issue was addressed by the barangay purchasing and relying on portable broadband devices owned by barangay secretaries. (Joanna E. De Torres and Marco Jr. N. Del Rosario, 2019). In the Philippines, Lupon Tagapamayapa has been functioning inside the barangay court system for over ten years (Villamor & Dagohoy, 2020).

Lupong Tagapamayapa Incentives Awards

Lupong Tagapamayapa Incentives Awards is a web-based application developed by the DILG Information System and Technology Management Services that improves the encoding, evaluation, ranking, and selection of Lupong Tagapamayapa Incentives Awards awardees. (Department of the Interior and Local Government, 2022) It institutionalizes a system of granting economic benefits and other incentives to the Lupong Tagapamayapa that

demonstrates exemplary performance in settling disputes at the grassroots level and it was established in 1997. (Department of the Interior and Local Government, 2023) Lupong Tagapamayapa's assessment will be based on its efficiency and effectiveness in securing the settlement of the interpersonal dispute objective of the Katarungang Pambarangay, the creativity and resourcefulness of Lupong Tagapamayapa, the area of the facility for KP activities, and financial or non-financial support. (Department of the Interior and Local Government, 2022)

The Lupong Tagapamayapa Incentives Awards (LTIA) were established by Section 406 of the LGC of 1991, which requires the DILG to provide economic and other incentives to Lupong Tagapamayapa (LT) for their outstanding contributions to achieving the Katarungang Pambarangay's objectives. (Department of the Interior and Local Government, 2016) It is a joint program of DILG and the Department of Justice (DOJ), Its purpose is to highlight the role of Lupong Tagapamayapa in this resourcefulness in resolving cases under the Barangay Justice System. (Department of the Interior and Local Government, 2022)

Katarungan Pambarangay (KP) is the Philippines' response to the ongoing global search for indigenous mediation systems capable of resolving disputes within and outside formal courts of justice. KP's main feature is the Lupong Tagapamayapa. Years of dispute resolution experience have led to the conclusion that Lupon members' commitment and determination in carrying out their tasks and obligations was substantially responsible for their success. Recognizing the Lupons' substantial contributions to the advancement of the KP aim over the years, the DILG established the Lupong Tagapamayapa

Incentives Awards, both as a function of public policy and as a reward for exceptional Lupon performance. The Lupong Tagapamayapa Incentives Awards were created in 1997 to formalize a program that gives the economy advantages and other incentives to the Lupong Tagapamayapa that shows exceptional achievement in resolving conflicts at the local level. Regional, provincial, and municipal committees assessed the lupons' performance and achievements according to their effectiveness in achieving the katarungang pambarangay goals, the efficiency of their operations, and their mediators' inventiveness and resourcefulness. (Department of the Interior and Local Government, 2016)

Emergence of Technology

Modern technology has completely changed the criminal justice system, presenting opportunities and difficulties. Law enforcement officers can profit from cutting-edge technology as they investigate criminal behavior and conduct justice, just as sophisticated criminals can use it to commit crimes and avoid discovery. Although forensic science is a well-known and efficient application, it is just getting started. Furthermore, the use of technology in the juvenile justice system, rehabilitation, and incarceration is becoming increasingly important. Professionals in the criminal justice area will be expected to be skilled with state-of-the-art technologies and approaches as their reliance on high-tech solutions develops. This necessitates specialized training and a great deal of experience with various hardware, software, and system kinds. (Husson University, 2023)

For tiny administrative entities like barangays, the rapid population expansion poses serious issues, especially in managing the growing amount of

data and information. Without a centralized database system, barangays have historically relied on manual methods to manage the files of their community members, such as Microsoft Word or Excel. This dependence on manual processes exposes the company to data corruption and increased risk of data processing errors. Furthermore, these difficulties have been made worse by the COVID-19 pandemic, making it harder for barangays to serve the community's requirements adequately. In reaction to these problems, scientists—among them. To create a solution specifically for Barangay 407 in Manila, Philippines (N. Jamis et.al, 2022).

One Barangay's suggested system merges web and mobile platforms to provide a methodical and secure approach to managing community files and data. This long-term solution will improve productivity and service delivery inside the Barangay.

In the Philippines, every barangay and its officials must confront the social issues that the community faces and demand that the authorities act. E-government is a critical component of good governance, and profiling community households through information and communication technology can support it. The BIPS (Barangay et al.) uses technology to expedite budget allocation and decision-making procedures within the barangay. BIPS creates visual representations on its dashboard by combining data from home profiling. After that, barangay authorities can use this data as a starting point for budgeting and related paperwork, which will allow them to pinpoint areas in need of repair and launch programs meant to improve the standard of living and general well-being of the community they serve (Lacasandile, A. D., & Labanan, 2020)

According to a 2021 report by KPMG Philippines, local government units (LGUs) in the Philippines are increasingly focusing on becoming digitally enabled, data-driven, and community-focused. This evolution aims to break down traditional governmental barriers, creating a more connected and responsive local governance structure. LGUs are taking advantage of digital technologies to improve their operations and better fulfill the requirements of their constituents, with a focus on customer-centric service delivery. This report offers KPMG's view of the future path of the Philippines' local government.

To improve the efficiency of the barangay justice system in carrying out these duties, the main goal of this research was to create an online Crime Monitoring Module. This module makes it easier for the community to track and maintain records of violations. Technology helps to improve the administration of peace and order by offering a more effective way to keep an eye on infractions and blotter cases, particularly in barangays. (Antonio, L, 2020)

Computer-based information technology is currently quite advanced in the realm of education and is beginning to influence the delivery of specific information. However, it turns out that in practice, many businesses are still not using technology for its intended purpose (Herawati, Negara, Febriansyah, & Fatah, 2021). Pasaribu (2021) states that technology's rapid progress in the current era of globalization has offered several benefits in various parts of life.

The internet, mainly Web 2.0, provides access to a range of persons' perspectives and beliefs, creating opportunities for new modes of communication and knowledge development. Previous methods for browsing and filtering available information will likely be useless in these new circumstances. Connectivism is one of the most popular network learning

theories for e-learning environments. Medical educators are identifying it. This study explores connectivity and its potential applications. Connectivism can improve the understanding and management of digital technology-based teaching and learning. However, further development and testing are needed. It is improbable that a single theory can fully explain learning in technology networks. Educators play a crucial role in online network learning. (Goldie, J. G. S., 2016)

1kyusi: A Centralized Web-Based Information Management System for The Local Government of Quezon City

This system was designed to improve record-keeping efficiency and accessibility for local government units (LGUs) only in Quezon City, Philippines. The system's primary goal is to enhance the delivery of essential social services and bolster the LGU’s preparedness for disasters by serving a comprehensive database containing updated records of every citizen of Quezon City’s barangays. Despite its extensive data collection, the system also implemented the Data Privacy Act of 2012, making sure to protect every individual’s personal information.

Implementing this system in the barangay and managing it under the oversight of the local government will facilitate more efficient access to crucial information, better coordination in different government agencies, and enhanced effectiveness of social service delivery and disaster management efforts at the grassroots level. This will benefit the community and improve governance practices in Quezon City. (SIMBULAN, 2022)

1Kyusi represents a centralized web-based information management system tailored specifically for the Local Government Units (LGUs) of Quezon

City, Philippines. Its main objective is to streamline the record-keeping process, ensuring efficiency and accessibility within the LGU.

The difference between 1KYUSI and the Lupong Tagapamayapa Incentives Award (LTIA) lies in their respective focuses and scopes within the Philippine context. 1KYUSI is a centralized web-based information management system designed to enhance record-keeping efficiency and accessibility specifically for Local Government Units (LGUs) in Quezon City. Its primary objective is to improve the delivery of basic social services and bolster LGU preparedness for disasters by maintaining an extensive database of updated records of every citizen in Quezon City's barangays. In contrast, LTIA operates nationally throughout the Philippines, recognizing and incentivizing barangay justice councils (Lupon Tagapamayapa) for their exemplary performance in resolving disputes and maintaining peace within their communities. While 1KYUSI targets LGUs and focuses on governance practices and service delivery at the local level, LTIA emphasizes community-based dispute resolution, restorative justice principles, and social cohesion nationwide.

Police Complaint Management System Using Blockchain Technology

This system aims to solve the challenge of reporting and managing criminal complaints in India using blockchain technology. This Blockchain has many advantages. It provides a secure and transparent mechanism for storing and accessing complaints records, reducing the risk of unauthorized alteration, and it also serves as verifiable proof of complaints and their timestamp, making it difficult for authorities to deny or manipulate the filling process. Furthermore, by decentralizing the storage and management of complaints, the system

reduces the risks connected to centralized databases, such as single points of failure and possible security breaches. (Hingorani, Khara, Pomendkar, & Raul, 2020)

Lupong Tagapamayapa Incentives Award and the proposed Police Complaint Management System using Blockchain Technology serve as an innovative solution to distinct challenges within the community, as the LTIA aims to recognize and incentivize the barangay's justice councils for their effort in maintaining peace and order at the grassroots level. The Blockchain-based Police Complaint Management System targets improving reporting and managing criminal complaints in India by leveraging blockchain technology to enhance transparency and accountability in law enforcement. While LTIA emphasizes traditional nomination and evaluation processes, the proposed system utilizes decentralized storage and verification mechanisms to provide secure and transparent records of complaints, reducing the risk of unauthorized alteration and manipulation.

Synthesis and Relevance of The Study

The literature that the researchers studied led to a broader knowledge for creating a system for the Lupong Tagapamayapa Incentives Award, and the literature is community-based for the advancement of governance and service delivery. The Lupong Tagapamayapa Incentives Award recognizes and rewards the efforts and performance of the barangay’s justice councils, promoting and promoting restorative justice and social cohesion at the grassroots level involves fostering mechanisms that prioritize reconciliation, mediation, and peaceful resolution of conflicts within local communities. The literature focuses on common objectives, strengthening governance and

service delivery of the Philippines, empowering local communities, and leveraging technological advancements. These programs contribute to building a more inclusive, efficient, and responsive society, continuing innovations essential for improving the regional and national systems.

Literature Matrix

Author	Title	Methods/Algorithm	Key Findings	Year
Antonio, L	Enhancing Barangay Justice System Through the Development of a Web-Based Crime Monitoring Module	Modernization of the Old System of keeping blotter cases and using technology for monitoring crime.	The study aims to develop an Online Crime Monitoring Module that improves the efficiency of the barangay justice system. Also, monitor how Technology improves peace and order blotter cases.	2020
Husson University	The Role of Technology in Criminal Justice	Cutting-edge technology for investigating criminal behavior and carrying out justice	Technology is becoming increasingly important in juvenile justice, rehabilitation, and incarceration.	2023
Lacasandile, A. D., & Labanan	Development of an Information-Based Dashboard: Automation of Barangay Information Profiling System (BIPS) for Decision Support towards e-Governance	Information and Communication Technology (ICT) for household profiling	This study aims to develop BIPS data that helps identify priority areas for barangay development programs. Also, it streamlines budget allocation for each household in a barangay.	2020
N. Jamis et.al.	One Barangay: A Mobile And Web Barangay Management System	Web and Mobile Application Platform	The study aims to develop a digitalized system that manages a specific barangay in the Philippines. It monitories systematic data management, secure data storage, improved productivity, and enhanced service delivery.	2022

Hingorani, Khara, Pomendkar, & Raul,	Police Complaint Management System Using Blockchain Technology	Block-chain for Police Complaint Management System	The Police Complaint Management System employs blockchain technology with consensus mechanisms, smart contracts, and encryption for secure and transparent complaint storage, leading to enhanced security, transparency.	2020

Conceptual Framework

Figure 1 shows the visual representation of the Lupong Tagapamayapa Incentives Award Database system in Laguna's DILG Cluster A. This system is designed to provide a clear and organized approach to evaluating barangays. It promotes efficiency, fairness, and accountability by centralizing evaluation processes, facilitating ranking, and simplifying nomination and awarding procedures. This framework aims to incentivize excellence in barangay governance, ultimately contributing to community development and empowerment in the province.

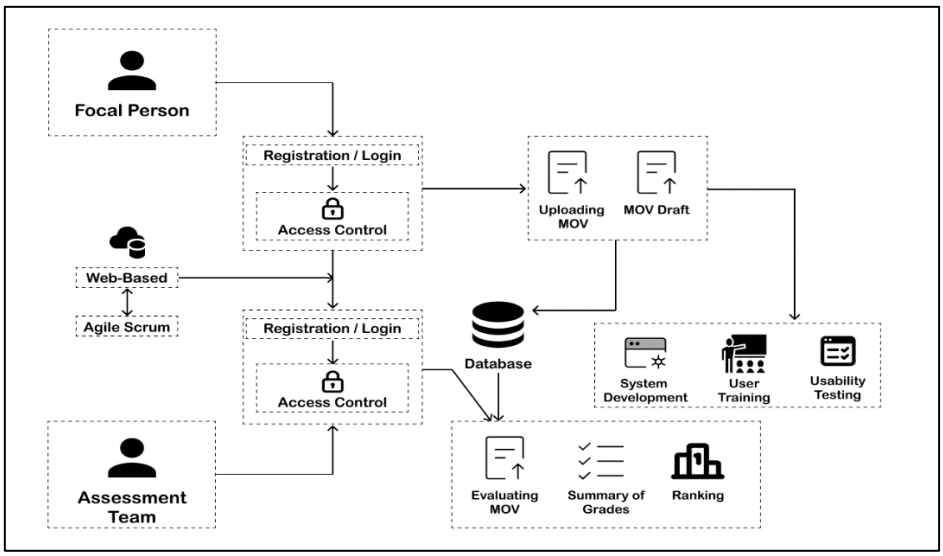


Figure 1. Conceptual Framework

CHAPTER 3

METHODOLOGY

This chapter includes the project design, development, and software and hardware requirements for developing the system.

Project Design

This section outlines the system's functionality, which enables users to manage reports and evaluations of the Lupon proceedings effectively using a structured and secure interface.

Figure 2 shows the system has a user interface for the Focal Person and the Assessment team. The interface starts with a secure login, one for the focal person and the other for the Assessment team. This ensures that the Focal Person will focus more on uploading assessments or evaluating MOVs. The assessment team module focuses on monitoring the data of the barangays that have been uploaded and grading submitted MOVs. Moreover, this interface can quickly find and utilize the barangay per municipality for case management, ranking, and viewing the evaluation results. The Assessment Team interface has an auto-generated ranking feature; the ranking of nominees will be sorted based on their performance, and the user can view the previous awardees.

