

Enhanced Tax Revenue Assessment and Collection System Through the Lens of the Municipal Treasurers and Assessors

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Abstract

This study explored the implementation of the Enhanced Tax Revenue Assessment and Collection System (ETRACS) in all municipalities within the Province of Davao del Norte, Philippines, focusing on practices, challenges, and corresponding recommendations as perceived by personnel from the Municipal Assessor's Office (MASSO) and Municipal Treasurer's Office (MTO). The study employed a qualitative approach using Key Informant Interviews (KIIs) with both assessors and treasurers across multiple LGUs.

CHAPTER 1

INTRODUCTION

Background of the Study

The rapid integration of digital technologies is transforming today's societies and economies. An important aspect of this is the change in citizens' and businesses' expectations about their interaction with governments. But meeting these new expectations poses a great challenge for governments. Indeed, it requires the digital transformation of governments themselves; failing to adapt could undermine the social contract. To rise to this challenge, governments need to change the way they work and organize themselves, and ensure they have the skill sets needed to use new digital tools, work collaboratively, and engage with citizens and businesses. This will require, among others, creating or updating relevant legal, regulatory, and governance frameworks (OECD, 2019).

Although, enhancing tax revenue assessment and collection systems is crucial for municipalities aiming to bolster their financial health. However, municipal treasurers and assessors encounter several challenges that can impede the effectiveness of these systems. One significant challenge is the reliance on outdated technology and legacy systems. Many municipalities use old software and manual processes, leading to fragmented data and labor-intensive workflows. Transitioning to modern systems requires substantial investment in technology and training, but limited budgets and resistance to change can delay adoption. Data accuracy and management present another major hurdle. Inaccurate property assessments can result in incorrect tax valuations, causing revenue loss and taxpayer dissatisfaction. Ensuring accurate, up-to-date property data is a continual struggle, and integrating data from various sources, such as property records and business registrations, adds to the complexity. These integration efforts are often hampered

by disparate systems and databases, leading to inconsistencies and inefficiencies (The U.S. Agency for International Development, 2016).

Financial constraints further complicate the enhancement of tax systems. Municipalities often operate under tight budgets, making it difficult to allocate funds for system upgrades, staff training, and other necessary improvements. Prioritizing investments in tax systems over other critical services, such as public safety or education, poses both political and administrative challenges. Additionally, legislative and regulatory hurdles must be navigated. Municipal treasurers and assessors must comply with complex and ever-changing tax laws and regulations, which requires continuous education and adaptation, straining their already limited resources. Local and national policies may also restrict the implementation of certain tax collection practices or innovations (Bureau of Local Governance Finance, 2017).

Moreover, on the local scenario the Provincial Government of Davao del Norte is one of the recipients of the Provincial Road Management Facility (PRMF) project, an AUD 100 million, five-year governance and institutional reform program from AUS-AID in 2014. The province, with this PRMF project, would like to establish an electronic-based system of assessing and collecting its business and real properties to increase its revenue, improve the capacity of the Province and its Municipalities to monitor its taxes and fees, and provide better services to the public including road infrastructure. Automation will also address some of the current concerns on on-time collection, updated assessment, and list of tax and business payers. Technological change is mainly related to innovation change where something is new for the organization(s) generating or adopting new products, processes, and practices (Keifer et al., 2014).

Abrigonda-Corpuz (2020) emphasizes that governments need to invest in building the right environment for public sectors that can manage in the digital age. This means sustaining the professionalization of digital career paths across public sectors and the improvement of an advanced civil service culture that uses digital technologies to engage with users and place their needs at the center of its activities. This will require structures to encourage understanding of the features and benefits of digital technologies and data reuse, and to equip civil servants with the necessary skills. If the digital transformation of the public sector is to effectively lead to user-driven services, it will have to be associated with a trained and empowered employee, equipped with a new mindset, new potentialities, and above all, adequate leadership and digital skills.

ETRACS was designed to be integrated with the cloud which only requires a sufficient internet connection and a small subscription fee depending on the cloud service. This is not compulsory however the service is available in ETRACS that the LGU wishes to avail. The advantage of this solution is that all data still resides in the server of the LGU and not on a central server. A special software enables ETRACS to talk to the cloud applications that receive requests for information. If there is no connectivity, for example, internet connection is down, the server can send the reply at a later time when the connection is up and running. The services below show examples of cloud solutions for ETRACS: SMS (Text Messaging) capability to send notifications or receive inquiries from taxpayers; Online inquiry of real property status and billing; Online application for business; LGU to LGU payment (applicable to province and municipalities to allow taxpayers to pay real property from another LGU); Real-time approval of tax declarations (applicable for province and municipality); and Online payment.

This enables business-to-government, government-to-government, and citizen-to-government transactions to be possible. Another advantage is that LGUs do not have to worry about integration with partners which requires tedious programming and testing, because integration is only done once from the cloud. Any partner integrated into the cloud will automatically be available to all ETRACS users.

ETRACS is the successor of another project called TRACS (Tax Revenue Assessment and Collection System). In 2000, TRACS was one of the components of the computerization project of PRMDP (Philippine Regional Municipal Development Project) funded by an Australian AID (AusAID) grant. The program was previously subcontracted to another vendor but because the system was quite complicated, the project was far from complete with the program nearing to its end. To rescue the project, the whole software was re-designed and development was subcontracted to Rameses at the last minute. The final system was certified by the Commission on Audit (COA) and passed the basic requirements of the Bureau of Local Government Finance (BLGF). After the project was turned over to the government, TRACS enjoyed relative success as it was used by some of the recipient cities to great effect. However, more improvements needed to be made but this was not possible because the program was already closed.

Realizing this need, Rameses recorded the project on their own initiative and used Java and open-source technologies so that LGUs could avail of the system at the lowest cost possible and without worrying about buying compulsory software licenses. The aim is to make the system the de facto standard in the local government systems and the benchmark for best practices and good governance. However, ETRACS also has a higher version which is the innovation of e-government to allow citizens and businesses to access these services through cloud technologies. In 2014, version 2.5 was released. This release is cloud-ready and introduces SMS functionality.

The cloud technology is an exciting development in the computing space. Although the concept is not entirely new, the tools are making it easy for developers to manage virtual data centers. It also lowers the administration costs which are very expensive traditionally. This enables one to focus on the solutions and not on maintenance. According to Abrigonda-Corpuz (2020) that for e-Governance to be successful, potentialities must be built at all levels of the government starting from the top leadership to the user of e-Governance services. It is equally significant to promote an attitude and mindset that is amenable to ICT-based administration and delivery of services. For effective capacity building, a planned learning curriculum and a permanent consistent learning framework for all Government employees and all groups of stakeholders are recommended. There have been many information technology initiatives and huge investments made by the national government in the past and in the present but because of the complexity and lack of product, having a comprehensive, effective e-government is still far from being realized. ETRACS is not only a tool to improve the collection of LGUs, it is a product with a vision. By enabling the capability to transact directly with the LGUs, the ease of doing business will improve and corruption can be lessened or perhaps, even eliminated. The ETRACS mission is to innovate the government, one LGU at a time.

Lastly, on the knowledge of the research there are lot of study that focus to enhanced tax revenue assessment and collection system through the lens of the municipal treasurers and assessors but there were no certain study that focuses on the current situation in the Province of the Davao del Norte in terms of EFTRACS. Furthermore, this study will fill the gap on literature and enhance the EDTRACS on the locale and the result can be a basis for the the future academe purpose.

Research Problems

To attain and achieve the purpose of this study, this research is guided by some questions that are seeking answers.

1. What are the practices in the Enhanced Tax Revenue Assessment and Collection System (ETRACS) implementation in tax revenue assessment of the Municipal Assessor's Office and revenue collection of the Municipal Treasurer's Office?

2. How Local Government Unit address the challenges or the loopholes/issues/ problems encountered in the implementation of the ETRACS?
3. What are the areas for improvements in the Enhanced Tax Revenue Assessment and Collection System (ETRACS)?

Theoretical/Conceptual Framework of the Study

This study is anchored to the Servqual theory, according to this theory in representation of service quality as the variance in customers' expectations for a service offering, and customers' judgment of the service received, requiring respondents to answer questions about their expectations and perceptions (Parasuraman et al., 1988). The theory is relevant to the study wherein if the ETRACS has a high quality of e-services, the tax payers will have a good perception. A high level of service of every system is what every clients wants. In some instances, one's expectations towards a particular service differ from what is served; therefore, it affects the institution and could increase customers trust. Servqual is used to measure the quality of services of the IS function (Kettinger & Lee, 1994) and (Pitt et al., 1995).