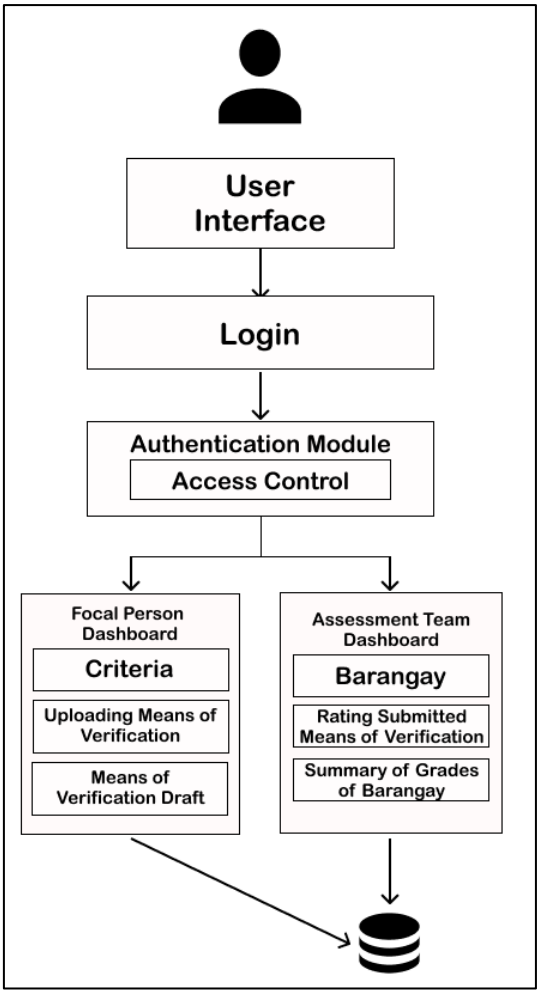


Figure 2. System Architecture

System Flowchart

Figure 3 depicts the flowchart workflow of the Lupong Tagapamayapa Incentives Award Database System, which begins at the "START" and directs the user to a landing page with options to either “Login as Focal Person or as Assessment Team." If a user does not have an account, they must create one. Upon successful login, the user is taken to a "Dashboard" where the available actions differ based on their role. Focal Person: They can endorse their Lupon from their Barangay. There is also an option to manage their account settings and log out.

The Assessment Team can access a distinct set of functionalities on their Dashboard. They can comprehensively monitor the data of the barangays, enabling them to view, evaluate, and rank the nominees as necessary. The workflow is structured to ensure users are presented with options relevant to their role within the system, promoting efficient navigation and task completion. The final action in all scenarios is the ability to log out, which terminates the session and exits the system.

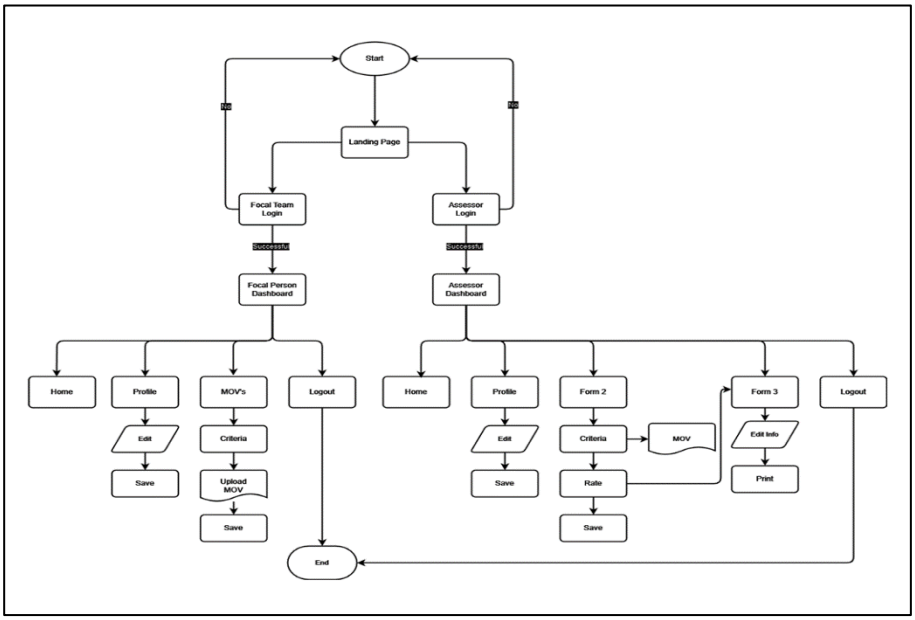


Figure 3. System Flowchart

Materials

Software

The software tools that will be needed to develop the system are the following:

Visual Studio Code. Visual Studio Code will be used as the development tool for the web application. This will be useful for debugging and task execution of the web system.

PHP. This will be used as the backend programming language to connect the system to the server.

MySQL. This tool will serve as the system's database. It is a relational database that organizes data into tables of rows and columns.

XAMMP. This tool will serve as a cross-platform web server during the development. This is used because it supports Apache HTTP Server, MariaDB database, and PHP programming language.

JavaScript. JavaScript served as the fundamental tool in developing the web-based LTIA system. It played a crucial role in crafting interactive features essential for user engagement, including animations, pop-up menus, clickable buttons, and multimedia controls.

Bootstrap. This tool will make the web-based LTIA system visually appealing, technologically cutting-edge, and accessible on various screens and devices.

Hardware

Table 1 shows the hardware requirements developers used in developing the LTIA system. It features a robust configuration with 16GB RAM and an Intel Core i5-8265U CPU for quick and accurate legal tasks. The system runs on stable, user-friendly Windows 8, 10, and 11 and requires a 25 Mbps internet speed for prompt and uninterrupted access. The selected hardware specifications ensure that the system can handle multiple concurrent users, reflecting a commitment to efficiency in public service. Additionally, including a range of compatible Windows operating systems guarantees accessibility for various users.

Table 1. Hardware Specification

Hardware	Specification
RAM	16GB
CPU	Intel Core i5-8265U
OS	Windows 8,10,11
Internet Speed	25 Mbps

Table 2 lists the minimum requirements for smartphones and tablets to access the LTIA System. The system requires an Android OS of version 9 or above with 8GB RAM and a quad-core processor to ensure top-notch performance. The prescribed internet speed is at least 2-5 Mbps, catering to users with varying connectivity. These minimum specifications promote practical usage and inclusivity.

Table 2. Minimum Requirement Used for Smartphone or Tablet

Minimum Requirement	Specification
Android OS	at least Android 9 and above
RAM	8 GB
Processor	quad-core
Internet Speed	at least 2-5 Mbps

Project Development

Software Development Life Cycle

The researchers worked with the Agile Software Development Lifecycle to effectively design and construct the web-based system.

Figure 4 shows the system's life cycle from the initial idea to the final outcome, which is the implementation of the Lupong Tagapamayapa Incentives Awards System. Applying Agile Scrum methodologies, such as product backlog, spring planning, daily scrum, and complete product. By breaking down the tasks into smaller components and involving the entire team in the process, it becomes easier to generate innovative ideas and increase collaboration. This ultimately leads to a more effective system performance.

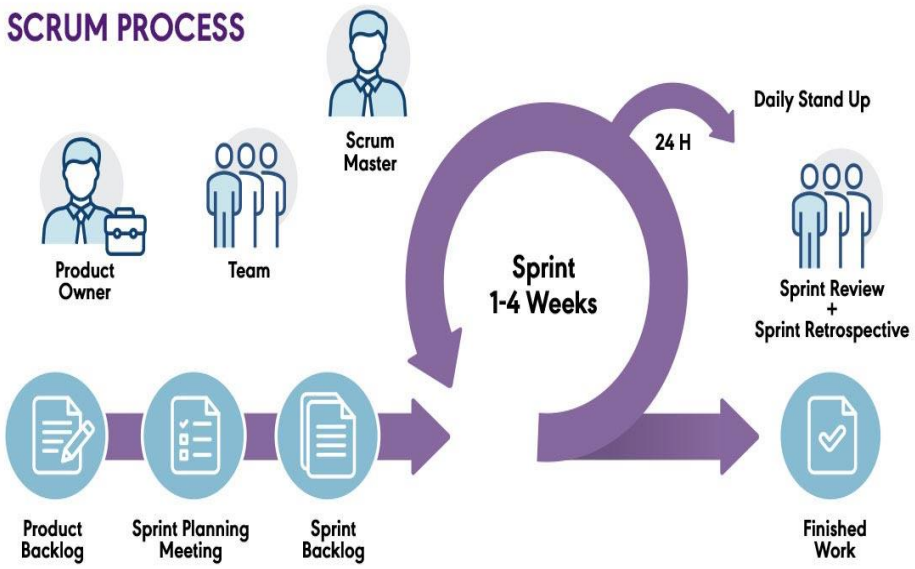


Figure 4. Agile Scrum Methodology

Product Backlog

Table 3 outlines the system's client capabilities and corresponding usage times. The process begins with the user logging in to access the dashboard. Subsequently, the user may view the MOV submitted by the Barangay Secretary. Users can make remarks if there is a conflict with the submitted file. Users can now grade the submitted file based on the criteria and scoring. The prioritization in Table 3 ensures that the most critical functions, like grading of submitted files, are addressed promptly, optimizing the user's time spent on the platform. This structured approach enhances user satisfaction and promotes the efficiency of the judicial process through the LTIA system.

Table 3. Product Backlog (Assessor)

PRIORITY	ITEM	ESTIMATED HOURS/DAY
1.	As an assessor, I want to create an account and log in.	5 hours
2.	As an assessor, I want to access the dashboard.	5 hours
3.	As an assessor, I want to grade the form and view uploaded MOVs.	5 hours
4.	As an assessor, I want to make remarks about certain barangays.	5 hours
5.	As an assessor, I want to view the summary of the grades of the barangay.	5 hours
6.	As an assessor, I want to print the form.	5 hours

Table 4 outlines the system's client capabilities and corresponding usage times. The process begins with the user logging in to access the dashboard. Subsequently, the user can submit MOV for the given criterion. User can now save once the submission of MOV per criterion is done. The prioritization in Table 4 ensures that the most critical functions, like submitting files, are addressed promptly, optimizing the user's time spent on the platform. This structured approach enhances user satisfaction and promotes the efficiency of the judicial process through the LTIA system.

Table 4. Product Backlog (Focal Person)

PRIORITY	ITEM	ESTIMATED HOURS/DAY
1.	As a User, I want to create an account and log in.	5 hours
2.	As a User, I want to access the dashboard.	5 hours
3.	As a user, I want to upload MOV for the given criteria.	5 hours
4.	As a user, I want to save it as a draft	5 hours
5.	As a user, I want to save changes.	5 hours

Sprint Planning

Table 5 shows the sprint planning table outlines essential features. The user needs to enhance the system's functionality. Access to a dashboard for user and authentication were foundational elements, followed by document-handling capabilities developed to grade such barangays on their good governance. This involved enabling electronic document submissions and access to legal databases, which ensured efficient collaboration and information sharing.

Table 5. Sprint Backlog (Focal Person)

PRIORITY	ITEMS	TASK	ESTIMATED HOURS/DAY
1.	As a user, I want to create an account and log in.	Develop login and registration page. Design the login page. Test the login page.	3 hrs
2.	As a user, I want to access the dashboard.	Develop the dashboard page. Design the login page. Test the login page.	3 hrs
3.	As a user, I want to upload MOVs for the given criteria	Develop an upload MOVs page for the User Design the upload MOVs page. Test the upload MOVs page.	3 hrs
4.	As a user, I want to save files as Draft	Develop a save as a draft module. Design the save as a draft module. Test the save as a draft module.	3 hrs
5.	As a user, I want to save changes.	Develop a save changes page for the User Design the save changes page. Test the save changes page	3 hrs

Table 6 shows the sprint planning table for developing the page for the Assessor. It outlines features like grading such barangay, putting some remarks, and printing the form evaluated.

Table 6. Sprint Backlog (Assessor)

PRIORITY	ITEMS	TASKS	ESTIMATED HOURS/DAY
1.	As a user, I want to create an account and log in.	Develop login and registration page. Design the login page. Test the login page.	5 hours
2.	As an assessor, I want to access the dashboard.	Develop a dashboard page for the Assessor. Design the dashboard page. Test the dashboard page.	5 hours
3.	As an assessor, I want to grade the form and view uploaded MOVs.	Develop a page to grade files and view the uploaded MOVs page for the Assessor Design the page to grade MOV and view the uploaded MOV page. Test the page to grade MOV and view the uploaded MOV	5 hours
4.	As an assessor, I want to put some remarks provided in Form 3.	Develop a put remark for the Assessor. Design the remarks page. Test the remarks page.	5 hours
5.	As an assessor, I want to see the summary of the list of grades of Barangay.	Develop a page for a summary of grades given to barangays. Design a page for a summary of grades given to barangays. Test the summary of grades on the Barangay page.	5 hours
6.	As an assessor, I want to print the summary of grades.	Develop a print page for the Assessor. Design the print file page. Test the print file page.	5 hours

Use Case Diagram

Figure 5 presents a use case diagram that traces the system's interactions and users' interactions. The primary user is the Focal Person, the system user responsible for filling out the form and Uploading MOV. The system facilitates a range of functions for the user, such as viewing criteria, filing up forms, uploading mov, and evaluation forms. The focal person initiates the process by providing criteria to the evaluator, who then engages with the system to carry out the necessary actions. Additional users include the Assessment team (representing the Department of the Interior and Local Government, DILG, level access), who have privileges for broader system functionalities and oversight, respectively. The admin can also view criteria and upload MOV, while the Super Admin has the highest access level, which likely includes system-wide administrative functions and oversight capabilities. Both users can also log in to the system.

Criteria for MOV. The criteria include the points standard by which something may be judged or decided. The DILG Assessment Team follows this criterion to grade a barangay.

Uploading MOV. MOVs are used as proof or supplementary materials to substantiate the data submitted throughout the auditing process. Every MOV pertains to a particular audit facet, emphasizing several domains such as the regional economy, organizational assistance, emergency readiness, and additional areas. MOVs are essentially hard evidence supporting the assertions and data during the DILG evaluation of local government performance.

MOV Draft. It consists of some unfinished files submitted by the Focal Person. Denotes the preservation of a work-in-progress iteration of a MOV. This

feature facilitates iterative refinement by the focal individual before final submission.

Evaluating MOV. These forms likely follow a standardized format established by the DILG, ensuring consistent evaluation across different regions and LGUs. In this kind of evaluation, which is widespread, the DILG evaluates a barangay's overall performance in several areas, including infrastructure development, social services, governance, and preparedness and response for disasters. The DILG may also use evaluation forms to evaluate the performance of service providers or suppliers collaborating with the department or local government units. This guarantees that they provide services efficiently and under quality requirements.

Summary of Grades. These are the list of the final grades of barangays who are suitable candidates for the LTIA Program. "LTIA" stands for "Lupong Tagapamayapa Incentives Awards," although the program's exact details are unknown. This implies that the program involves honoring and rewarding exceptional Lupong Tagapamayapa (LTIA), quasi-judicial organizations in the Philippines that handle conflicts at the barangay level. A nomination for the Lupong Tagapamayapa Program signifies that the person or organization is acknowledged for their accomplishments and contributions within the Lupong Tagapamayapa framework.