Also this study is supported by the Technology Acceptance Model of Thompson (2019), according to this model that the users of the e-governance systems come to accept and use a technology. In e-governance, this model helps understand the factors that influence citizens' and employees' adoption of e-government services, such as perceived usefulness, perceived ease of use, and user attitudes towards technology. Furthermore, this research is supported by the theory of governance.

Also, Asaduzzaman and Virtanen (2016) mentions governance as a political field and political activity with the vital task of every national government and the creation, execution, and implementation of activities backed by the shared goals of citizens and organizations, who may or may not have formal authority or policing power. According to Graham et al. (2003), governance is seen as an interaction among structures, processes, and traditions that determine how power and responsibilities are exercised, how decisions are taken, and how citizens and other stakeholders have their say. Therefore, governance is about power, relationship, and accountability, it addresses questions like who has the influence, who makes the decisions, and how decision-makers are held accountable. They believe that credibility and legitimation of government can be achieved effectively and efficiently through decentralization and sharing of people's participation, accountability, transparency, and responsiveness (Asaduzzaman, 2017). Lateef et al (1992), cited three dimensions of governance from the World Bank as Public Sector Management, Accountability, and the Rule of Law. The author emphasizes that when the capacity of the public sector to manage the economy and deliver public services is weak, the prospects for development are poor. Then, accountability refers to public officials holding public offices are responsible for their actions. Real property tax administration involves the proper functioning of the Assessor and Treasury offices for effective and systematic real property tax assessment and collection management. Situating the theories in the context of this study, the argument could be illustrated in this manner

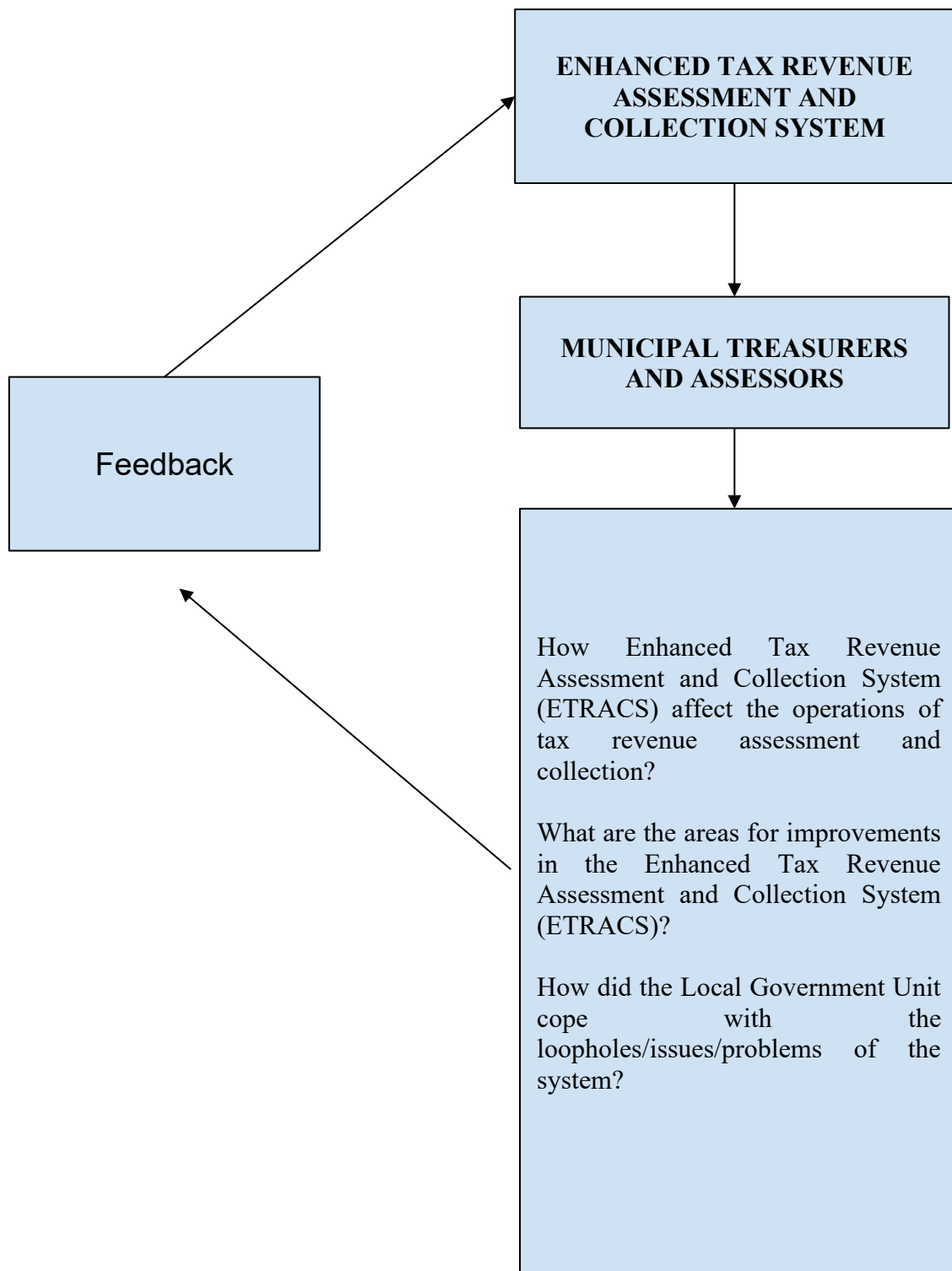


Figure 1. Conceptual Framework

Significance of the Study

The results of this study on the Enhanced Tax Revenue Assessment and Collection System will offer numerous benefits to individuals, organizations, and authorities. Municipal treasurers and assessors will gain insights into optimizing tax collection processes, reducing manual errors, and enhancing the speed of

operations, thereby improving efficiency. Additionally, it will provide strategies for better resource management, allowing these officials to focus on strategic planning and policy development.

Local government units (LGUs) will benefit from increased revenue due to enhanced accuracy and efficiency in tax assessments and collections, enabling them to fund essential public services and development projects. The study will also highlight mechanisms to improve transparency in tax collection, fostering greater public trust and ensuring accountability among officials.

Taxpayers, including both citizens and businesses, will experience improved services through a more transparent and efficient system, leading to easier compliance, reduced processing times, and fewer disputes. Clearer and more accurate tax assessments will build trust in the system, encouraging higher compliance rates and reducing tax evasion.

Policy makers and government officials will find the study valuable for making data-driven decisions, as it provides insights for developing more effective tax policies and interventions. These findings will also aid in strategic planning and resource allocation, ensuring long-term financial sustainability.

Enhanced and efficiently collected tax revenues will enable municipalities to improve public services such as infrastructure, healthcare, and education. Reliable revenue streams will support community development initiatives, fostering economic growth and social development.

Future researchers will benefit from this study as it serves as a foundational reference for further research in tax assessment and collection systems, contributing to the academic literature in public administration and finance. It will encourage further investigations into improving municipal revenue systems and their impact on governance and public trust.

Scope and Limitation

The scope of this research is limited only to the assessment and collection offices in Davao del Norte in relation to the real property tax administration in all 8 municipalities that use the Enhanced Tax Revenue Assessment and Collection System (ETRACS). The Municipal Assessor is in charge of the assessment of the real property which shall be appraised at its current and fair market value and classified for assessment purposes on the basis of its actual use, assessed on the basis of a uniform classification within the entire Province of Davao del Norte and shall equitable. The Municipal Treasurer is in charge of the collection of the real property tax. The collection of the real property tax with interest thereon and related expenses and the enforcement remedies provided for any applicable laws shall be the responsibility of the municipal treasurer concerned. The informants selected are the Municipal Assessors and Municipal Treasurers of the entire province of Davao del Norte.