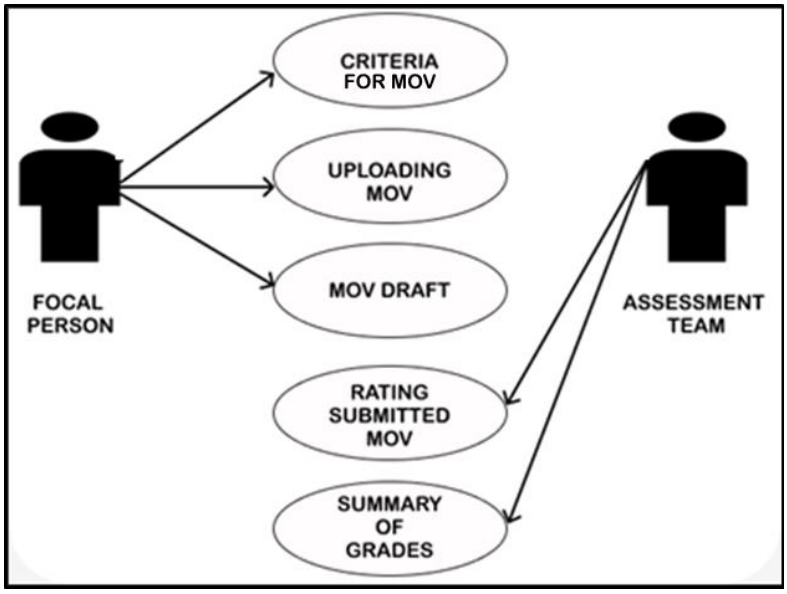


Figure 5. Use Case Diagram of LTIA System

Context Diagram

Figure 6 illustrates the Lupong Tagapamayapa Incentives Award System as the central system, with two external entities, The Focal Person (Barangay) and the Assessment Team (DILG), forming a collaborative network. The focal Person uploads a MOV per criteria, and the Assessment Team evaluates the submitted Means of Verification and verifies the grade result. The DILG System Admin verifies accounts made and views accounts used. The primary data flow involves uploading MOV, evaluating a barangay, and highlighting the systematic administration of user roles within the LTIA System, facilitating efficient evaluation. The context diagram illustrates the interactions between a web-based system designed for the Local Government Unit in Cluster A of the Province of Laguna and its external entities. It offers a simplified overview of how the system interfaces with various stakeholders and entities in its operational environment.

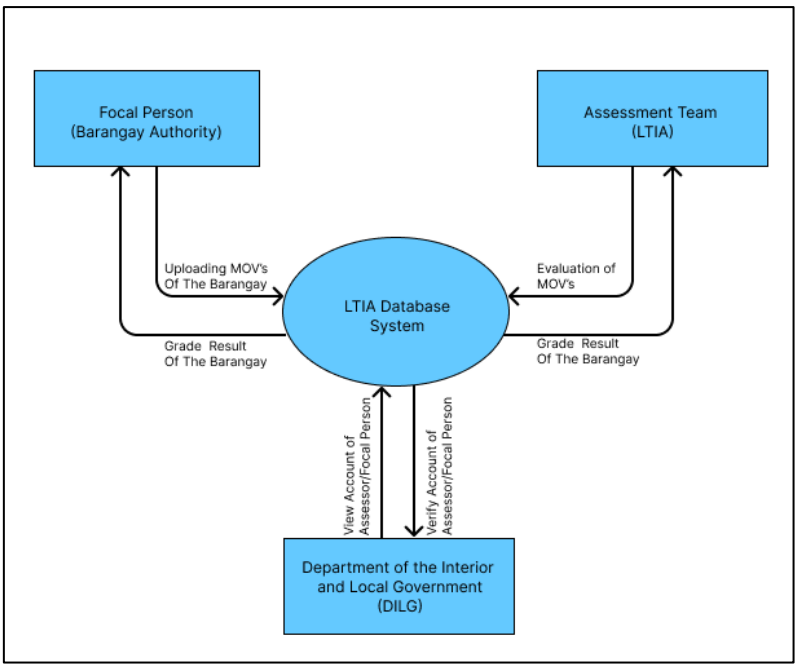


Figure 6. Context Level

Data Flow Diagram

The following shows the flow of processes between the Assessment Team and Focal Person to centralized criteria for evaluation per Barangay.

Figure 7 shows this Data Flow Diagram (DFD) comprising three levels. At Level 0, the system registers a Focal Person authorized by the Barangay and Assessment Team, who is also part of LTIA. Level 1 focuses on account verification since the Super Admin created an account to verify municipalities and the municipalities to verify the Barangay Account (Focal Person). Level 2 encompasses various user functions for the Focal Person that allow them to check criteria and upload Means of Verification (MOV) per criteria. This level details the user's actions, from uploading Means of Verification per criteria, viewing submitted files, save as Draft to check some errors before submitting the files. And lastly, Level 3 highlights the overall evaluation process handled by the Assessment Team, from 2 to 3 until nomination.

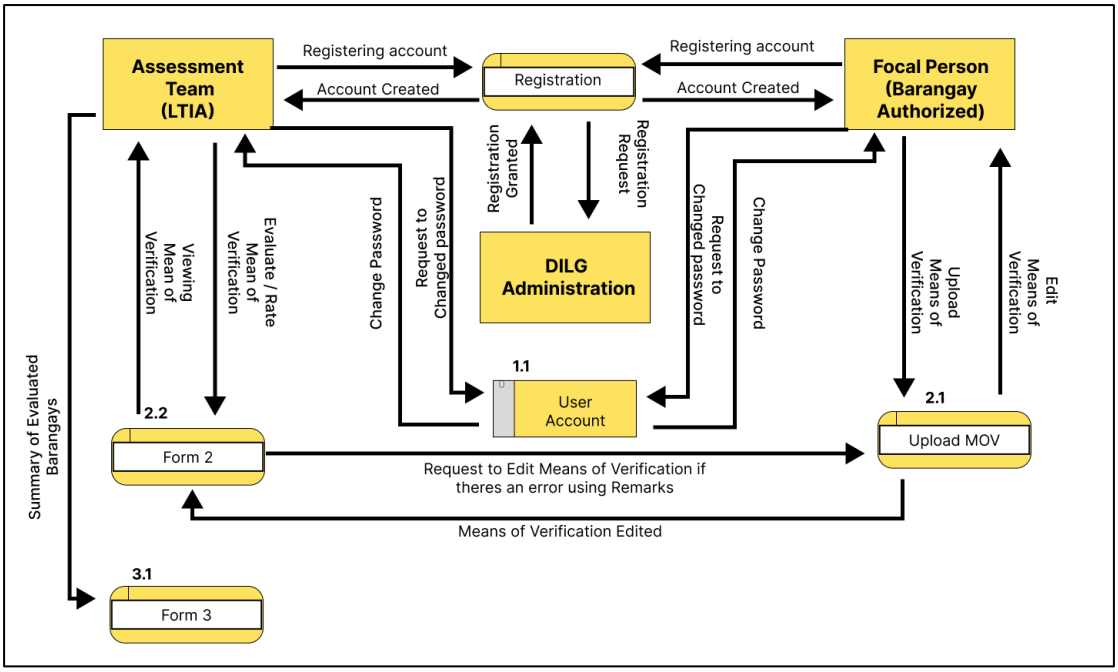


Figure 7. Data Flow Diagram Level 0-3

Project Testing and Evaluation

Levels of software testing define various stages of software development during which testing is carried out. Unit testing, integration testing, system testing, and user acceptance testing are the four progressive testing phases typically used in software development.

Figure 8 is the evaluation that will conducted by the researchers for different testing, which are Unit Testing, Integration Testing, System Testing, Acceptance Testing, and Evaluation Procedure to ensure the quality and reliability of the project.

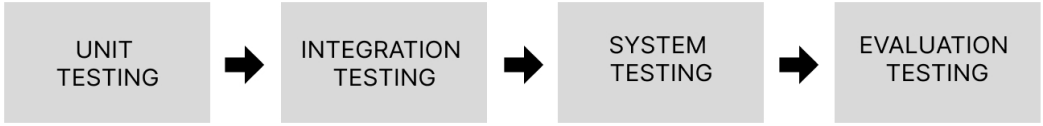


Figure 8**.** Project Testing and Evaluation

Unit Testing

Unit testing focuses on testing specific functional units instead of checking the entire system. This approach aids in isolating each distinct piece of the system or component under test, ensuring it does not adversely impact other parts of the codebase. For instance, if the Department of the Interior and Local Government (DILG) requires remarks if there is a submitted file for every criterion, it isolates the functional component responsible for this crucial task, verifies its correctness, and ensures error-free operation. By doing so, developers can quickly fix bugs before merging the code into the central system, enhancing overall software quality and reliability.

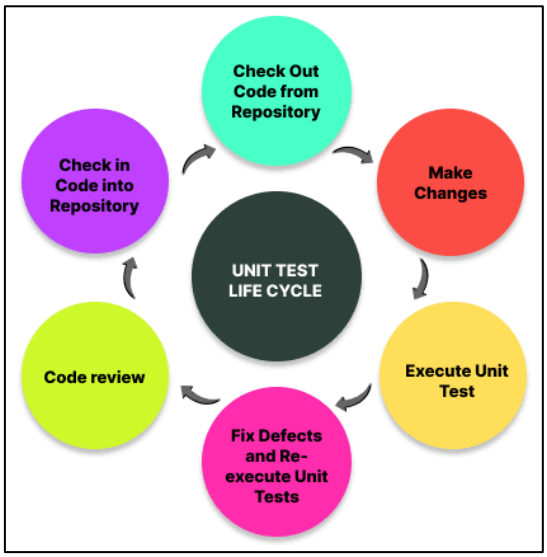


Figure 9. Unit Testing

Integration Testing

As shown in Figure 10, integration testing is a software testing phase involving combining individual software modules and testing them as a group. This type of testing is performed to evaluate whether a system or component meets specific functional requirements. Integration testing takes place after unit testing and before system testing. The overlapping section between Module A

and Module B represents the interface where the modules engage, which is the focus of this testing phase to catch any integration defects.

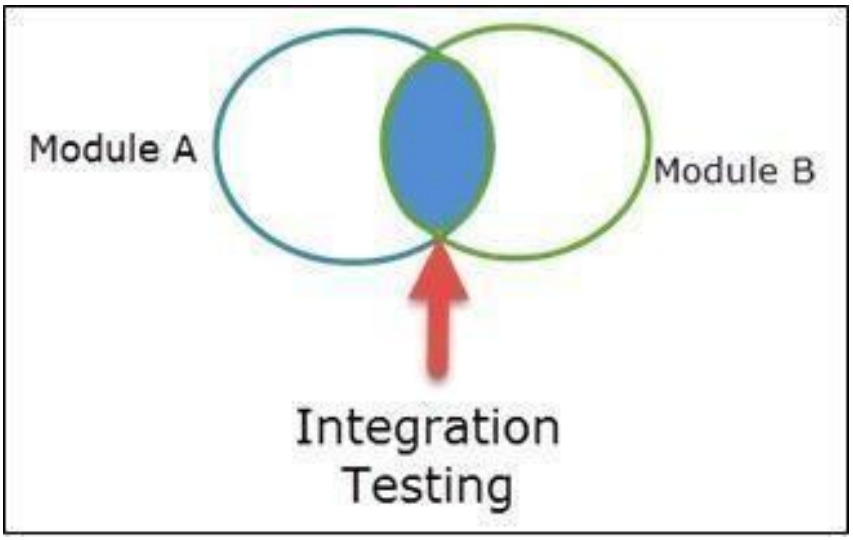


Figure 10. Integration Testing

Evaluation Procedure

Technology Acceptance Model

Table 7 presents the reliability analysis for various categories related to a survey or assessment. Cronbach's Alpha values indicate internal consistency, with a score of 0.7 generally considered acceptable. A Cronbach's Alpha of 0.725 indicates that the survey instrument has an acceptable level of reliability and is suitable for preliminary studies or formative assessments. However, suppose this is part of a more extensive and critical analysis. In that case, further improvement in reliability may be necessary, either by refining questions to reduce ambiguity or increasing sample size to ensure generalizability.

Table 7. Reliability Test Result for Technology Acceptance Model

Metric	Value
Case Processing Summary	
Valid Cases (N)	16
Valid Cases (%)	100.0%
Excluded Cases (N)	0
Excluded Cases (%)	0.0%
Total Cases (N)	16
Total Cases (%)	100.0%
Reliability Statistics	
Cronbach's Alpha	0.725 (Acceptable)
Number of Items (N)	35

Legend: *above.90 = Excellent, 0.80-0.89= Good, 0.70-0.79 = Acceptable 0.60-0.69 = Questionable, 0.50-0.59 = Poor, below 0.50 = Unacceptable*

Figure 11 presents a structured overview of the ISO 25010 standard that provides a framework for evaluating the attributes that make software reliable, secure, usable, and meet the needs of clients and users. IT experts are also to use it to test the technical acceptability of the system. ISO 25010 will be rated using the 4-point Likert Scale, with 1 as the lowest and 4 as the highest score. The composite mean will determine if the system is ready for deployment to the intended user.

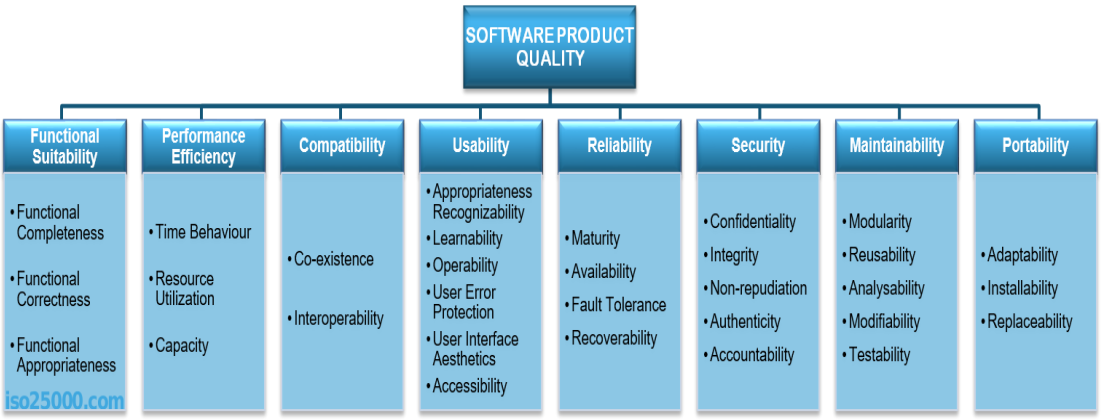


Figure 11. ISO 25010 Software Quality Model Characteristics

Technology Acceptance Model (TAM)

Figure 12 shows the Technology Acceptance Model (TAM). This approach facilitates users' understanding and utilization of the implemented system. The researchers used the TAM technique to determine that the system components consistently offer good performance and functionality. In addition, if the system is functional. The goal of the research is to gather data and survey responses.

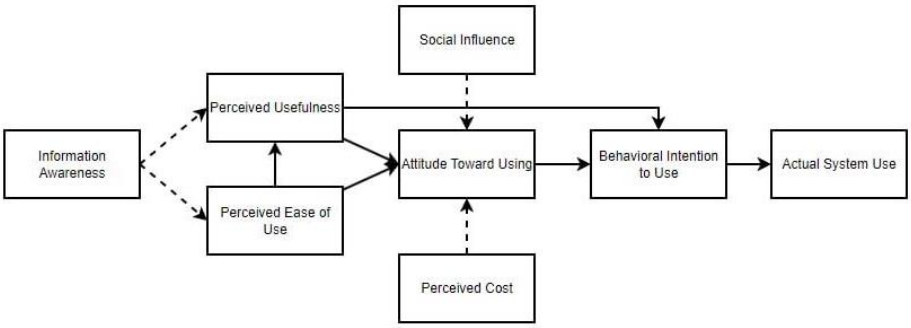


Figure 12. Technology Acceptance Model for Acceptability Testing

Sampling Design

The project used purposive sampling to select participants based on specific criteria aligned with study objectives. For the Barangay Employee category, a varied selection of individuals included 2 Barangay employees from 10 different barangays, 2 IT experts, and 25 participants. This approach ensures a thorough representation of different roles within the barangay, allowing for a holistic evaluation of the web-based system. This selection aimed to incorporate varied expertise relevant to web-based systems, enabling a thorough assessment of the system’s functionality and performance.