The Municipal Assessor's Offices shall prepare the real property assessment for the approval of the Provincial Assessor. After the approval of the assessment of real property, the Municipal/Provincial Assessor Office shall furnish the local Treasurer with an Assessment Roll. The Provincial or Municipal Assessor shall prepare and submit to the treasurer of the local government unit, on or before the thirty-first (31st) day of December each year, an assessment roll containing a list of all persons whose real properties have been newly assessed or reassessed and the values of such property as reference to the generation of Statement of Account and Tax Bills for tax collection purposes of the Municipal and Provincial Treasurers. Per Local Assessment Regulations No. 1-04, the Manual on Real Property Appraisal and Assessment Operations, the assessment roll is prepared during the conduct of a general revision of real property assessments. Thereafter, a quarterly supplemental update shall be prepared, furnishing the Treasurer concerned a copy until the next general revision, except in cases where the assessor's records are computerized and the same are directly and operationally connected to the Office

of the Provincial or Municipal Treasurer in the form of LOCAL AREA NETWORK (LAN). In the case of the Municipal Assessor's and Treasurer's Offices in Davao del Norte, the usage of the Enhanced Tax Revenue Assessment and Collection System (ETRACS) complied.

Definition of Terms

There are words and terms used in this study that need to be defined especially if it has different meaning when it was used in the statements like the following:

ETRACS – stands for Enhanced Tax Revenue Assessment and Collection System used to automate real property assessments, business permit licensing, and revenue collection operations of the Municipal Government Units of Davao del Norte. It is a web-based, GIS-ready local government taxation application designed for provincial, city and municipal LGUs. It has modules for real property tax, business permits and licensing, tax collection, administration, and taxpayer registration. ETRACS is a free software package provided to local governments to help automate and improve their revenue assessment and tax collection processes (Land and Governance Innovations Consultants, Inc., n.d.).

Municipal Treasurer – is primarily responsible for managing the revenue and cash flow of the agency, banking, collection, receipt, reporting, custody, investment, or disbursement of municipal funds. Moreover, municipal treasure is an important component of local government finances, as it provides the funding necessary for municipalities to carry out their responsibilities and meet the needs of their communities. The size and composition of the municipal treasure can vary significantly depending on factors such as the size and economic base of the municipality, the local tax structure, and the level of intergovernmental transfers from higher levels of government (Mónica López Martínez et al., 2022).

Municipal Assessor – Exercise the functions of appraisal and assessment primarily for taxation purposes of all real properties in the Municipality. Municipal Assessor is often responsible for tasks such as ensuring accurate and timely assessments of properties within the municipality for taxation purposes and assisting in the implementation of municipal policies and programs, ensuring compliance with regulations and laws (Fariza Sapie & Masnona Asiri, 2024). Also, providing administrative support to the municipal executive or mayor, including managing schedules, coordinating meetings, and handling correspondence and facilitating communication between different departments and stakeholders within the municipality, as well as with external organizations and the public (Ribeiro & Santiago, 2019).

Basic Tax – a levy that is equivalent to one percent (1%) of the assessed value of a real property allotted for a Provincial Government Unit (35%), Municipal Government Unit (40%), and Barangay Government Unit (25%) (DILG, 1990).

Special Education Fund (SEF) – a levy that is equivalent to one percent (1%) of the assessed value of a real property that provides the source of funds for the supplementary annual budgetary needs for the operation and maintenance of public schools within the province, city, or municipality through an annual SEF Budget. The Special Education Fund (SEF) is a financial resource provided by local government units (LGUs) to support basic public education in the Philippines. It is mandated by Republic Act 7160, also known as the Local Government Code of 1991, which requires LGUs to impose and collect an additional 1% tax on real property to be allocated to the SEF (Yasay, 2009).

Field Appraisal and Assessment Sheet (FAAS) – is a worksheet/ working paper of the Municipal Assessor's Office on which pertinent information regarding a real property and real property assessment is reflected and detailed (Department of Finance - Bureau of Local Governance, 2015).

Tax Declaration – is a property record document. It is a formal assessment document used by Municipal Assessors to show the market and assessed property values as the basis for collecting real property tax (Granfon et al., 2023).

Tax Clearance – is a certification issued by the Municipal Treasurer's Office to taxpayers certifying that he/she/it is tax compliant and has no outstanding real property tax liability (Villaroman, 2017).

CHAPTER II

REVIEW OF RELATED LITERATURE

Enhanced Tax Revenue Assessment and Collection System (ETRACS)

Enhanced Tax Revenue Assessment and Collection System (ETRACS) is an enterprise system that requires political determinations to implement. Computerization could affect certain processes in a way that necessitates willpower to execute. It would streamline the organization making it more efficient and responsive in delivering its basic services. Computerization and digital transformation deliver fast and accurate management reports critically needed in every management decision and action. Abrigonda-Corpuz, 2020, highlighted that digital transformation of the public sector also increases the satisfaction of taxpayers as it enables faster, convenient, and quality services to citizens and promotes uniformity and fairness in assessing and collecting taxes, therefore, improving citizen compliance with tax obligations and regulations and enhances information dissemination and efficiency. Thus, strengthened LGU's capability to stabilize revenue sources and a simplified step for assessment and collection of real property taxes.

ETRACS can be configured for the satellite offices of the LGUs like barangays, bus terminals, hospitals, waterworks, markets, etc. This is called micro installations and is basically a stripped-down version of ETRACS. The objective is to allow transactions to be collected where the transaction happens to reduce data capture in the main office and ensure on-time collection and remittance.

The Enhanced Tax Revenue Assessment and Collection System (ETRACS) is a system designed to streamline the operation between the Treasury and the Assessor. It is composed of three (3) core modules, namely: Tax Collection Module, Business Permit Assessment Module, and Real Property Assessment Module. One of the main objectives of the system is to support and promote transaction transparency by automating processes and minimizing manual interventions, which normally lead to corruption. E-governance adoption is more than a technological matter as it is influenced by many factors, including organizational, human, economic, social, and cultural issues (Chen & Thurmaier, 2008; Shareef et al., 2011). The system has already been implemented in at least 84 LGUs throughout the country. The adaptability of ETRACS and its wide installed base make it an ideal system for the computerization needs of the Province of Davao del Norte.

Enhanced Tax Revenue Assessment and Collection System ETRACS is a software system designed and developed by Rameses System Inc. (Rameses). The primary goal of the system is to automate real property assessments, business permit licensing, and revenue collection operations of local government units (LGUs). Through automation, the local government unit should become more efficient and improve its reporting accuracy. The system controls the processes through carefully designed business workflows that are based on the standard operating procedures and guidelines of the LGUs. In effect, it also promotes transparency and good governance since it applies controls for checks and balances and audits each transaction being made, making it difficult to do fraudulent activities. Reforms in public service delivery are one of the reasons for the general public's increased expectations of government. The digital

transformation has endowed employees and the government making it possible for them to decide how to access or deliver a service. Governments need to recognize that digitalization is no longer an option, but rather an essential for their authenticity as defenders of well-being and progress (Abrigonda-Corpuz, 2020).

The standard system can be configured for a City, Municipality, or Province and is composed of three modules as follows: Collection (Treasury Revenue Operations); Real Property Assessments; and Business Permit and Licensing.

ETRACS is designed as a modular platform and runs on the Osiris 2 Enterprise Framework, a proprietary framework of Rameses. The platform hosts small applications called plug-ins. Being a multi-user system, the user can only access these applications if they have the proper authorization and permissions. Because transactions in the system are sensitive and require accountability, ETRACS has a comprehensive security model. Users are assigned roles and permissions that can be further customized per user. Data passing through the network are encrypted and each terminal connecting to the server must be registered by the system administrator. Users are required to change their password from time to time. Besides system-level security, it can also be application-specific for example, collectors cannot perform collection if they don't have a cashbook defined and they don't have accountable forms on hand.

ETRACS aims to elevate innovation in the field of tax revenue collection to provide an efficient and transparent local government unit and overall improve the quality of service to taxpayers.

This is a big deal for LGUs because it has always been the dream of most to allow citizens to transact online like making payments or query the status of their properties. In order to do this at present, an LGU needs a huge investment in data centers and monthly leased lines plus additional manpower to develop applications and monitor transactions and security. The cost will not be able to outweigh the benefits unless the LGU is probably big enough and their constituents technologically savvy enough like large cities.