This categorizes the respondents into three groups: IT Experts and Barangay Employees, with a sample size of 2 IT Experts and 25 Barangay Employees. The evaluation process conducted by these respondents centered on analyzing the feasibility, performance, and features of the proposed web-

based system. Specifically, IT Specialists, with their proficiency in web-based systems, provide critical analysis of the system's functionality, contributing to a complete assessment of its technical capabilities.

Data Collection Instrument

Data collection occurred through questionnaires and in-depth interviews to understand the system’s reception by its intended users. Questionnaires, designed using ISO 25010 standards known for software product quality, facilitated a targeted assessment of the web-based system’s technical attributes and performance for IT Specialists. Barangay employees were surveyed using the Technology Acceptance Model (TAM) framework, and their readiness and willingness to use the system were gauged. This model helps understand how users accept and use technology, providing insights into potential adoption rates and usage patterns. These interviews, consisting of about 50 prepared questions, explored the system design and functionalities. The focus lies on evaluating how well the system aligns with the practical needs of the users. Design quality, simplicity of access, portability, security, and the relevance of the presented data were all considered. This dual approach, which utilized questionnaires and interviews, enabled a thorough system analysis from both a technical and user-centric perspective. The adopted approach ensured the final product's reliability in alignment with user requirements and expectations. The Likert Scale, as presented in Table 8, is employed by developers as a survey instrument to measure users' satisfaction with the application. This scale quantifies user contentment levels by assigning numerical values to their responses, which fall within defined mean ranges. Ratings from 1 to 4 allow users to express their satisfaction, ranging from “Not

Acceptable to "Highly Acceptable". By analyzing these ratings, developers can determine the extent of user approval or disapproval regarding the application's features and overall experience.

Table 8. Likert Scale Technique

Individual Score	Composite Mean	Interpretation
4	3.25 – 4.00	Highly Acceptable
3	2.50 – 3.24	Moderately Acceptable
2	1.75 – 2.49	Slightly Acceptable
1	1.00 – 1.74	Not Acceptable

To complete the mean range:

$$\text{Mean Range} = \frac{\text{Highest score} - \text{Lowest score}}{\text{Number of respondents}} \qquad \frac{4 - 1}{4} \quad = \frac{3}{4} = 0.75$$

Statistical Treatment

For data analysis, the developers calculated the mean of the survey responses to find the central tendency. Each option on the Likert Scale was assigned a numerical value aggregated for each question. The sum was then divided by the number of responses to yield the average score. This quantifiable metric offered valuable insights into the participants' attitudes and opinions.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter outlines the results and provides a discussion that substantiates the methods used to accomplish the objectives.

Results by Objectives of the Study

A data banking system that will handle documents related to the Lupong Tagapamayapa Incentives Award

Figure 13 shows that the database schema comprises all the tables and attributes storing the system's data, starting with the mov_remark that represents all comments the Assessment Team gave per file submitted by the Barangay user (Focal Person). The mov table represents all the files submitted by the Barangay User. The movdraft_file table stores unfinished submissions as a draft archive. This allows the Focal Person to keep unfinished work. The mov_rate table represents all the scores the Assessment Team gave to the files submitted by the Focal Person. The Go Daddy Hosting website hosts the LTIA System. The DILG utilized the 50 GB storage capacity. This web hosting can accommodate the files submitted by the DILG to the LTIA System. The subscription duration is one year. The LTIA database have been integrated into a unified web system to enhance the management of documents associated with the Lupong Tagapamayapa Incentives Awards.

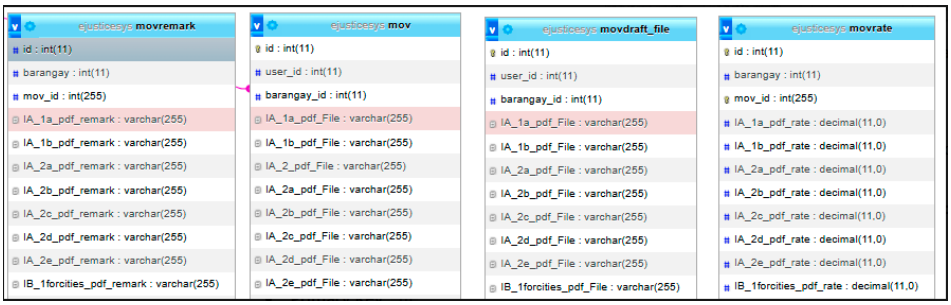


Figure 13. Data banking System of LTIA-DBS

Results of Unit Testing

Testing on the system's units, which are the functions of each module, yielded the following findings. The developers employed testing methodologies to evaluate each unit's functionality and interactivity. The developers verified all modules to ensure the connecting modules met standards and resolved issues immediately to maintain system integrity and performance. This process not only ensured that each module functioned as intended but also that they worked seamlessly together, enhancing the overall effectiveness of the system.

Table 9 shows the first test that evaluates the system's ability to grade and view submitted MOV from various barangays, based on the municipality assigned, with the test passing as the actual system behavior matched expectations. The table demonstrates the system's efficiency in handling data segregation. The second test confirms the system's capability to manage user accounts, ensuring each account operates within its specific municipality. The third test checks for an admin account to oversee system use and user activities, which was successful as the system assigns one admin per municipality or city. Finally, the system's ability to set account privileges and permissions was tested, with the system restricting the configuration of other accounts only to the admin, leading to a pass result. In General, the system demonstrated expected performance in all tested areas.

Table 9. Unit Testing for Admin Module

Tested Case	Expected Output	Actual Output	Response Time	Remarks
Evaluating Files	The system can grade submitted Means of Verification (MOV) files from different barangays depending on the municipalities designated.	The system can view and grade submitted files from different barangays.	2 seconds	Passed
User Management	The system shows all the user access control within a system or administrator. It has the role of giving access and permission to use accounts securely.	The system successfully manages every account that runs in specific municipalities.	2 seconds	Passed
Account Request	The system will have an admin account to prevent the unknown user from using the system and know what activity they have done.	The system will assign one (1) admin to every municipality/city to monitor the capacity of users.	2 second	Passed
Account Setting	The system will have an account setting to know the privileges and permissions compared to regular user accounts.	The system successfully restricts the user account to configure the other account, which only the admin can do.	2 second	Passed

Integration Testing Results

Integration testing demands the integration of all modules that contribute to the system's functionality. Connecting the navigation and data analytic modules boosts the working system's overall performance.

Table 10 shows that integration testing is a vital phase in software development, where unit tests are performed on integrated modules to confirm

their proper functionality within the overall system. This testing phase comes after individual modules undergo functional testing to ensure they operate as intended. The testing process involves executing test cases based on specific scenarios or situations the admin provides. To enhance the reliability of integration testing, developers meticulously select input data, aiming to cover various possible scenarios. This thorough approach helps identify and rectify potential problems that may arise when different modules interact, ensuring the smooth integration and functionality of the entire system.

Table 10. Integration Testing Result of the System

Tested Case	Expected Output	Actual Output	Response Time	Remarks
Navigation Module	All the admin navigation menu works correctly.	The admin can use all the navigation buttons to ensure the system works properly.	1 second	Passed
Submission of MOV (Means of Verification) File Module	The system displays criteria for which the user can submit Means of Verification.	The system processed the data and submitted the file based on its intended functions.	2 seconds	Passed

Acceptance Testing

The evaluation result shows that the LTIA-web-based system yielded insights from multiple stakeholders, specifically Barangay Secretaries and IT Experts. These evaluations produced two distinct outcomes that reflect the perspectives of these diverse groups involved in the assessment process. The secretaries provided insights into the accuracy and usability of the system, focusing on how well the technology supports their practice in submitting MOV.

IT experts assessed the web-based platform's technical performance, reliability, and security. These evaluations highlight the multifaceted nature of user acceptance and system effectiveness.

Compatibility Testing

Table 11 compares web browsers with four key performance metrics: performance, accessibility, best practices, and SEO. Edge demonstrates strong performance within the expected parameters, reflecting efficient resource use and adaptability. Opera exhibits significantly elevated performance, indicating improved rendering speed and overall efficiency. Chrome consistently attains elevated scores across multiple metrics, with its performance score surpassing the expected range. This suggests that Chrome consumes more system resources than other browsers.

Table 11. Compatibility Testing of the System

Browser	Test Case	Performance	Accessibility	Best Practice	SEO
Google Chrome	Secretary Dashboard	94	79	100	91
Google Chrome	Assessment Team Dashboard	79	91	100	91
Google Chrome	LTIA Module	76	96	100	91
Opera Browser	Secretary Dashboard	94	79	100	91
Opera Browser	Assessment Team Dashboard	87	91	100	91
Opera Browser	LTIA Module	80	96	96	91
Microsoft Edge	Secretary Dashboard	89	98	95	94
Microsoft Edge	Assessment Team Dashboard	90	86	98	90
Microsoft Edge	LTIA Module	95	90	93	99
Mozilla Firefox	Secretary Dashboard	83	79	100	91
Mozilla Firefox	Assessment Team Dashboard	79	78	100	82
Mozilla Firefox	LTIA Module	100	84	93	80

A user-friendly interface that supports the needs of the Lupong Tagapamayapa Incentives Award Database System.

In Figure 14, the picture shows how the Focal Person Module works, focusing on what the barangay secretary does. The user will submit a file according to the established criteria. When the choose file is pressed, a folder will appear where the document is located. Once everything is completed, the files are submitted by clicking the "Save" button. Users can view the uploaded files for further review. It also has a Filtering feature, where users can see uploaded files in a year. An indication for each field is present if there is a submitted Means of verification, rating for each file, and remark.

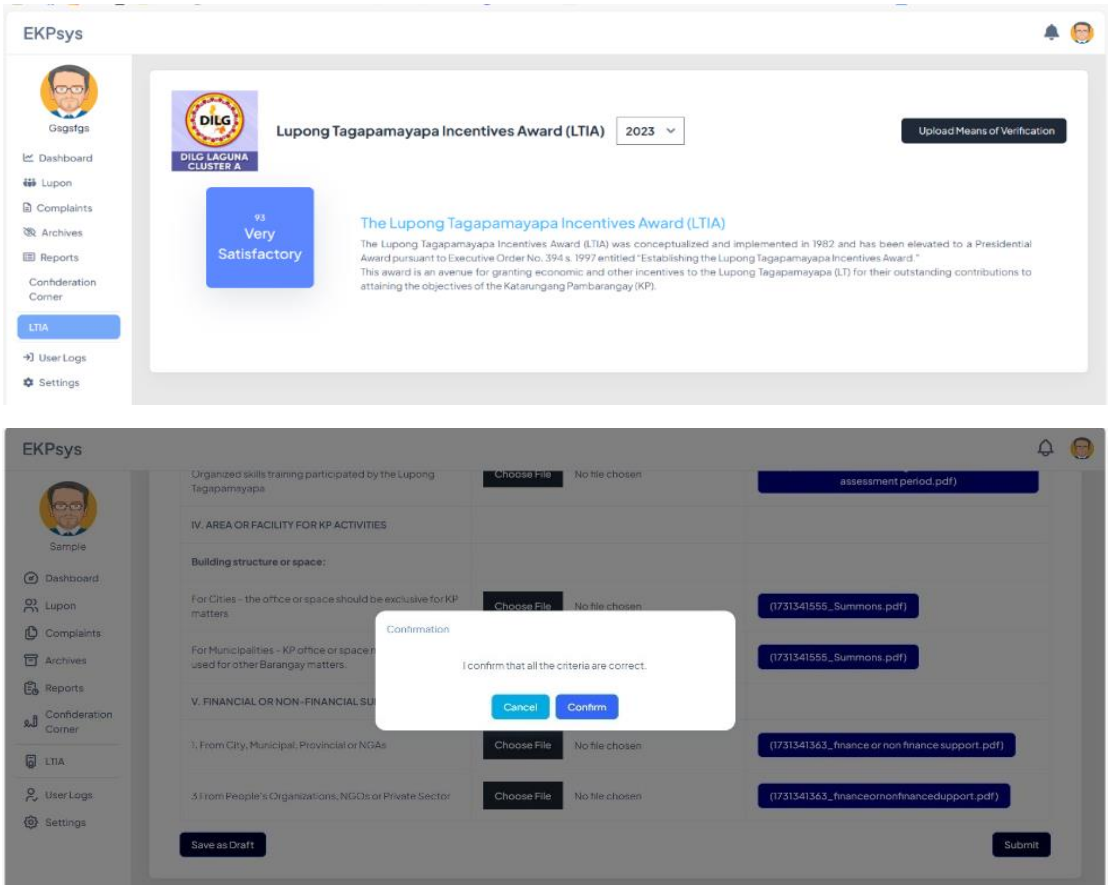


Figure 14. Focal Person Module

Figure 15 shows that in this module, the Assessment Team can select a barangay within their jurisdiction that they will grade according to the criteria established by the DILG. All the files submitted by the Focal Person are saved through the database. Only saved barangay accounts will be graded and presented in Form 2. The file button, when clicked, will display the files submitted by the Focal Person. This will be the basis for the grade to be given. Only the account holder of the Assessor will be able to access the system and view the files submitted by the Focal Person. The user will input the grade in the Rating field. User can put Remarks for errors regarding the file sent by the Focal Person. Once everything is completed, the files are submitted by clicking the "Save" button. The final average grade is submitted and compiled in Form 3.

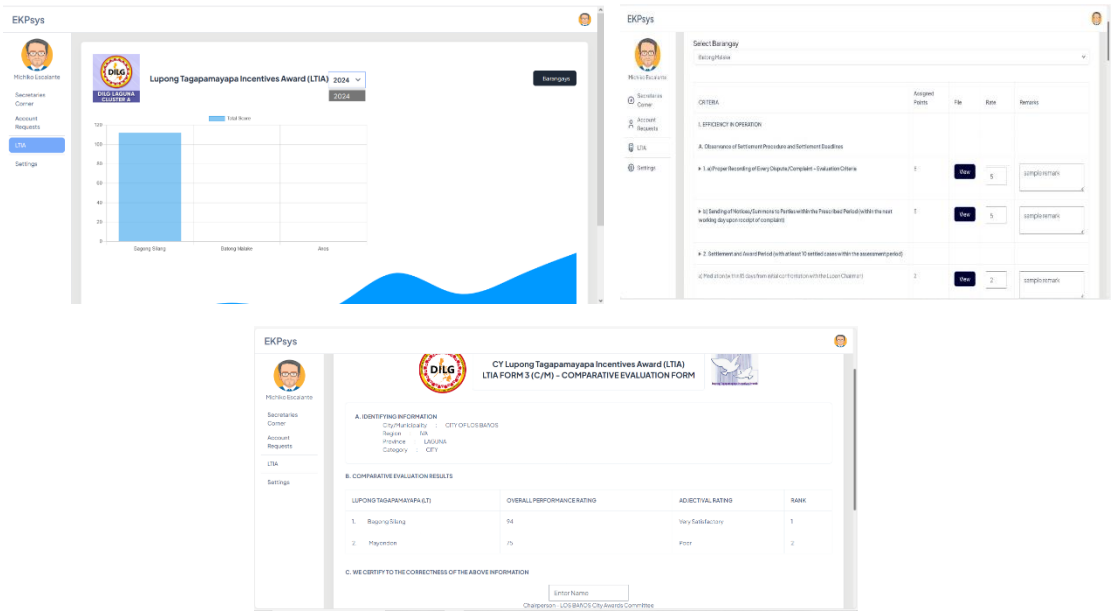


Figure 15. Assessment Team Module

Test and Evaluate the Software using ISO 25010

Table 12 shows the ISO 25010-based testing results, as evaluated by IT specialists, demonstrate that the software performs robustly across multiple criteria. Ratings in the three range signify that the software is effective but has yet to achieve maximum scores, indicating that the software meets the users' needs effectively, though not indisputable perfection. Specific areas such as Performance Efficiency and Security, rated at 4.00, directly point to opportunities for the software to be further developed to meet all user requirements and improve error handling. The overall weighted mean score of 4.50 solidifies the software's status as a reliable and competent tool, with the results emphasizing the need for continuous improvement to elevate the software's performance from strongly acceptable to outstanding. These findings are essential for guiding enhancements and ensuring the software meets evolving user needs, which means that the IT experts firmly accept that the system passed the Software Evaluation based on ISO 25010.