E-Government

Research on e-government has been conducted globally, mostly to elucidate the evolution of government services via digital media. This report examines e-government issues in the European Union using a case study approach and a lackluster legislative coordination framework. According to Al Sayegh et al., (2022) the analysis of the success criteria for e-government in Australian public services, perceived usefulness and simplicity of use rank highest among the factors. Additionally, Wuarmanuk, (2019) and Zulita et al. (2018) investigated these elements in greater detail in relation to the factors influencing the degree of individual acceptability of the implementation of e-government, using Taiwan as a case study. The goal of Indonesia's e-government initiative is to create electronic-based governance in order to successfully and economically raise the standard of public services. In order to accomplish this, the development of e-government is focused on four main goals: (1) creating a network of information and public service transactions with a scope and quality that can satisfy the business community and be accessible throughout all of Indonesia; (2) establishing interactive relationships with businesses to boost the country's economic development and fortify its capacity to handle changes and competition in international trade; and (3) creating channels and mechanisms for communication with state institutions as well as public dialogue facilities for the general public to engage in.

E-Governance in Taxation

Information and communication technologies are driving innovations in both the public and private sectors, resulting in a fast changing world. These days, one can conduct business from cellphones without

having to go to offices or service delivery or servicing facilities. Global public expectations are changing due to the trend toward technology use, particularly with relation to the provision of government services (Barnay, Davis, Dimson, Gibbs, & Kon, 2018). According to Nchuchuwe and Ojo (2017), technological advancements over the past century have resulted in a paradigm shift away from manual, analog, and primitive processing and toward digital transactions that merely require a button press. The private sector is not the only one embracing e-transactions. Information technology is currently the driving force behind public sector governance, which has improved service delivery and, consequently, boosted economic growth. In fact, in this technological age, e-governance continues to be a crucial component of the public reform agenda, and every government need to aspire to this (Nchuchuwe & Ojo, 2017).

E-taxation

The tax environment around the world is changing quickly, and both tax authorities and taxpayers are looking for cutting-edge tax management strategies to replace antiquated methods based on laws from the 20th century (Bassey, Mulligan & Ojo, 2022). Oladele, Aribaba, Adediran, and Babatunde (2020) argued that the e-tax system is sufficient for effective tax management, which has led tax administrators globally to concentrate on implementing e-governance to increase the tax base and enforce compliance. The framework uses cutting-edge technology to gather and examine taxpayer data in order to provide an open and compliance-focused tax administration system. These modifications have resulted in exponential revisions in tax laws, higher levels of enforcement, and an increase in the potential danger to an organization's reputation (World Bank Group, 2020). Tax administration that prioritizes compliance is gradually replacing aggressive tax collection techniques, such as extortion and the use of tax advisors that employ unconventional techniques. The vital link between the government and taxpayers is tax administration, which is in charge of tax collection and processing as well as regulation, facilitation, and service provision. Its purpose is not restricted to these tasks, though. D'Ascenzo (2015) asserts that the primary duty of the tax administration in the contemporary revenue authority is information management, which permits tailored approaches to aiding individuals while safeguarding the general populace from those who neglect their civic and legal obligations.

CHAPTER III

RESEARCH METHODOLOGY

Research Design

The qualitative design of research using a case study approach will be used in this study to seek answers about the implementation of Real Property Tax Administration using the Enhanced Tax Revenue Assessment and Collection System through an evaluation of the Municipal Treasurers and Municipal Assessors in the Province of Davao del Norte. The researcher will interview all Municipal Treasurers and Municipal Assessors who were knowledgeable and could share plenty of information about the said phenomenon because the nature of their work is directly involved, and their experiences are more precise for the desired information which the researcher will to collect and transcribe. Using the open-ended questions (Remler and Van Ryzin, 2015) to arrive at the desired emerging themes as a basis for interpretation and data analysis.

Also, it will be a case study approach because the researcher not only relying upon the results of the interview from the informants but also collected data from other sources as secondary data to support the evaluation of the Enhanced Tax Revenue Assessment and Collection System by the Municipal Treasurers

and Municipal Assessors in the Province of Davao del Norte particularly in the implementation of such system.

The research instrument used in this research is the Key Informants Interview (KII). Using the Key Informants Interview (KII) with a small number of informants is the method or technique employed to conduct intensive individual interviews to get the desired information or relevant information while exploring from their perspective about the topic in accomplishing the result.

Another technique will be using the “Open Ended Interview Guide Questions” (Remler & Van Ryzin, 2015). This techniques will encourages the informants to answer with their knowledge and perspective about the topic. By this technique the researcher can get the desired information that is needed in this study. Moreover, the preparation of the interview guide ahead of time and distribution of it to them can be helpful when interviewing because all questions that are needed in getting the significant information will possibly be asked during the interview and relevant information is to be collected.

Research Setting

The study will be conducted within the offices of the Municipal Treasurers and Municipal Assessors in the entire province of Davao del Norte. The location of the offices is within the Municipal Government Compound of the Municipalities of Davao del Norte namely, Municipality of Asuncion, Municipality of Braulio E. Dujali, Municipality of Carmen, Municipality of Kapalong, Municipality of New Corella, Municipality of San Isidro, Municipality of Sto Tomas, and Municipality of Talaingod.

Selection Criteria and Participants

On this study the researcher will utilize the purposive sampling strategy in selecting the informants (Tongco, 2007) with the purposive sampling this will lead to have an informant that is knowledgeable and has experience in the real property tax administration, particularly in the assessment and collection of real property tax using the Enhanced Tax Revenue Assessment and Collection System in the Province of Davao del Norte. There will be eight (8) Municipal Assessors selected as key informants because of their experience regarding real property assessment preparation, processing, valuation, and approval. The eight (8) Municipal Treasurers will be also selected as key informants. The informants had experiences such as approving assessment that comes from the municipal assessors will be the basis of their collection operation for real property tax using the ETRACS. The signatories reflected in the Field Appraisal and Assessment Sheet (FAAS), and Tax Declaration which are the primary documents for real property tax assessment are coming from the Municipal Assessors and the Tax Clearance as the evidence or proof of full payment for real property tax is signed by the Municipal Treasurer in their respective jurisdictions. Their direct experience and involvement regarding the implementation of the real property tax administration are important data that should be collected and the coordination they have extended to achieve effective and efficient real property tax administration in the province. The inclusion criteria of this study will be a Municipal assessor that had work experience atleast five years as municipal assessor and the exclusion. The withdrawal criteria are if the informants have an emergency or are not capable of the interview due to unexpected circumstances and unwillingness to participate in the interview.

Data Collection

In this phenomenological study, the primary data-gathering method involves primarily in-depth interviews with participants (Creswell 2007). Researchers gather the data through having an interview with the different participants. First the researcher will ask permission and approval to conduct the study in each municipality. Each Informants will be oriented about the study and informed that interview would be video and audio recorded, and researchers will list notes while the interview is ongoing. According to Moustakas

(1994) proposed that phenomenological meetings could begin with a social discussion to make unwinding and confiding in the environment.

The research questionnaire is the main instrument that the researchers used in this study to gather the data. The given questions will be used to collect qualitative data from the participants; focus on the lived experience of a Municipal Treasurers in the Municipalities under the province of Davao del Norte. The IGQ will be translated into Visayan dialect so that the respondents would quickly catch up and understand the questions. The different locations of the informants are a triangulation method that the researcher will use to have multiple sources investigating to understand the phenomena clearly (Patton, 1999). The researchers will interview the informants who truly owned their perspective business, selling in the market. Credibility enhances the study's internal validity and can be established through extended field involvement, continuous observation, and data triangulation (Akutey & Tiimub, 2021). It ensures that the study results reflect credible knowledge derived from the original data and accurately analyze participants' views (Korstjens & Moser, 2018). Dependability ensures clear and repeatable research findings by documenting each analysis phase to allow future researchers to replicate the study and achieve similar outcomes (Stahl & King, 2020). Conformability involves maintaining objectivity during data compilation and analysis, ensuring consistency in data precision, validity, or meaning among multiple individuals (Polit & Beck, 2012).

To address conformability, an audit trail of participants' responses will be maintained to trace decisions and procedures step-by-step, using pseudonyms to protect identities. Recorded responses will be transcribed and returned to informants for authentication and verification. Procedures will be documented for checking and rechecking data throughout the research, including video recording interviews. After the study, an audit will inspect data gathering and analysis to ensure the efficient use of resources.

Role of Researcher

The primary research instrument in qualitative research is the researcher (Grundmeyer, 2012). In order to successfully explore the challenges faced by law research managers, program leaders, and project staff in research project management, it is crucial to take into account the role that the researchers played in this qualitative study. According to Bahrami et al. (2016), the validity of the researcher is a key concern in qualitative research, a data collection instrument. In addition, the researcher collected the data for this study by conducting interviews, transcribing, translating, analyzing, encoding, and designing.

The division of this research process, however, is not intended to suggest that researchers should work in that methodically progressive manner; in fact, it is most likely not feasible to do so in order to preserve the validity and rigor of different types of research. Additionally, during the research process, the researchers in this study define the phenomenon or the category. Understanding, evaluating, and grasping the information obtained from the informants is essential. In a similar vein, assert that the researcher's job is to become knowledgeable about the phenomena or categories in order to understand and gain knowledge during the research process (Patton, 2015; Lochmiller & Lester, 2016). Furthermore, Patton (2015) stated that obtaining participants' consent is an essential step that researchers must take in qualitative research. Lastly, researcher will checks were used both during and after interviews to increase the study's credibility, validity, and transferability and to reduce any potential for personal bias in the results (Lincoln & Guba, 1985). Thus, maintaining the validity and accuracy of different research components should be the aim of qualitative researchers, which is comparable to the function of validity—assuring the instrument's reliability, the measure's standard, and the techniques employed to establish a clear understanding of the participant's experiences, insight, views, and coping mechanism on their experiences.

Methods of Validation

The method of validation entails collecting open-ended data by asking broad questions and then developing an analysis based on the information provided by participants. After gathering the data, researchers delve into the collected information to gain a better understanding of the specific phenomenon (DeJonckheere & Vaughn, 2019). This stage involves analyzing and summarizing the extensive data collection and presenting the results in a way that highlights the most important aspects. Phenomenological research utilizes the analysis of significant statements, the creation of meaning units, and the development of what Moustakas (1994) describes as an essence description.

To investigate the phenomenon in question, several data analysis methods will be employed. Initially, raw data (transcripts and field notes) will be organized and prepared for analysis. Interview recordings will be transcribed and then converted from "emic" to "etic" transcription for easier comprehension. Subsequently, the translated meaning units will undergo structural analysis, where responses expressing similar ideas and relationships will be compared and grouped into themes. Finally, a comprehensive understanding will emerge through the researchers' insights and careful bracketing. Distinct themes will be identified and subjected to member checking procedures to ensure the validity and trustworthiness of the data (Moustakas, 1994).

A crucial step in qualitative research is data analysis, which is essential because it focuses on producing themes. The researcher uses highlighted significant statements, sentences, and quotes to develop clusters of meaning that form terms in the study. These themes provide the foundation for a composite description. According to Gereziher & Shiferaw, (2020), regardless of the data, the research results are decisively shaped by their analysis. Through phenomenological reduction, the researcher will eliminate biases and decisions from the natural perception of the realm, allowing the essence of the phenomena to surface (Tolentino, 2014) and using the participants' own words throughout the data analysis and phenomenological process description.

Trustworthiness in qualitative research, as described in a blog on "What is Trustworthiness in Qualitative Research" (2019), is established through credibility, transferability, conformability, and dependability. After conducting qualitative research, researchers must justify the informants' reactions, thoroughly contemplate the data details, and monitor all transcriptions and the significance of the data related to each theme. Trustworthiness encompasses ensuring that credibility, dependability, and conformability are evident in the research.

Ethical Consideration

The researcher will strive for truth in all scientific communications and distribute the benefits and burdens of research fairly. Additionally, the researcher will respect informant's dignity, privacy, and autonomy, and take special precautions with vulnerable populations during the conduct of the study.

CHAPTER IV

This chapter presents the study's findings, which concern the statements of 16 Key Informant Interviews (KII) regarding the enhanced tax revenue assessment and collection system through the lens of municipal treasurers and assessors in Davao del Norte.

Major Themes and Core Ideas on the Practices in the Implementation of ETRACS in the Tax Assessment of the Municipal Assessor's Office and Revenue Collection of the Municipal Treasurer's Office

Major Theme	Cluster Theme	Significant Statements
Tax System Automation	Real-Time Processing and Billing	ETRACS facilitates tax declaration issuance in minutes and tax transfers within 2–3 days All transactions from inspection to collection are smoother and more efficient System fast-tracks certifications in just minutes Real-time collection and report generation
	Online Access and Certification	The system is best in verification, billing, and certification with ease Online tax assessment and collection features reduce processing time Collection reports, tax formulas, and receipt queries are accessible
	Integrated System Features	Real-time collection, liquidation, and reporting are centralized in a system Fast-tracks transactions in our office by automating processes, reducing manual workload, and minimizing human error. System updates payments instantly and allows cross-office communication
	Automated Valuation and Tax Computation	Features for revenue assessment, automated property valuation, real-time data update, generation of tax declaration and reports. Automated billing linked to real-time valuation
Operational Accuracy	Error Reduction and Fast Transactions	Automation improves speed and accuracy in billing and certification ETRACS ensures accurate tax computation and centralized records ETRACS eliminates manual tax computation and reduces error Improved tax bill preparation led to increased RPT collection
	Accurate Assessment and Property Valuation	Automated property mapping and valuation increase accuracy Real-time data entry supports accurate assessment Tax declarations electronically transmitted to MTO Digitized property records minimize valuation disputes
	User Account Management	Login credentials secure transactions and system use and role-based access improves data security and accountability The system allows on-demand report generation and real-time tracking
Technical Support Availability	Training and Technical Assistance	RAMESES provides annual system updates and technical support Hands-on training conducted during system installation

ty	System Installation and Support by RAMESES	RAMESES handles system installation, configuration, and testing Assessment and collection modules integrated for efficiency Data migration and simulation part of installation process
	Service Provider Support	RAMESES conducts seminars and onsite tutorials Face-to-face training during initial setup Regular system updates provided Technical issues addressed through on-call support
Governance Alignment Implementation	MOA and Resolution-Based Implementation	ETRACS implemented via MOA with RAMESES and local resolutions Ordinance enacted to enable ETRACS implementation LGU formed teams with provincial offices to oversee deployment MOA-driven implementation includes mapping and rate setup
	LGU Policy and Ordinance Support	Implemented with the approval of the Sangguniang Bayan Supported by AusAID and executed via local council Monitoring and feedback through LGU-organized teams. RAMESES engagement through provincial ordinance and LGU support
	Institutional Monitoring Policy	Feedback loop created via LGU monitoring teams Reports generated to assess implementation and coverage Annual update meetings ensure ongoing system effectiveness Integrated monitoring by provincial and city offices

Tax System Automation

The introduction of ETRACS has significantly transformed the process of real property tax transactions of the local government units. A common theme among all key informants was the fact that automation has taken the centre stage in determining faster and more accurate tax services. The real-time processing, online availability, integrated office features, and automated computation capabilities of the system were among the most revolutionary, which, in combination with each other, served to minimize human error and increase the efficiency of administration. As KII 4 observes that the tax processing became faster than usual.

All transactions at the Municipal Assessor's Office are expedited, with tax declarations and related certifications typically issued within minutes. However, transactions involving the transfer of ownership of a tax declaration may take 2–3 days, pending approval from the Provincial Assessor. (KII 4)

KII 2 also noticed that in implementing the ETRACS, the transaction became smoother and efficient.

The best feature of ETRACS is that all transactions from inspection to revenue assessment and collection were smooth because it made everything easier. (KII 2)

In the department of KII 1, it helps them to fast-track the certification according to KII 1.

All transactions in the office of the Municipal Assessor are fast track, just a matter of minutes in securing tax declaration and all certifications related to the assessment, while in the assessment transactions, like transfer of ownership of tax declaration, it takes 2-3 days upon approval of the Provincial Assessor. (KII 1)

KII 9 added that ETRACS provide them with real-time collection and report generation.

Real-time collection and automatic generation of reports. Real property assessments made by the Municipal Assessor's Office, approved by the Provincial Assessor, are transmitted electronically to MTO ready for payment collection. Interconnectivity between MASSO and MTO regarding real property tax. (KII 9)

The system's online access and certification functions were also seen as game-changers in implementing the ETRACS. Participants acknowledged the convenience of being able to retrieve documents, verify taxpayer information, and generate reports without manually searching physical records. The system allows users to access tax formulas, receipts, billing records, and liquidation reports with ease, according to KII 1.

All features of ETRACS are the best, particularly the tax assessment process, easy access in all transactions, verification of individual record of assessment, issuance of certifications, reports on assessment records (monthly, quarterly, tax map, assessment roll, cancellation of assessment) (KII 1)

KII 14 also conceived that by implementing the ETRACTS, the online tax assessment and collection features, reduce processing time would be reduced.