Table 12. Product Quality Assessment of the System

Characteristics	Resp 1	Resp 2	Mean	SD	Interpretation
Functional Suitability	5	5	5.00	0.00	Excellent
Reliability	4	5	4.50	0.71	Excellent
Performance efficiency	4	4	4.00	0.00	Excellent
Usability	4	5	4.50	0.71	Excellent
Security	4	4	4.00	0.00	Excellent
Compatibility	5	5	5.00	0.00	Excellent
Maintainability	4	4	4.00	0.00	Excellent
Portability	5	5	5.00	0.00	Excellent
Composite Mean			**4.500**	**0.516**	Excellent

Legend: 5.00 - 4.20 Excellent, 4.19 – 3.40 Good, 3.39 – 2.60 Fair, 2.59 – 1.80 Needs Improvement, 1.79 – 1.00 poor

Results of Survey Answered by the Respondents using TAM

Table 13 emphasizes the significance of perceived usefulness in the Technology Acceptance Model (TAM), especially among secretaries utilizing a

web-based DILG Lupong Tagapamayapa Incentives Awards System. The elevated mean scores across different functionalities suggest a robust endorsement of the application's perceived usefulness, consistent with Davis's (1989) assertion that perceived usefulness plays a crucial role in shaping users' intentions to adopt technology. Venkatesh and Davis (2000) elaborated on this concept, positing that enhancements in productivity and efficiency directly increase perceived usefulness. The mean score of 3.68 for enhancing secretary productivity suggests additional improvements are necessary, aligning with their conclusions regarding ongoing technological advancement. Wu and Wang (2005) highlighted that users' intention to adopt technology is significantly associated with their perceptions of its utility, as demonstrated by the composite mean score of 3.86.

Table 13. Evaluation of Perceived Usefulness by Barangay Secretaries

ITEM	MEAN	SD	INTERPRETATION
1. The system effectively improves accuracy in tracking awards and promotions within DILG Cluster A.	3.96	0.20	Highly Acceptable
2. Using the system speeds up evaluating and awarding incentives.	3.92	0.28	Highly Acceptable
3. The system reduces the administrative burden of handling awards and promotions manually.	3.92	0.28	Highly Acceptable
4. It enhances the transparency of the awards process for Lupong Tagapamayapa members	3.68	0.56	Highly Acceptable
5. The system provides valuable insights into award performance metrics and eligibility criteria.	3.84	0.37	Highly Acceptable
Composite Mean	**3.86**	**0.36**	**Highly Acceptable**

n=25

Table 14 presents findings that underscore the perceived ease of use of a web-based application among secretaries, highlighting its user-friendly design and functionality. The mean scores, between 3.48 and 3.92, suggest that barangay employees exhibit confidence in using the system and managing tasks, consistent with the core tenets of the Technology Acceptance Model (TAM). Davis (1989) posited that perceived ease of use is a critical determinant of technology acceptance, indicating that users are more inclined to adopt technology they perceive as user-friendly. Furthermore, Venkatesh and Davis (2000) elaborated on this concept, indicating that ease of use influences user acceptance and increases perceived usefulness, thereby establishing a positive feedback loop. This user-centric approach, informed by detailed feedback and interaction, positions the system for ongoing success technology they perceive as user-friendly.

Table 14. Evaluation of Perceived Ease of Use by Barangay Secretaries

ITEM	MEAN	SD	INTERPRETATION
1. The system is easy to navigate, even for first-time users.	3.92	0.28	Highly Acceptable
2. Tasks within the system, such as entering or reviewing data, can be done efficiently.	3.64	0.57	Highly Acceptable
3. The user interface design allows for a smooth and straightforward experience.	3.60	0.58	Highly Acceptable
4. Learning to use the system requires minimal training and instruction.	3.76	0.44	Highly Acceptable
5. The system provides helpful prompts and guidance for completing award-related processes.	3.48	0.71	Highly Acceptable
Composite Mean	**3.68**	**0.54**	**Highly Acceptable**

n=25

Table 15 shows secretaries' views on an online system to improve award and promotion processes. Results show a positive response to the system. The mean system score was 3.88, continuously in the “Highly Acceptable” category, indicating significant user enthusiasm and acceptance. Users expect the technology to streamline processes and boost efficiency, scoring 3.56 on average. This supports (Ajzen, 1991), who found that attitudes predict technology acceptance behavior. According to Venkatesh et al. (2003), good attitudes about technology are linked to perceived usefulness and simplicity of use, which can improve user happiness and acceptability. The mean is 3.72, indicating that the approach boosts award and promotion record accuracy. These findings suggest good technological attitudes are essential for DILG LTIA System deployment.

Table 15. Evaluation of Attitude Towards Using by Barangay Secretaries

ITEM	MEAN	SD	INTERPRETATION
1. I am enthusiastic about using this system to improve our awards process.	3.88	0.33	Highly Acceptable
2. The system makes me feel confident in the accuracy of our award and promotion records.	3.72	0.46	Highly Acceptable
3. The system will positively impact DILG Cluster A operations.	3.56	0.71	Highly Acceptable
4. I find the system satisfying for handling awards and promotions.	3.84	0.37	Highly Acceptable
5. I feel positive about adopting this system in our work processes.	3.84	0.37	Highly Acceptable
Composite Mean	**3.77**	**0.47**	**Highly Acceptable**

n=25

Table 16 presents findings that demonstrate the behavioral intentions of secretaries concerning the use of a web-based application, indicating a significant tendency toward consistent adoption and efficient use of the technology. The mean score of 3.56 indicates a strong intention among users to utilize the system for processing award and promotion nominations. This aligns with Davis (1989), who identified perceived usefulness and ease of use as essential factors affecting individuals' intentions to adopt technology, thereby underscoring the importance of these dimensions within the award context. Furthermore, Venkatesh et al. (2003) demonstrated that the intention to utilize technology is significantly associated with user attitudes and the perceived ease of use. The mean score of 3.56 indicates a likelihood of recommending the system to other staff members. This demonstrates significant user satisfaction and confidence in the system's capabilities. These results align with the findings of (Taylor & Todd, 1995), who highlighted that users who feel assured in their capabilities are likelier to adopt and recommend new technologies.

Table 16. Evaluation of Behavioral Intention to Use by Barangay Secretaries

ITEM	MEAN	SD	INTERPRETATION
1. I intend to use the system for processing award nominations and promotions.	3.56	0.58	Highly Acceptable
2. I will likely recommend this system to other staff members within DILG.	3.52	0.65	Highly Acceptable
3. I plan to rely on the system as the primary tool for awards and promotion data management.	3.56	0.51	Highly Acceptable
4. I am committed to using the system in future awards cycle.	3.36	0.64	Highly Acceptable
5. I intend to use the system to improve the overall efficiency of our award processes.	3.68	0.56	Highly Acceptable
Composite Mean	**3.54**	**0.59**	**Highly Acceptable**

n=25

Table 17 indicates that mean scores for individual items vary between 3.40 and 3.60, all classified as “Highly Acceptable.” The system is considered cost-effective and a suitable solution for the organization’s needs, with a mean score of 3.44. This suggests that the system is a cost-effective solution that meets the organization’s requirements. The results indicate a positive perception of the application’s affordability, highlighting its potential for successful adoption in the DILG System.

Table 17. Evaluation of Perceived Cost by Barangay Secretaries

ITEM	MEAN	SD	INTERPRETATION
1. The cost of implementing this system is reasonable, given the benefits.	3.52	0.51	Highly Acceptable
2. I believe the cost of maintaining the system is justified by its functionality	3.44	0.58	Highly Acceptable
3. The system helps reduce other costs associated with the manual processing of awards.	3.40	0.50	Highly Acceptable
4. Training and setup costs for the system are acceptable and manageable	3.60	0.50	Highly Acceptable
5. The affordability of the system makes it a viable solution for our needs.	3.44	0.58	Highly Acceptable
Composite Mean	**3.48**	**0.53**	**Highly Acceptable**

n=25

Table 18 states that mean scores ranging from 3.64 to 3.68 were classified as "Highly Acceptable." The results correspond with recognized frameworks of technology adoption regarding the DILG LTIA System, including the Theory of Planned Behavior (Ajzen, 1991) and the Social Cognitive Theory (Bandura, 1986). Theories highlight the significance of social norms, peer influence, and observational learning in forming individual behavior. Social influence significantly impacts user attitudes, intentions, and behaviors

regarding technology adoption. Moreover, superiors encourage users to adopt the system with a mean of 3.68. This indicates that the organization promotes the system and creates a supportive climate. The survey findings underscore the significance of social influence in facilitating technology adoption. Understanding the role of social factors and implementing strategies to leverage them enables organizations to accelerate the adoption of new technologies and maximize their benefits.

Table 18. Evaluation of Social Influence by Barangay Secretaries

ITEM	MEAN	SD	INTERPRETATION
1. My colleagues support the use of this system for awards management.	3.64	0.57	Highly Acceptable
2. People in my team believe this system benefits our work.	3.68	0.56	Highly Acceptable
3. I feel encouraged by superiors to adopt this system in our processes.	3.68	0.48	Highly Acceptable
4. The system has the backing of DILG Cluster A, making it more acceptable to use.	3.76	0.44	Highly Acceptable
5. I am influenced by others who have positively embraced the system for their needs.	3.68	0.69	Highly Acceptable
Composite Mean	**3.69**	**0.54**	**Highly Acceptable**

n=25

Table 19 indicates that mean scores of 3.68 and 3.84 are categorized as “Highly Acceptable.” The findings align with established theories of technology acceptance, specifically the Technology Acceptance Model (TAM) (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). Theories emphasize the importance of usefulness, ease of use, and perceived behavioral control in shaping user attitudes and intentions toward technology adoption. The clarity, support, and security of the LTIA system have positively impacted user perceptions in this study.

Furthermore, the results indicate a mean of 3.68 regarding the frequency and quality of updates and improvements to the system. This indicates that the system is undergoing active maintenance and enhancement. Prioritizing user education, communication, and system design will enable the organization to enhance user satisfaction and optimize system benefits.

Table 19. Evaluation of Information Awareness by Barangay Secretaries

ITEM	MEAN	SD	INTERPRETATION
1. I am well-informed about the system's features and benefits for awards management.	3.76	0.44	Highly Acceptable
2. The system's functionalities for aiding in promotion decisions are clear to me.	3.84	0.37	Highly Acceptable
3. I receive regular updates on improvements and updates within the system.	3.68	0.48	Highly Acceptable
4. The system provides sufficient resources for understanding its capabilities and usage.	3.84	0.37	Highly Acceptable
5. I am aware of the data security measures within the system to protect sensitive information.	3.76	0.44	Highly Acceptable
Composite Mean	**3.78**	**0.41**	**Highly Acceptable**

n=25

Table 20 shows the overall weighted mean of 3.68, confirming that the system is highly acceptable across all evaluated dimensions. Users find it useful, easy to use, beneficial for barangay users, cost-effective, and supported by social influence. The web-based system for DILG-LTIA is well-received and poised for successful adoption in local government units. This strong endorsement highlights the system's potential to improve the process of submitting and grading files significantly.

Table 20. Overall Results of the TAM Survey Answered by Barangay Secretaries

ITEM	MEAN	SD	INTERPRETATION
Perceived Usefulness	3.86	0.35	Highly Acceptable
Perceived Ease of Use	3.68	0.54	Highly Acceptable
Attitude Towards Using	3.77	0.47	Highly Acceptable
Behavioral Intention to Use	3.54	0.58	Highly Acceptable
Perceived Cost	3.48	0.53	Highly Acceptable
Social Influence	3.69	0.54	Highly Acceptable
Information Awareness	3.78	0.41	Highly Acceptable
OVERALL WEIGHTED MEAN	**3.68**	**0.05**	Highly Acceptable

n=25

CHAPTER 5

SUMMARY, CONCLUSION, AND RECOMMENDATION

Summary

Lupong Tagapamayapa Incentives Award Database System is a new way of grading and nominating barangay in every municipality in Laguna's DILG and LGUs of Cluster-A, developed using Agile Scrum principles. Stakeholders were continuously involved throughout the project lifecycle to meet their evolving needs. Initially, implemented an Agile Scrum information management module. This empowered barangay secretaries to store Means of Verification digitally, addressing inefficiencies and errors in manual handling of Means of Verification tracking. Regular feedback cycles allowed for swift adjustments to meet end-user requirements. DFDs were used in the system design phase to visually represent information and processes, aiding in understanding, analyzing, and refining the grading workflow and identifying bottlenecks for a streamlined and efficient digital process. Agile Scrum enabled the collaborative development of a unified reporting protocol to standardize processes across barangays. The methodology allowed for adaptive planning, evolutionary development, and early delivery of a solution that addressed the need for uniformity in data recording. The system was built using JavaScript, PHP, HTML, CSS, and Bootstrap, chosen for their flexibility, reliability, and compatibility. MySQL was used for real-time and accurate handling of case reports. These technologies align with Agile principles, prioritizing individuals, working solutions, and responsiveness to change. The results show how the DILG Cluster-A Province of Laguna's Digital Information and Municipal Grading System improves barangay document handling efficiency and promotes

organizational effectiveness. Form 3 module shows the compiled grade of each barangay in every municipality contributing to efficient barangay MOV management and informed decision-making. The system has positive feedback from IT specialists and Barangay employees, with a "Strongly Acceptable" performance score of 3.68. However, the results show room for improvement in certain areas, such as updating cases promptly, achieving completeness in functionality, and addressing issues related to system maturity. Ongoing development is necessary to enhance the user experience and system performance.

Conclusion

In conclusion, the LTIA system is a web system for evaluating and nominating barangay performance. It is developed through the following objectives:

1. Develop a data banking system that will handle documents related to the Lupong Tagapamayapa Incentives Award

A data banking system for municipalities and barangay secretaries is developed using reliable programming languages and tools like JavaScript, PHP, HTML, CSS, Bootstrap, and MySQL, and a user-friendly and dependable system is built. It works well on various devices and browsers. As shown in the Information Module (Figure 5), it provides a straightforward way for secretaries to submit files. They can easily select and submit. With options to save as drafts, secretaries can keep information current and accessible. This approach transforms how Means of Verification is processed, allowing for quicker updates and interactions and significantly improving the efficiency of barangay secretaries' work.

2. Design a user-friendly interface that supports the needs of the Lupong Tagapamayapa Incentives Award Database System.

A user-friendly web-based database module interface is designed to efficiently analyze data that holds significant value for each user in barangays. This tool not only enhances data accessibility but also facilitates informed decision-making by providing concise and timely insights into various activities, contributing to the overall effectiveness and efficiency of barangay operations.

3. Conduct beta testing across various barangays in the DILG Cluster-A using the ISO 25010 questionnaire to evaluate the information management's usability, reliability, effectiveness, and evaluation of the submitted file module.

The evaluation results of the LTIA System indicate a possible reception from various stakeholders, including IT Experts and barangay workers. The IT experts rated the system with a composite mean of 4.50, reflecting “Excellent” performance in usability and maintainability, along with “Excellent” ratings for reliability and compatibility. For TAM Results, the system has an overall weighted mean of 3.68. On top of that, the Technology Acceptance Model (TAM) showed that users found the system straightforward and functional, meeting their needs effectively. These tests and feedback confirm that the system works well and is user-friendly, making it more likely to be successfully adopted by other local government units.

Recommendation

Exploring the following proposals for improving the web-based system based on results and insights is recommended.

1. Running the system on the Mozilla Firefox and Opera browser is highly recommended for optimal performance and efficiency. This approach is likely to produce the swiftest and most reliable user experience.

2. The project proponents recommend training and seminars for DILG barangay secretaries and staff utilizing the developed system.

3. For security, specific rules should be in place before uploading to the cloud, such as securing all data, sensitive information, and transactions, especially when submitting reports to the Department of the Interior and Local Government (DILG).

4. Beta testing should be conducted to ensure the system's functionality, reliability, and overall quality to identify more potential issues before deploying it to the barangay.

5. Roll out the system to the barangay to provide long-term value and adaptability to the needs of DILG and barangay users.

References

Agustin, C. P. et al. (2018). The effectiveness of conciliation process: A practical way of delivering justice. International Journal of Advanced Research in Management and Social Sciences, 7(2), 179-196.

Antonio, L. (2020, 7 3). Enhancing Barangay Justice System Through the Development of a Web-Based Crime Monitoring Module. Retrieved from SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3642023.

Araña, H. M., Pala, E., Claire, C. T. K., Y, C. J. T., & F, C. J. J. (2023). Enhancing community conflict resolution skills: A training needs assesment for Lupon Tagapamayapa. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4576256

Bueno, C. F. (2013). The public policy analysis on the program implementations of the delivery of basic services in the local government of 1991 (republic act no. 7160) in the province of Ilocos Sur. The Vector: International Journal of Emerging Science, Technology and Management (IJESTM), 23(2), 22(1).

Caingat, M. P. M. &. N. C. (2017). Barangay Justice System in Barangay Matatalaib, Tarlac City: an evaluation. ideas.repec.org. https://ideas.repec.org/p/vor/issues/2017-03-21.html

Benter, J. B. (2020). An assessment of the Barangay justice system in Hagonoy, Bulacan: Basis for enhancing mediation procedure. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3684191

Cozzens, S., Gatchair, S., Kang, J., Kim, K. S., Lee, H. J., Ordóñez, G., & Porter, A. (2010). Emerging technologies: quantitative identification and measurement. *Technology Analysis & Strategic Management*, *22*(3), 361-376.

De Torres, J. E., & Del Rosario, M. J. N. (2019). Issues in the implementation of Katarungang Pambarangay – Philippine Local Justice System: Input towards the development of e-Pabarangay. International Journal of Managing Public Sector Information and Communication Technologies, 10(4), 21–32. https://doi.org/10.5121/ijmpict.2019.10402

DOJ. (2022, 07 21). DOJ AND DILG. Retrieved from DOJ AND DILG VOW FOR A CLOSER COLLABORATION TO IMPROVE CRIMINAL JUSTICE SYSTEM: https://www.doj.gov.ph/news_article.html?newsid=740

DILG. (2022, 05 14). DILG. Retrieved from DILG: https://region3.dilg.gov.ph/index.php/about/vision-mission-and-goals/17goals#: ~:text=Peaceful%2C%20safe%2C%20self%2Dreliant,condition%20and%20ensure%20public%20safety.

Eduardo, J. P. (2018). Restorative Justice in Cordillera Administrative Region: Tradition and Praxis towards a Peace Process Model. International Journal of Social Science Studies, 7(1), 10. https://doi.org/10.11114/ijsss.v7i1.3748

Halaweh, M. (2013). Emerging Technology: What is it? Journal of Technology Management & Innovation, 8(3), 19–20. https://doi.org/10.4067/s0718-27242013000400010

Herawati, S., Negara, Y. D. P., Febriansyah, H. F., & Fatah, D. A. (2021). Application of the waterfall method on a web-based job training management information system at Trunojoyo University Madura. In E3S Web of Conferences (Vol. 328, p. 04026). EDP Sciences.

Husson University. (2023, September 8). The Role of Technology in Criminal Justice. Retrieved from Husson University: https://www.husson.edu/online/blog/2023/09/technology-in-the-criminal-justice-field

Gonzales L.A. (2022, 7 02). IMPLEMENTATION OF BARANGAY JUSTICE SYSTEM AND COMMUNITY SATISFACTION IN THE MUNICIPALITY OF CALAUAN, LAGUNA: BASIS FOR INTERVENTION PROGRAM. Retrieved from IJRP.ORG: https://ijrp.org/paper-detail/3458

Lacasandile, A. D., & Labanan. (2020, 8). Development of an Information Based Dashboard: Automation of Barangay Information Profiling System (BIPS) for Decision Support towards e-governance. Retrieved from ResearchGatehttps://www.researchgate.net/publication/346794234_Development_of_an_InformationBased_Dashboard_Automation_of_Barangay_Information_Profiling_System_BIPS_for_Decision_Support towards_e-Governance

Lambdatest. (n.d.). Retrieved from Integration Testing Tutorial: A Comprehensive Guide with Examples and Best Practices: https://www.lambdatest.com/learning-hub/integration-testing

Lambdatest. (n.d.). Retrieved from Unit Testing Tutorial: A Comprehensive Guide with Examples and Best Practices: https://www.lambdatest.com/learning-hub/unit-testing

Lambdatest. (n.d.). Retrieved from What is API testing: a comprehensive guide for testers and developers: https://www.lambdatest.com/blog/everything-you-need-to-know-about api-testing/

Lambdatest. (n.d.). Retrieved from What is Regression Testing: Complete Guide with Best Practices: https://www.lambdatest.com/blog/regression-testing-what-is-and-how-to-do-it/

Metro, G. M. O., Billones, K., & Pao, D. L. (2021, February 2). The Implementation of the Barangay Justice System as a Community-Based Dispute Settlement Mechanism in Barangay Mansilingan in Bacolod City: A Policy Review. PHILIPPINE LEGAL RESEARCH. https://legalresearchph.com/2021/02/02/the-implementation-of-the-barangay-justice-system-as-a-community-based dispute-settlement-mechanism-in-barangay-mansilingan-in-bacolod-city-a-policy-review/

N. Jamis et.al. (2022, 12 11). One Barangay: A Mobile and Web Barangay Management System. Retrieved from IEEE Xplore: https://ieeexplore.ieee.org/document/10071652

Pagandian, J. L., & Pasule Eduardo, J. (2019). Restorative justice in Cordillera administrative region: Tradition and praxis towards a peace process model. Int'l J. Soc. Sci. Stud., 7, 10

Pasaribu, J. S. (2021). Development of a Web Based Inventory Information System. International Journal of Engineering, Science and Information Technology, 1(2), 24-31

PDP NEDA. (2018, 06 04). Pursuing Swift and Fair Administration of Justice. Retrieved from PDP NEDA: https://pdp.neda.gov.ph/wp-content/uploads/2017/01/06-04-07-2017.pdf

PDP NEDA. (2023, 07 05). Ensure Peace and Security and Enhance Administration of Justice. Retrieved from PDP NEDA: https://pdp.neda.gov.ph/wp-content/uploads/2023/07/Chapter-13.pdf

Project Jurisprudence. (2019, 06 15). Project Jurisprudence. Retrieved from Project Jurisprudence: https://www.projectjurisprudence.com/2019/06/the-philippine-barangay-justice-system.html

Simbulan, M. J. W. (2022). 1KYUSI: a CENTRALIZED WEB-BASED INFORMATION MANAGEMENT SYSTEM FOR THE LOCAL GOVERNMENT OF QUEZON CITY. In Zenodo. https://doi.org/10.5281/zenodo.7248119

Sobradil, M. (2019, August). The Effectiveness of Barangay Pacification Council in Settling Disputes on the Cases of Women. In International Conference on Public Organization (ICONPO).

Sotto, C. E. E. (2021). Implementation of the Katarungang Pambarangay in the selected Barangay in Legazpi City for FY 2015-2020.https://www.ejournals.ph/article.php?id=16550

Sufaidah, S., & Putri, Z. E. (2021). Web-Based Unwaha Cooperative Management Information System. NEWTON: Networking and Information Technology, 1(1), 8-14.

APPENDICES

APPENDIX A

Planning and Requirement Analysis Phasae

Project Title: **Lupong Tagapamayapa Incentives Award Database System for DILG Cluster A Province of Laguna.**

The Researchers: Jacob B. Cortes, John Mark Montecillo, Dawn Lester Almadovar

Good Day! We are 4th year students, currently pursuing a Bachelor of Science in Information Technology specializing in Web and Mobile App Development. As part of our academic endeavors, we have developed a comprehensive web-based system adhering to the ISO 25010 standard.

To assess the effectiveness and user satisfaction of our system, we have devised a set of questions. Your responses, rated on a scale from 1 to 4, will help us evaluate various aspects of the system, from usability, functionality, security, and overall user experience.

1 = Poor 2= Needs Improvement 3 = Fair 4 = Good 5 = Excellent

RUBRIC FOR 5-Point Likert Scale to evaluate product/system quality using ISO 25010

Characteristics	**Excellent (5)**	**Good (4)**	**Fair (3)**	**Needs Improvement (2)**	**Poor (1)**
Functional Suitability	Fully meets all functional requirements; consistently performs all tasks accurately and reliably across use cases.	Meets most functional requirements; minor issues that do not affect core functionality.	Meets core functional requirements; some limitations on accuracy or scope of functions.	Partially meets functional requirements; notable limitations in scope or accuracy of functions.	Fails to meet key functional requirements; significant issues with task accuracy and performance.
Reliability	Consistently stable with no unexpected crashes; maintains stability under heavy load.	Generally stable; rare crashes that do not impede performance.	Some stability issues under moderate load; occasional, non-critical crashes or downtimes.	Noticeable stability problems; frequent minor crashes or issues under normal load.	Very unstable; frequent critical failures or crashes under any load.
Performance efficiency	Very high performance; consistently fast response times and resource-efficient under all conditions.	Good performance; quick response times with minor lag under heavy load.	Average performance; acceptable response times, but noticeable delays in some situations.	Below average performance; frequent delays, noticeable lag, or inefficient resource usage.	Poor performance; consistently slow response times, excessive resource usage, or major lags.
Usability	Highly intuitive; very user-friendly with a seamless user experience and excellent accessibility features.	User-friendly with minor usability issues that do not hinder functionality.	Some usability challenges; requires user adjustment but overall manageable.	Noticeable usability issues; difficult for users to navigate or operate without support.	Very difficult to use; poor user interface design, confusing navigation, and major accessibility barriers.
Security	Strong security measures in place; fully protects data	Strong security measures in place; fully protects data	Strong security measures in place; fully protects data	Strong security measures in place; fully protects data	Strong security measures in place; fully protects data

	and user privacy with minimal vulnerabilities.	and user privacy with minimal vulnerabilities.	and user privacy with minimal vulnerabilities.	and user privacy with minimal vulnerabilities.	and user privacy with minimal vulnerabilities.
Compatibility	Seamlessly integrates with all intended systems and platforms; fully interoperable.	Mostly compatible; minor integration issues that do not affect core functions.	Compatible with main systems; some issues with certain platforms or configurations.	Limited compatibility; significant challenges integrating with certain systems or platforms.	Incompatible; fails to work with most systems or causes conflicts with other software.
Maintainability	Codebase is highly readable, modular, and easy to update; supports seamless debugging and modification.	Codebase is mostly readable and maintainable, with minor areas needing improvement.	Codebase is maintainable but has some complex areas that slow down updates or debugging.	Difficult to maintain; significant portions of the codebase are hard to debug, modify, or update.	Very poor maintainability; codebase is nearly impossible to debug or update without extensive rewriting.
Portability	Easily transferable across environments with full functionality; minimal or no setup required.	Mostly portable; minor configuration needed for full functionality across environments.	Moderately portable; requires some configuration changes to function across different environments.	Limited portability; significant adjustments needed for functionality in new environments.	Not portable; fails to function in different environments without extensive reconfiguration or adaptation.

Signature of Respondent

Survey Questionnaire based on ISO 25010 (IT Expert)

TECHNOLOGY ACCEPTANCE MODEL QUESTIONNAIRE

Project Title: **Lupong Tagapamayapa Incentives Awards Database System for DILG Cluster A of Laguna**

The Researchers: Jacob B. Cortes, John Mark Montecillo, Dawn Lester Almadovar

Good day! We are 4th year students, currently pursuing Bachelor of Science in Information Technology specializing in Web and Mobile Application Development. As part of our academic endeavors, we have developed a comprehensive web-based system adhering to the ISO 25010 standard.

To assess the effectiveness and user satisfaction of our system, we have devised a set of questions. Your responses, rated on a scale of 1 to 4, will help us evaluate various aspects of the system, from usability, functionality, security, and overall user experience.

Respondent's Name: **(Optional)**
Position in Barangay:

1= Very Unsatisfied 2= Unsatisfied 3= Satisfied 4= Highly Acceptable

PERCEIVED USEFULNESS	1	2	3	4
1. The system effectively improves the accuracy of tracking awards and promotions within DILG Cluster A.				
2. Using the system speeds up the process of evaluating and awarding incentives.				
3. The system reduces the administrative burden of handling awards and promotions manually.				
4. It enhances the transparency of the awards process for Lupong Tagapamayapa members				
5. The system provides valuable insights into award performance metrics and eligibility criteria.				
PERCEIVED EASE OF USE	1	2	3	4
1. The system is easy to navigate, even for first time users.				
2. Tasks within the system such as entering or reviewing data can be done efficiently.				
3. The user interface design allows for a smooth and straightforward experience.				
4. Learning to use the system requires minimal training and instruction.				
5. The system provides helpful prompts and guidance for completing award-related processes.				
ATTITUDE	1	2	3	4
1. I am enthusiastic about using this system to improve our awards process.				
2. The system makes me feel confident in the accuracy of our award and promotion records.				
3. I believe the system will have a positive impact on DILG Cluster A operations.				
4. I find the system satisfying to use for handling awards and promotions.				
5. Overall, I feel positive about adopting this system in our work processes.				
BEHAVIOR	1	2	3	4
1. I intend to use the system for processing award nominations and promotions.				
2. I am likely to recommend this system to other staff members within DILG.				
3. I plan to rely on the system as the primary tool for awards and promotion data management.				