Enhanced accuracy and efficiency by minimizing errors in tax assessment and billing, ensuring correct computation, and reducing disputes with taxpayers. (KII 14)

Also, KII 16 added,

The best features of ETRACS in revenue collection of the Municipal Treasurer's Office are the following: 1. Reports on Collection 2. Receipts Query 3. The rules in which the formula is encoded. (KII 16)

Another critical advancement was the integration of system features across LGU offices. Before ETRACS, communication between the Municipal Assessor's Office (MASSO) and the Municipal Treasurer's Office (MTO) was often delayed or prone to duplication. With automation, the system synchronizes records in real time, reducing inconsistencies in property assessments, billing, and payment tracking. One KII 12 remarked:

Current practices involve real-time collection and remittance, with daily collection amounts being liquidated and promptly deposited into the designated authorized bank. (KII 12)

Moreover, KII 15 implemented the ETRACS to centralized records and updates, enabling efficient financial planning

The implementation of ETRACS significantly fast-tracks transactions in our office by automating processes, reducing manual workload, and minimizing human error. It enables real-time data processing, faster retrieval of records, and seamless integration between different departments. As a result, our clients experience shorter waiting times, and we, the staff of MTO, can efficiently handle more transactions in a day. (KII 15)

In the experience of KII 5, the taxpayer calculations are automated with billing and invoicing features. System comprises delinquency management and evaluation tools.

Features for revenue assessment, automated property valuation, real-time data update, generation of tax declarations, and reports. For revenue collection, automated billing and invoicing, interest and penalties calculation, and delinquency management. (KII 5)

KII 14 also experienced the same situation as KII 5.

Treasurer's Office – ETRACS – Key practices include the digitization of taxpayer records, automated billing and assessment and integration of online and on-site payment options for convenience. The system ensures real-time reporting, effective monitoring of collections and delinquent accounts. (KII 14)

On the other hand, the automation of local tax systems through platforms like ETRACS marks a significant leap forward in public financial management. According to the Philippine News Agency (2020), ETRACS is being implemented in municipalities such as Albay to automate revenue and tax collection, demonstrating early steps toward systematized processes and reduced human error. This aligns with broader studies on local digital transformation, which emphasize that web-based and GIS-ready taxation systems enhance efficiency, planning, and transparency (Land & Governance Innovations Consultants, 2020)

Case evidence from Bohol also supports this, where the integration of ETRACS with GIS has significantly improved tax administration and transparency in municipalities like Maribojoc (BIC-TO, 2022). This data-driven approach provides spatial insights that strengthen decision-making in valuations and taxpayer engagement. However, automation alone is insufficient. Ronda et al. (2019) note that the success of digital tax systems depends on adequate infrastructure and skilled personnel. This concern is echoed in the Department of Information and Communications Technology's 2022 E-Government Masterplan, which highlights the importance of standardized procedures, institutional support, and continuous training. Moreover, while systems like ETRACS automate processes and reduce administrative burdens, their full potential can only be realized through strong institutional readiness and coordinated governance structures.

Operational Accuracy

Operational Accuracy emerged prominently in the implementation of the Enhanced Tax Revenue Assessment and Collection System (ETRACS), reflecting its critical role in improving the efficiency and precision of municipal tax operations. ETRACTS helps to avoid mistakes and errors and provides fast transactions. Participants KII 6 and KII 15 shared that this improvement not only saved

time but also restored public confidence in the fairness of tax assessments, according to KII 6 and KII 15.

It eliminates manual processes with easy, accurate and reliable operation. (KII 6)

Ensures accurate computation of taxes, fees and charges, reducing human errors. Maintain centralized database for taxpayers, making it easy to track payments and delinquencies. To provide update reports on revenue collection performance, allowing for better financial planning, generate notices and reminders for delinquent accounts, ensuring higher collection efficiency, and simplifies tax assessment and collection processes for both government employees and taxpayers. (KII 15)

In the Municipality of KII 13 it allowed municipal offices to issue accurate Real Property Tax (RPT) bills swiftly, directly improving revenue collection efficiency.

ETRACS eliminates manual computation of taxes, fees and charges which makes the collection easy, accurate and reliable. Reports can be generated anytime at the end-user's convenience. (KII 13)

Also KII 16 added,

ETRACS has helped the treasury office in its information dissemination effort through easy preparation of tax bills which eventually led to the increased RPT collection. (KII 16)

Much along with operational accuracy is the accuracy of the assessment and property valuation, which had been long a subject of taxpayer complains and inter-office disagreements. The automation of the property mapping and real time input of appraisal data, as pointed out by the participants of KII 5, KII 9, and KII 14, reduced the valuation disputes.

Features for revenue assessment, automated property valuation, real-time data update, generation of tax declaration and reports. For revenue collection, automated billing and invoicing, interests and penalties calculation and delinquency management. (KII 5)

Real-time collection and automatic generation of reports. Real property assessments made by Municipal Assessor's Office approved by the Provincial Assessor is transmitted electronically to MTO ready for payment collection. Interconnectivity between MASSO and MTO regarding real property tax. (KII 9)

It provides tax administration and revenue collection and automates the assessment, billing, and collection process for local taxes such as real property tax, business tax, and other fees. (KII 14)

The system will make values of properties consistent, verifiable and current since property records are going to be digitized and tax declarations sent electronically to the Treasurer office. This encourages equity in tax collection and it is at the heart of ethical administration of the public service.

Moreover, ETRACS was centred on what the security and access control mechanisms in the system did to enhance accountability and transparency. According to Informants in KII 10 and 13, every personnel dealing with processing taxes are assigned with individual log in details. Such credentials did not only control access by users, but they also produced an audit history of who did what and when.

Each account use has its own password and level of access to the program menu. Assessor and treasury office has its own separate rules (KII 10)

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ETRACS has transformed the tax processing landscape in local government units by minimizing manual inefficiencies, ensuring data integrity, and improving service accountability. These enhancements align with modern public administration standards and promote citizen trust in local fiscal governance. The informants attest that not only is tax system automation possible, but it would be of great benefit to the local public sector. ETRACS is an illustration of the power of digital transformation to empower front-line offices and enhance the delivery of public services, and generate long-term institutional value in local governance. Quality and dependable data remain the key to successful administration of taxes digitally and will make revenue systems dependable and entrusting. Villasev (2024) states that digital governance is strongly dependent on constant capacity building and infrastructure since they allow government employees to handle data accurately. On the same note, the E-Government Masterplan in the Philippines (2022) indicates that real-time validation and use of standardized data formats play a vital role in protecting the integrity of local revenues (DICT, 2022).

This relationship can also be attested to by empirical evidence and implementation of municipalities who have included ETRACS in their coverage area: using GIS-enabled mapping in combination with automated billing using ETRACS, in a case study of Bohol LGUs, the discrepancies in billing reduction were attributed to 30 percent (Land & Governance Innovations Consultants, 2022). This highlights the potential direct impact of errors of manual tools, which can be decreased by digital devices. Simultaneously, the Asian Development Bank (2023) warns that the lack of data validation in the digital tax systems grip can unconsciously increase the mistakes, leading to the requirement of a powerful backend system, which can detect the anomalies preceding their impact on the taxpayer records.

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Together with the other studies, this strengthens the notion that the accuracy of operations and tasks is not restricted to digitization. It also requires an integrated solution which involves training the users, designing the system by focusing on data integrity and validation checks on a real-time basis. Combined, these factors are an important building block enabling the ETRACS to be an effective local revenue management instrument.

Technical Support Availability

The success of implementation of ETRACS are supported by the availability of technical assistance and structured support from the system provider, RAMESES, and the proactive involvement of the local government units. Most of the offices in the Municipalities was implementing continuous training and technical assistance. As shared of by KII 6, there is always assistance for them to ensure that the software stays accurate to the needs of the office.

RAMESES conduct user training for IT, End User, and Other Personnel within the province and municipality through the transfer of technology scheme (KII 6).

Also KII 15 manifested this which their municipality helped the staffs to be sophisticated with the system.

The ETRACS provider (RAMESES) supports the installation and training process through the following steps: installation support, software installation and configuration, testing and troubleshooting, training and capacity building. - KII 15

The system installation process itself was methodically executed with assistance from RAMESES. According to the KII 15

The ETRACS provider (RAMESES) supports the installation and training process through the following steps: installation support, software installation and configuration, testing and troubleshooting, training, and capacity building (KII 15).

Also KII 13 experience the same scenario.

ETRACS serves as the database in the collection of revenues of the LGU. It assures end-users that collections are collected on real time, except those offline collections. Easy access to RPT ledgers and other RPU records should Real Property Information is needed. Easy process in the renewal of business permits and licenses. Reports can be prepared easily at the end of the period. (KII 13)

These technical integrations minimized future system disruptions and improved the synergy between departments also manifested by KII 6.

ETRACS practices includes automated tax assessment, integrated collection system and focus on transparency and efficiency in Local Government Taxation. The office of the Municipal Assessor relies on

automated processes that maximize revenue generation such as real property assessment and other permitting system. -KII 6.

Further, support from RAMESES was not limited to installation but extended into face-to-face training, system updates, and technical troubleshooting. For instance, a treasurer's staff from KII 11 stated, “

The service provider is available anytime when assistance is needed,” and they “conduct seminars and tutorials regularly” (KII 11).

This comprehensive service provider support ensures that emerging technical issues are resolved without causing significant delays in service delivery.

Another notable aspect is the emphasis on capacity building and simulation during deployment. KII 15 revealed that “training involved simulation and backups,” which enabled users to practice operations before actual implementation.

The undertakings made by the LGU to address the challenges or loopholes/issues/ problems encountered in the implementation of the ETRACS are the preparation of the system and set-up, training of the concerned personnel, regular data back-up and system maintenance. (KII 15)

In the Municipality of KII 12, the local team shared that “

Installation phase included role-based usage simulation,” allowing each user to understand their system responsibilities (KII 12).

Align with this Siprayanto and Mustufa (2024) stated that in E-governance implementation aspect, e-readiness is a capability that is not only linked to the availability of ICT tools to a local government unit but rather it is the ability to be able to apply consistent technical assistance to the system during its lifetime. This will comprise of preparedness regarding trained staff, help desk systems, maintenance procedures and institutional procedures of troubleshooting and up-to-date systems. The availability of technical support will emerge as an important pillar of e-readiness, as it covers the aspect of installing any ICT infrastructure but maintaining it, upgrading it and getting people who use it to understand it. E-government preparedness of municipalities heavily relies on observing strict regulations in using internet and adequate technical support across the departments (Pal et al., 2020). The recent scoping review at Philippine digital governance points out that the grappling ICT infrastructure, definition of access, and the absence of communal technical resources are the primary constraints to sustainable e-governance. Technical support hence depends on formal control policies, reasonable network access and mutually sharing IT resources among LGUs (Andaya et al., 2025). Moreover, the collaborative work between the local government units and the service provider were incorporated in a key role to endorse the technical functionality and sustainability of ETRACS. These practices provide a lesson that it is not only important to have good systems in place, but also to ensure that local users are well armed in terms of knowledge and tools to effectively manage the systems.

Governance Alignment Implementation

A key driver behind the successful deployment of ETRACS in the municipalities of Davao del Norte is the strong alignment of governance mechanisms, which ensured the system's legal, structural, and operational legitimacy. Several respondents emphasized that the implementation was grounded on

Memoranda of Agreement (MOA) and supported by local resolutions and ordinances. As emphasized of KII 5.

“The system is implemented through a program authorized by the Sangguniang Bayan, granting the Local Chief Executive the authority to enter into a Memorandum of Agreement (MOA) with service providers ETRACS and RAMESES” (KII 5).

This legislative foundation not only authorized the use of ETRACS but also fostered accountability among implementers. Similarly, another respondent explained,

“An ordinance was enacted to enable ETRACS implementation,” reinforcing the need for local policies to sustain the program (KII 11).

Coordination with the provincial government was also institutionalized, as mentioned by KII 12 and KII 6

“LGU formed teams with provincial offices to oversee deployment” (KII 12).

The presence of LGU policy and ordinance support was instrumental in sustaining ETRACS after installation. In San Isidro, the system was “Supported by AusAID and executed via local council” (KII 6),

Showing that external development aid was integrated into local legislative action. Local councils were active not only in policy creation but also in facilitating monitoring and feedback.

“Monitoring and feedback [was done] through LGU-organized teams,” said one respondent, emphasizing local government ownership of the system (KII 12).

Similarly, in KII 15 Municipality,

“RAMESES engagement was through provincial ordinance and LGU support indicating a multi-level governance approach to system institutionalization.” (KII 15)

In addition, a culture of institutional monitoring was cultivated to track the system’s progress and address implementation gaps.

“A feedback loop was created via LGU monitoring teams,” as reported in Kapalong, enabling stakeholders to raise concerns, suggest updates, and align ETRACS functions with local needs (KII 12).

Annual update meetings, helped ensure that the system remained responsive to evolving administrative and technical requirements.

Integrated monitoring by provincial and city offices further ensured oversight and accountability across jurisdictions. (KII 14)

Substantial institutional framework and formalized partnership among local government units (LGUs) are also essential in the effective utilization of digital tax systems such as ETRACS since it involves more than the technology component. As exhibited by Barrios and Moreno (2024), the presence of inter-agency Memoranda of agreement (MOAs), mutual or coordinated ordinances and task forces are great in promoting coordination in the e-government activities in Zamboanga City. The results of their study resonate with the Filipino Best Practice guidelines which have suggested the use of MOAs to harmonize the technical resources in LGUs to provide services such as free public WI-FI and e-payment systems (DICT, 2022; PIDS, 2023).

The sustained interventive activities across the national local government under the forms of the councils, provincial governance, and finances have been highlighted in a national scoping review of digital governance in the Philippines (Andaya et al., 2025). The cooperation of the Public-Private sector (PPPs) is also suggested as an addition to LGUs capacities (PIDS, 2023). This is further supported by the Philippine E-Government Master Plan (DICT, 2022) where MOAs and shared standards are key components to coming up with interoperable systems, which is also clearly defined by the ETRACS experience in Davao del Norte.

All these resources imply that stable, scalable and integrated e-tax platforms are dependent on the formalization of contacts between offices, both in terms of policy instruments (such as MOAs and coordinating institutions). To conceive ETRACS as an efficient model of tax management that will be implemented in the province, this policy-type approach to governance is essential because without its help, it will never be able to jump borders of individual LGUs. Collectively, these governance-aligned practices ensured that ETRACS implementation was not just a technical upgrade, but a systemic reform supported by policy, oversight, and collaboration. The clear involvement of local councils, service providers, and inter-agency teams reinforced ETRACS as a sustainable innovation in the field of real property tax administration.

Major Themes and Core Ideas on Local Government Unit challenges and loopholes/issues/problems encountered in the implementation of the ETRACS

Major Theme	Cluster Theme	Significant Statements
System Limitations	Internet Connectivity	Challenge: low internet and personnel still familiarizing with system Challenge: poor internet, glitches, lack of technical skills and training slow internet affects implementation
	System Glitches and Errors	system errors, data migration issues, and record compatibility concerns Assessment transaction delays due to technical issues technical errors hamper services to stakeholders
	Data Migration and Compatibility	Challenge: building 9,000+ RPT ledgers over two years RPT implementation challenging due to ledger errors affecting tax computation data migration errors and staff navigation difficulties
Training Gaps	Lack of Technical Knowledge	Challenges: lack of technical knowledge, network issues, limited hardware system usability and familiarization, especially for senior citizens user system familiarization and usability issues
	System Familiarization	From manual to computerized... correctness, convenience Personnel still familiarizing with system hesitation to try ETRACS due to age

	Staffing Limitations	Challenge: limited staff and internet connection COA recommended more staff, but not resolved Limited staff affects efficiency
Resource Constraints	Budget Allocation	Insufficient funds hindered implementation LGU coped through committed budget prioritization LGU undertakes funding provision for ETRACS implementation
	Hardware and Infrastructure	LGU addressed IT hardware issues by prioritizing procurement hardware upgrade addressed through training, support, and upgrades LGU should prioritize hardware upgrades
	Resource Management	Maintenance, training refreshers, and budgeting governance reforms, budgeting, and resource management supplemental budget addressed implementation issues
Governance Issues	Coordination with RAMESES	Coordination with RAMESES to solve problems Engage with RAMESES to resolve system issues RAMESES requested to resolve issues
	Support from Provincial ETRACS Team	Provincial ETRACS team coordination and budget requests helped address challenges Raised to Provincial ETRACS Team and LCE for solution Provincial Government, LGU, and RAMESES MOA
	Policy and Leadership Action	Prepare budget and address issues proactively always be open for evaluation and recommendation MASSO and MTO must coordinate and update each other regularly

System Limitations

Although the Enhanced Tax Revenue Assessment and Collection System (ETRACS) has great advantages, this program has not been implemented smoothly in the municipalities of the Davao del Norte region. Key informants indicated that there were concerns regarding limitations on the system specifically internet connectivity, repeat technical errors, and problems to do with data migration.