4. I am committed to use the system in future awards cycle.				
5. The affordability of the system makes it a viable solution for our needs.				
PERCEIVED COST	1	2	3	4
1. The cost of implementing this system is reasonable, given the benefits.				
2. I believe the cost of maintaining the system is justified by its functionality				
3. The system helps reduce other costs associated with the manual processing of awards.				
4. Training and setup costs for the system are acceptable and manageable				
5. The affordability of the system makes it a viable solution for our needs.				
SOCIAL INFLUENCE	1	2	3	4
1. My colleagues support the use of this system for awards management.				
2. People in my team believe this system is beneficial for our work.				
3. I feel encouraged by superiors to adopt this system in our processes.				
4. The system has the backing of DILG Cluster A, making it more acceptable to use.				
5. I am influenced by others who have positively embraced the system for their needs.				
INFORMATION AWARENESS	1	2	3	4
1. I am well-informed about the system's features and benefits for awards management.				
2. The system's functionalities for aiding in promotion decisions are clear to me.				
3. I receive regular updates on improvements and updates within the system.				
4. The system provides sufficient resources for understanding its capabilities and usage.				
5. I am aware of the data security measures within the system to protect sensitive information.				

Survey Questionnaire based on TAM

APPENDIX B

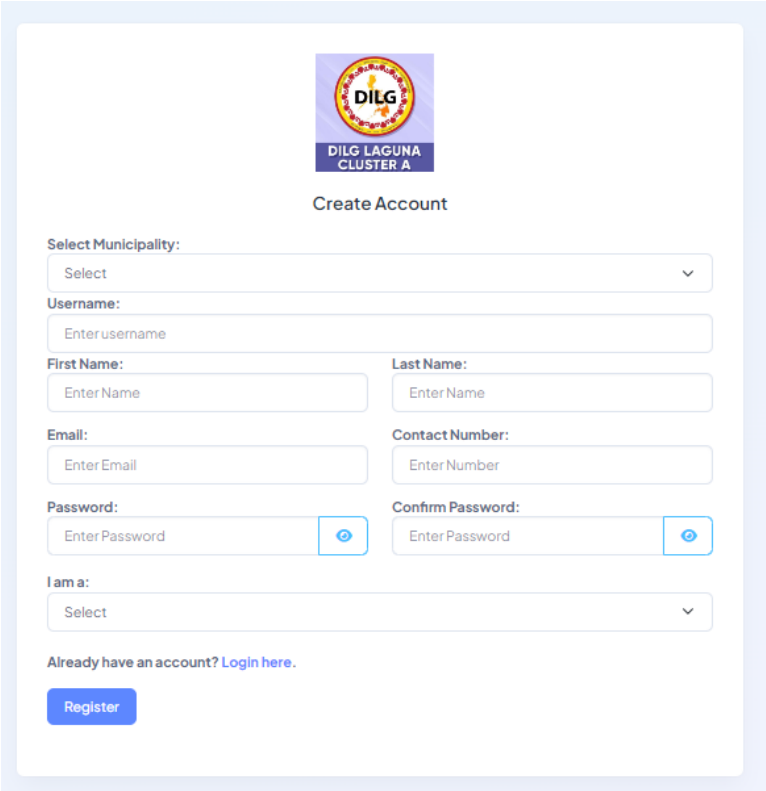
User Manual

Lupong Tagapamayapa Incentives Awards Database System for DILG Cluster A

User Guide Manual

Table of Contents

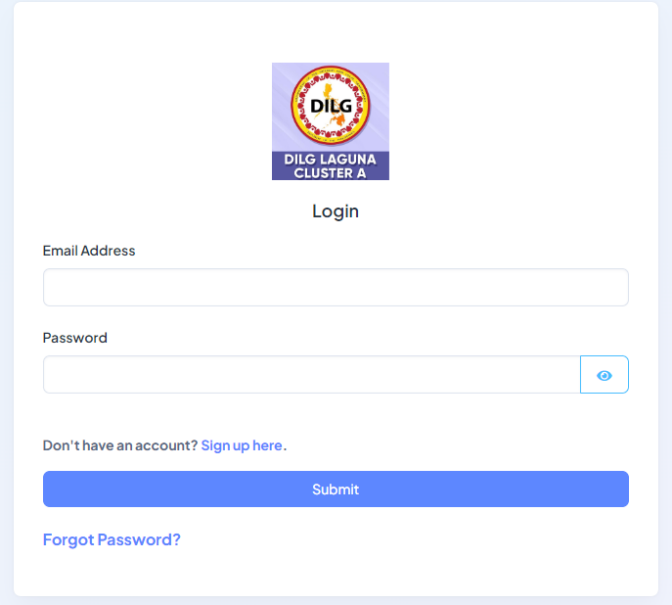
REGISTRATION



Registration Module Page

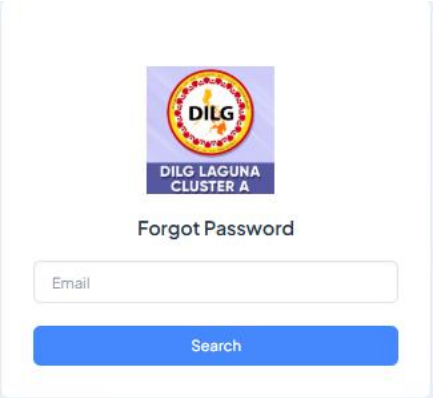
This is the registration module, it serves as a designated page for new users to create an account. This page facilitates account creation, allowing users to put their information and establish a new profile. By completing to fill the requirements, user can now gain access to the system.

LOGIN

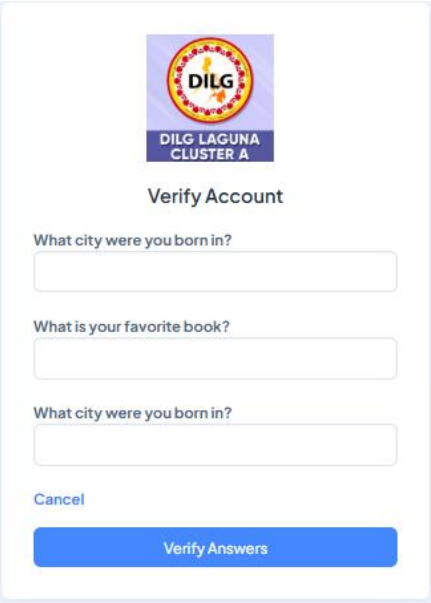


The Login module serves as the user's gateway to access the LTIA System. This page enables users to put their credentials such as email address and passwords to gain access to the system. Clicking Sign up will take you to the Registration Page. If you forgot your password, click Forgot Password.

Login Module Page

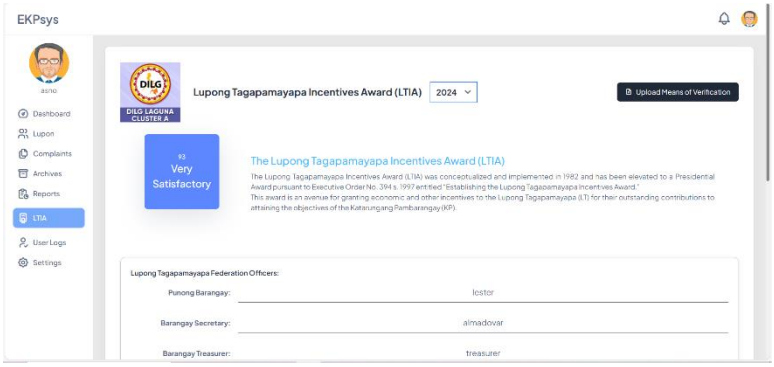


By clicking Forgot Password, search for the email that you forgot your password at. Click Search and it will lead you to verify the account module.

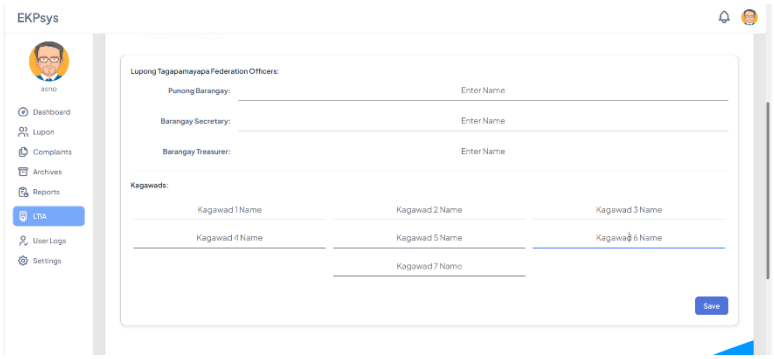


Answer each question and click Verify Answers once finished.

FOCAL PERSON DASHBOARD



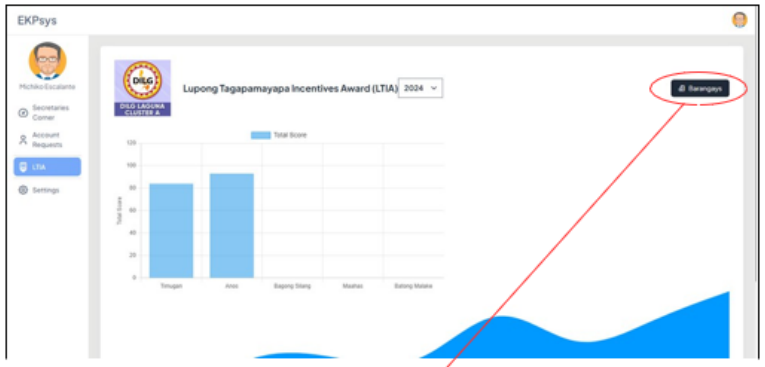
Here you can see a newly added module/feature of the ekpsystem, the Lupong Tagapamayapa Incentives Award (LTIA) in the dashboard of the system.



In the dashboard of LTIA scroll down and enter the name of Lupong Tagapamayapa Federation Officers. Step 1: Fill up the line that says “Enter Name” and “Kagawad Name” according to their aligned position then click “Save”.

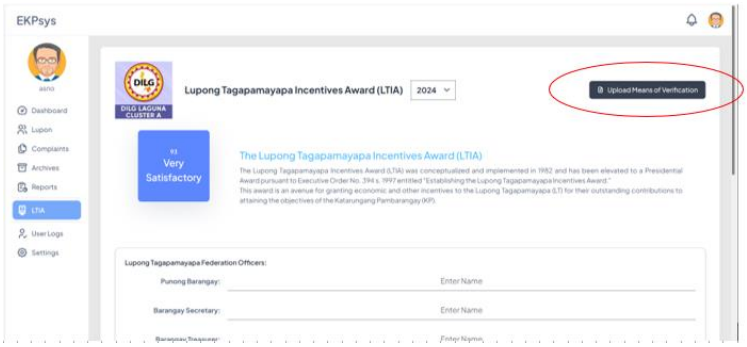
ASSESSMENT TEAM DASHBOARD

This page includes a feature for the Lupong Tagapamayapa Incentives Award (LTIA), showcasing the performance of each barangay based on the municipality logged in and the selected year

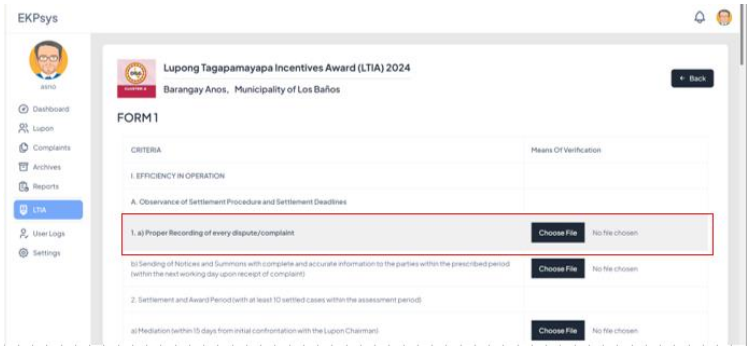


This page features a "**Barangay**" button that displays a list of barangays, including their respective MOV evaluations, and allows assessors to evaluate each barangay's MOV by adding rates and remarks

Steps on How to Submit MOV File



In the upper right corner of the LTIA dashboard you can see the “Upload Means of Verification” button, click it and it will lead you to Form 1 which is uploading MOV.

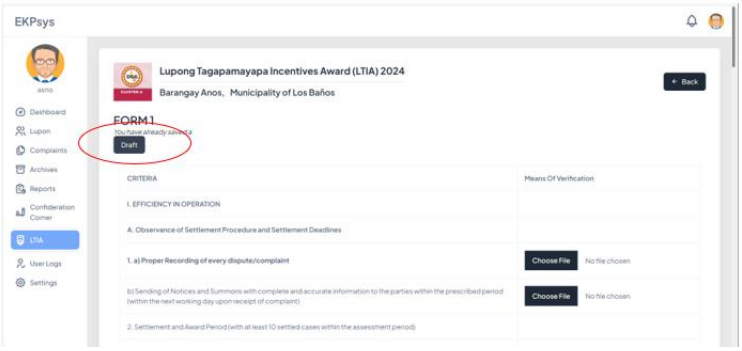


Step 2: Fill in the criteria by uploading files according to its request.

Guides:

To upload a file click Choose File.

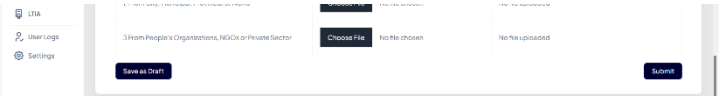
After Clicking Choose File double click or upload the file.



Step 3: After saving the uploaded files, click save and it will be saved as **“Draft”.** Click the draft button to finish uploading.

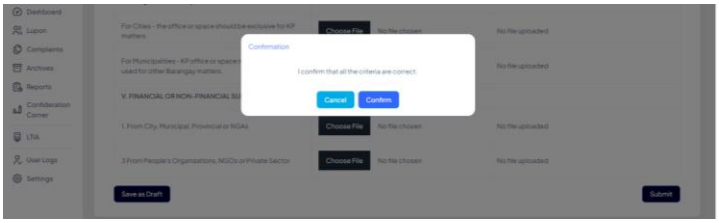
Do the same in uploading files according to its aligned criteria.

After uploading all the files, click Save.

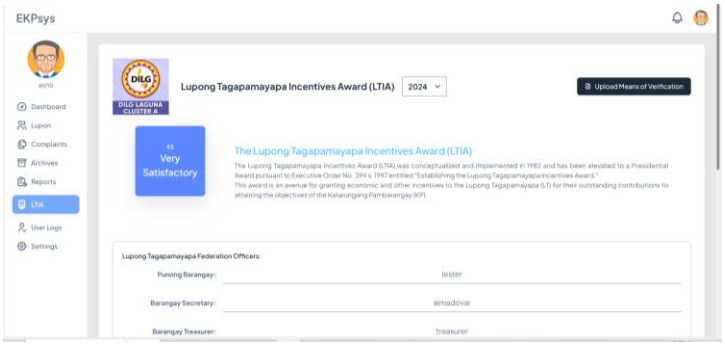


Guides:

Below the Draft page, you have two options “Save as Draft” if the MOV is in the making and “Submit” if the criteria are done.



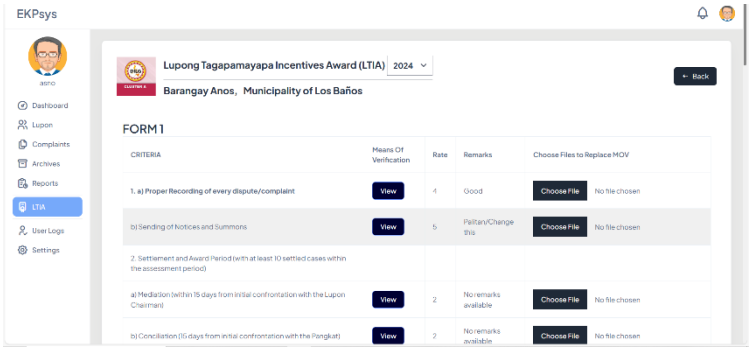
After clicking the “Submit” button, you have also two options “Cancel” or “Confirm” to submit to the Assessor



After Submitting the MOVs to the assessor, wait for them to assess the submitted MOVs.

In the Dashboard of the LTIA, it will show in the box the total rates of the uploaded MOVs.

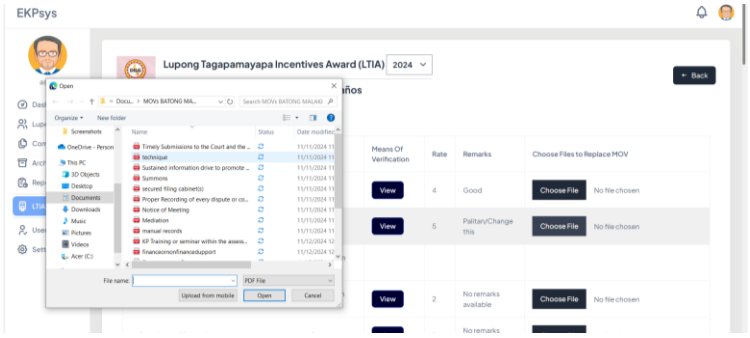
To view the rates of the uploaded MOV click the blue button where the total of rating and performance are shown.



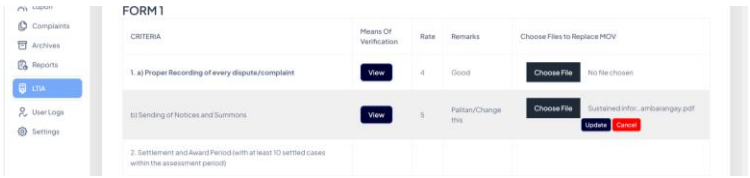
Step 4: If the assessor requests to change the MOV, click the “Choose File” button.

Guides:

To change the MOV, Click the Choose File.



Select your desired file then double click it or select it then click “Open”.



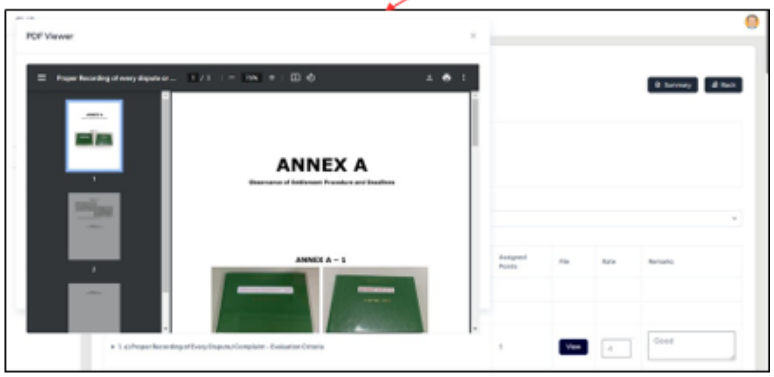
After selecting the desired file, the “Update” and “Cancel” buttons will appear.

Click “Cancel to clear the selected file.

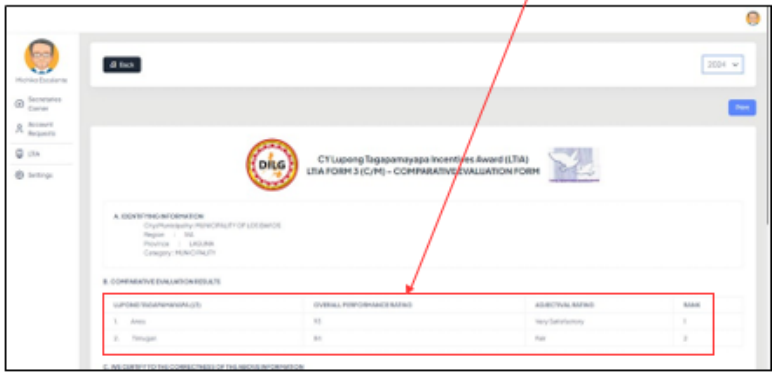
Click “Update” to change the file or MOV.

Steps on How to Grade MOV File

.



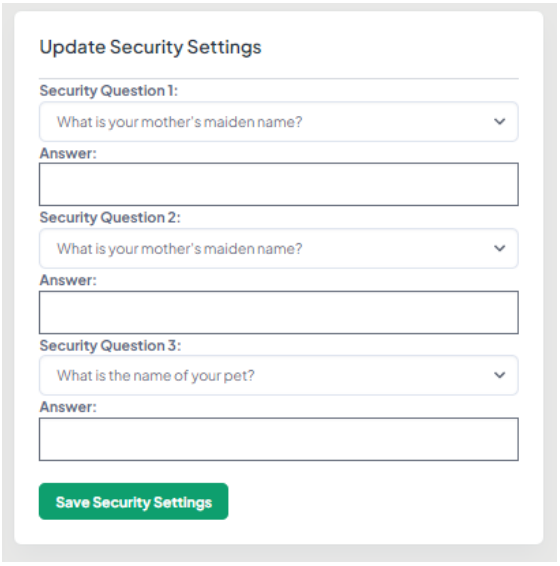
The "**View**" button displays the uploaded MOVs of the selected barangay for the specified category. You will put a score on a submitted file per criteria. User can also put remarks on files per criteria.

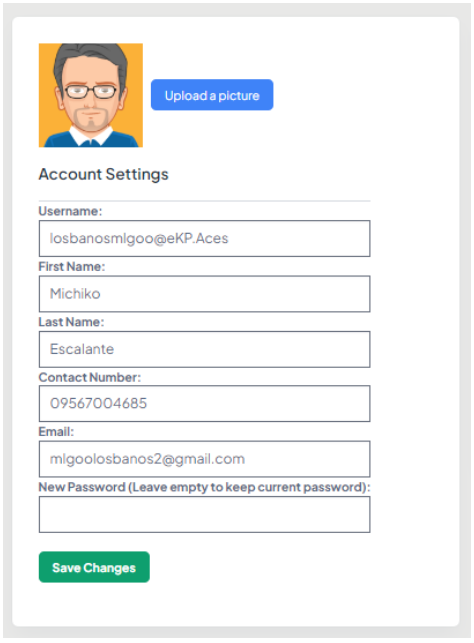


The "**summary button**" shows the summary of grades of each barangay in that municipality.

This page requires the chairperson and members involved in evaluating the barangays to be filled out.

User Settings Module





To upload a picture on your account, click Upload a Picture button and save.

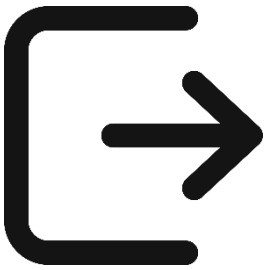
Any of these fields are editable, make sure all your credentials are correct and don't forget to click save.

In every account, there is a user settings page like this, you can edit all your details and add security questions to secure your account.

How to Logout

In all of the accounts, there’s a navigation bar on top just like this

To logout of your account, click this button.



APPENDIX C

Communication Letter and Approvals

Warm Greetings of Peace and Prosperity!

The researchers are in process of writing and developing their capstone project titled "**Lupong Tagapamayapa Incentives Awards Database System for DILG Cluster A of Laguna**". This is in partial fulfillment of the requirements for the degree of Bachelor of Science in Information Technology at Laguna State Polytechnic University – Los Banos Campus.

The researchers are in the process of gathering data that will be used to their capstone project. The researchers would like to ask permission to your good office to gather data that will be a great help to develop their capstone project. The data that will be gathered from your good office will be solely used for this capstone project undertaking only. Rest assured that the data to be collected for the capstone project will be treated with utmost confidentiality.

The researchers would greatly appreciate your consent to their request.

Thank you very much and God bless!

Respectfully yours,

Jacob Cortes

John Mark Montecillo

Lester Almadovar

Noted by:

Loyd S. Echalar
Capstone Project Adviser

APPENDIX D

IMRAD Paper Format

APPENDIX E

Plagiarism Report

Lupong Tagapamayapa Incentives Awards Database System for DILG Cluster A of Laguna.pdf

ORIGINALITY REPORT

12%	11%	3%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	pdp.neda.gov.ph Internet Source	1%
2	www.coursehero.com Internet Source	1%
3	aircconline.com Internet Source	1%
4	ijsshmr.com Internet Source	1%
5	www.rsisinternational.org Internet Source	1%
6	www.slideshare.net Internet Source	1%
7	pdfcoffee.com Internet Source	<1%
8	resmilitaris.net Internet Source	<1%
9	legalresearchph.com Internet Source	<1%

10	region3.dilg.gov.ph Internet Source	< 1 %
11	www.researchgate.net Internet Source	< 1 %
12	zombiedoc.com Internet Source	< 1 %
13	Amir Shachar. "Introduction to Algogens", Open Science Framework, 2024 Publication	< 1 %
14	repository.upou.edu.ph Internet Source	< 1 %
15	28b15.budzianowski.eu Internet Source	< 1 %
16	etd.aau.edu.et Internet Source	< 1 %
17	region2.dilg.gov.ph Internet Source	< 1 %
18	caraga.dilg.gov.ph Internet Source	< 1 %
19	researchsystem.canberra.edu.au Internet Source	< 1 %
20	www.ceocongress.org Internet Source	< 1 %
21	www.diva-portal.se	

32	www.scirp.org Internet Source	< 1 %
33	"International Scientific Siberian Transport Forum TransSiberia – 2021", Springer Science and Business Media LLC, 2022 Publication	< 1 %
34	cmfr-phil.org Internet Source	< 1 %
35	drum.lib.umd.edu Internet Source	< 1 %
36	www.q3i.com Internet Source	< 1 %
37	afis.kaist.ac.kr Internet Source	< 1 %
38	hrmars.com Internet Source	< 1 %
39	journals.charlotte.edu Internet Source	< 1 %
40	metrocdodev.com Internet Source	< 1 %
41	dspace.nm-aist.ac.tz Internet Source	< 1 %
42	lutpub.lut.fi Internet Source	< 1 %

43	www.astera.com Internet Source	< 1 %
44	aseanregionalforum.asean.org Internet Source	< 1 %
45	1library.net Internet Source	< 1 %
46	coek.info Internet Source	< 1 %
47	region1.dilg.gov.ph Internet Source	< 1 %
48	s3.amazonaws.com Internet Source	< 1 %
49	www.archives.biodiv.be Internet Source	< 1 %
50	www.dbm.gov.ph Internet Source	< 1 %
51	www.frontiersin.org Internet Source	< 1 %
52	www.ijstr.org Internet Source	< 1 %
53	www.limsforum.com Internet Source	< 1 %
54	bip.uken.krakow.pl Internet Source	< 1 %

55	bulsu-ovprde.com Internet Source	< 1 %
56	philpapers.org Internet Source	< 1 %
57	redfame.com Internet Source	< 1 %
58	researchonline.ljmu.ac.uk Internet Source	< 1 %
59	www.deltronics.ru Internet Source	< 1 %
60	www.ijmsssr.org Internet Source	< 1 %
61	www.studocu.com Internet Source	< 1 %
62	www.testbankexam.com Internet Source	< 1 %
63	029e2c6.netsolhost.com Internet Source	< 1 %
64	Abira Banik, Disha Rajendra Tamore, Utkarsha Sunil Kasar, Yash Suresh Sankhe. "Licensing System for Sea Fearers using Blockchain Technology", 2023 2nd International Conference on Applied Artificial Intelligence and Computing (ICAAIC), 2023 Publication	< 1 %

65	alsadr-uni.com Internet Source	< 1 %
66	it.downloadastro.com Internet Source	< 1 %
67	jet.utem.edu.my Internet Source	< 1 %
68	kryeministri.rks-gov.net Internet Source	< 1 %
69	open.ocolearnok.org Internet Source	< 1 %
70	r4a-2.lms.deped.gov.ph Internet Source	< 1 %
71	repository.up.ac.za Internet Source	< 1 %
72	staging-aging.jmir.org Internet Source	< 1 %
73	storage.googleapis.com Internet Source	< 1 %
74	Özbay, Oğuz. "Evidence Based Technology and Innovation Policy Making: An Application for Robotic Technologies", Middle East Technical University (Turkey), 2024 Publication	< 1 %

75	Smarr, Crystal. "Digital Health Equity: Investigating the Impact of Training Providers' Perceptions of Telehealth Encounters With Professional Language Interpretation Services", Franklin University, 2024 Publication	<1%
76	de Almeida Ribeiro, Artur Castro. "Melhoria de Fluxos nos Sistemas de Gestão dos Meios de Movimentação na Indústria Automóvel", Universidade de Aveiro (Portugal), 2024 Publication	<1%
77	Allan Daryl A. Ancheta, Janica Suzzanne M. Catbagan, Irene T. De Guzman, Manny Rimorin Hortizuela, Jahp D. Pulido. "EL-service-YU: An Android Mobile Application for Errand Services", 2021 1st International Conference in Information and Computing Research (iCORE), 2021 Publication	<1%

APPENDIX F

Curriculum Vitae

DAWN LESTER ALMADOVAR

Personal Information

Age: 23
Gender: Male
Date of Birth: November 13, 2001
Religion: Catholic

Contact Information

+639924213941

imphineas.agent@gmail.com

Purok 4, Sitio Mapagabigay,
Real Calamba City Laguna

Educational Background

Laguna State Polytechnic University

- Bachelor of Science in Information Technology specialized in Web and Mobile Application Development
- Malinta, Los Banos Philippines

Makiling Integrated School

- 2014-2018
- Makiling Calamba City Laguna

CITI Global College

- 2018-2020
- Information and Communication Technology
- Poblacion 3, Calamba City Laguna

Real Elementary School

- 2006-2014
- Real Calamba City Laguna

Skills

- Creativity
- Time Management
- Critical Thinking
- Great Leader
- Management Skills

JOHN MARK O. MONTECILLO

Contact Information

09381949088

totomontecillo55@gmail.com

Brgy. Anos Los Baños, Laguna

Objective

Proficient web developer with expertise in front-end and back-end programming, complemented by strong skills in graphic and web design using industry-standard tools like Photoshop and Figma. Experienced in software and hardware troubleshooting, as well as mobile application prototyping with a focus on creating innovative and user-centric solutions.

Educational Background

Laguna State Polytechnic University

- Bachelor of Science in Information Technology specialized in Web and Mobile Application Development
- Malinta, Los Banos Philippines

Colegio De Los Baños

- 2019-2021
- Information and Communication Technology

Bernardo N. Calara Integrated National High School

- 2015 - 2019

Skills

- Programming: HTML, CSS, JS and PHP
  Applications: Figma, Photoshop, Canva
  Platforms: Windows, Visual Studio, XAMMP

JACOB B. CORTES

Contact Information

09276548645

jacobcortes46@gmail.com

Los Baños, Laguna

Objective

Dedicated front-end web developer with expertise in HTML, CSS, JavaScript, and responsive design, driven by a deep passion for crafting visually stunning and user-friendly websites and applications. Eager to leverage innovative technologies and modern design principles to create exceptional digital experiences that captivate users and align with business objectives.

Educational Background

Laguna State Polytechnic University

- Bachelor of Science in Information Technology specialized in Web and Mobile Application Development
- Malinta, Los Banos Philippines

Colegio De Los Baños

- 2019-2021
- Information and Communication Technology

Skills

- Programming: HTML, CSS, JS and PHP
  Applications: Figma, Photoshop, Canva
  Platforms: Windows, Visual Studio, XAMMP