One of the most persistent concerns identified was the issue of internet connectivity. In many municipalities, limited or unstable internet infrastructure disrupted the performance of ETRACS and delayed processes. As reported by the Municipal Assessor's Office in Carmen,

“Poor internet connection and limited staff who are still familiarizing with the system have been one of our main challenges. Without stable connectivity, we often experience difficulty in uploading assessment reports or generating online certifications” (KII 3).

A similar issue was emphasized in KII 7 Municipality:

“The challenge is poor internet, glitches, and limited technical capacity of staff to troubleshoot these problems. We often wait several minutes just for the page to load or the system to refresh” (KII 7).

The Treasurer’s Office in Talaingod likewise acknowledged,

“Slow internet affects implementation because most processes rely on cloud synchronization” (KII 15).

In addition to connectivity issues, many respondents experienced system glitches and technical errors that hampered service delivery. An officer from Asuncion shared,

“We encountered system errors, particularly during data migration. Some of the previous entries were not compatible with the new ETRACS platform. This affected the accuracy of records and required us to manually verify entries” (KII 2).

In Sto. Tomas, technical issues have directly delayed operations: “There are delays in assessment transaction because of recurring technical issues. At times, we are unable to encode due to system downtime” (KII 7).

From the experience in Talaingod,

“Technical errors often result in complaints from stakeholders. They expect fast service but are affected by system lags or sudden shutdowns”-KII 14.

These challenges not only disrupted internal workflow but also contributed to taxpayer dissatisfaction.

Moreover, data migration and compatibility concerns were recurring themes across offices that shifted from manual to digital systems. The Treasurer’s Office in Kapalong recounted the magnitude of their initial workload:

“We built more than 9,000 real property tax ledgers over a period of two years. It was labor-intensive, and some of the records had to be revalidated due to discrepancies during the migration process” (KII 12).

Similarly, the team from New Corella explained,

“It was hard to implement RPT collection using ETRACS at first due to incorrect tax computations caused by incompatible ledger entries” (KII 13).

These concerns were echoed in Talaingod, where one KII 14 added,

“Data migration errors and staff navigation difficulties made the first months of implementation very challenging” -KII (14).

According to Lindgren et al. (2019) that the push for digital systems often reinforces prevailing social standards at the expense of atypical users, such as older or rural personnel, by placing unequal burdens on those with limited ICT skills. This gap hinders the efficient delivery and use of online services unless consistent technical support and inclusive digital training are provided. The complexity of e-Government systems like ETRACS—requiring large-scale ICT infrastructure,

organizational restructuring, and cross-departmental service delivery—exposes LGUs to significant implementation challenges. These limitations often result in delayed technical support, system downtimes, or incomplete adoption, highlighting the risk of falling short of intended objectives despite well-designed platforms (Gao & Gunawong, 2014).

These challenges underscore the technical, infrastructural, and human resource barriers that must be addressed to maximize the potential of ETRACS. While the system has revolutionized the local tax administration landscape, successful implementation requires strong internet infrastructure, continuous technical support, and a well-trained workforce capable of navigating digital tools. These findings point to the need for capacity building and system resilience planning, particularly in municipalities where digital transition is still in its early stages.

Training Gaps

In addition to technical limitations, the implementation of ETRACS was also hindered by several training-related gaps, particularly in terms of personnel readiness, user confidence, and staffing adequacy. Respondents from various municipalities shared concerns about the uneven technical capacity of staff, especially among older employees and those new to digital systems.

The lack of technical knowledge was a prominent barrier mentioned in several offices. A respondent from Kapalong remarked,

“Some of our staff, especially older employees, found it difficult to use the new system because of limited technical training. There were also instances of network and hardware issues that we did not know how to resolve immediately” (KII 8).

In Dujali, the Municipal Treasurer’s Office echoed similar concerns:

“There are usability and familiarization concerns, especially among senior citizen clients and even among some of our older personnel who had been used to the manual system” (KII 9).

Meanwhile, in Carmen, the transition team shared,

“Our users are still familiarizing themselves with system functions, and some modules require more user training for smoother operation” (KII 12).

These gaps in system comprehension have contributed to delays and frequent errors in early-stage transactions. Linked to this is the challenge of system familiarization. Moving from a manual to a fully digitized environment has proven difficult for some personnel. As one informant in Dujali reflected,

“Coming from manual to computerized, we recognized the correctness and convenience of the system, but the adjustment period is really crucial” (KII 16).

In Sto. Tomas, a staff member noted,

“Personnel are still familiarizing with ETRACS, and during peak periods, the unfamiliarity sometimes causes bottlenecks” (KII 7).

Another informant from Asuncion shared that

“Some senior employees were hesitant to use ETRACS due to their age and unfamiliarity with computers” (KII 10).

This suggests the need for differentiated and continuous training tailored to staff capacities and digital literacy levels. Moreover, the effectiveness of ETRACS implementation is also affected by staffing limitations. In Carmen, the issue was clearly stated:

“We have limited staff, and sometimes the internet connection slows down the work even further. COA has already recommended additional staffing, but the concern has yet to be resolved” (KII 3).

Human factor plays a key role when it comes to the success of e-government. Farzianpour et al. 2020 also affirm this by stating that skills in ICT are necessary when the infrastructure has been put in place to increase the successful implementation and use of online services. According to A shortage of skilled workers and expertise needed for digital transformation and ongoing system management is a major bottleneck

Most of E-governance been implemented technical support availability remains a challenge, especially for rural where digital inequality and limited ICT proficiency hinder smooth operations especially for developing countries, disparities in internet access and staff digital skills highlight the need for consistent technical assistance and infrastructure development to fully operationalize e-governance systems (Shkarlet et al., 2020).

Additionally, based on the study of Eleyan et al. (2022) that as much as E-Government is being popularized, the transplanting of developed country models directly into the government environment can not be done well in the case of ETRACS. The adoption among rural municipalities is slow because of poor e-readiness, characterized by a lack of local government infrastructure, a lack of sophistication of employees, and a lack of adjustment to the technical potential of the local government workforce.

These limitations have led to increased workloads for existing personnel, affecting both morale and overall efficiency. Taken together, these training-related challenges reveal that the success of digital tax systems such as ETRACS is not solely dependent on technology, but also on the readiness, adaptability, and adequacy of the human resources behind them. Continuous professional development, orientation programs for new users, and responsive staffing measures are essential to ensuring the long-term sustainability of ETRACS across local government offices.

Resource Constraints

In addition to system-related and training challenges, the availability and management of financial and physical resources emerged as a central concern in the implementation of ETRACS. Respondents from several municipalities cited budgetary limitations, infrastructure gaps, and strategic resource deployment as barriers that impacted system rollout and sustained operations. The most commonly cited constraint was related to budget allocation. In San Isidro, one key informant revealed,

“Insufficient funds hindered the full implementation of ETRACS, especially during the early stage. We had to request special allocations just to initiate system setup” -KII 6.

Despite this, some municipalities demonstrated adaptive responses through prioritization.

From the experience in KII 10 in Asuncion:

“Our LGU coped by committing to a budget prioritization strategy, ensuring ETRACS would still be rolled out even if it meant sacrificing some less urgent projects” (KII 10).

KII 13 also shared,

“We undertook internal funding provisions specifically earmarked for the ETRACS implementation. It was a deliberate policy to invest in automation” (KII 13).

These findings suggest that while funding was tight, proactive financial planning was key to overcoming resource bottlenecks.

Relatedly, the theme of hardware and infrastructure gaps was also prominent. San Isidro prioritized procurement to meet the technical requirements of ETRACS:

“We addressed our IT hardware concerns by prioritizing purchase of equipment compatible with the new system” (KII 6).

In Kapalong, the challenge was resolved through capacity-building initiatives.

“We resolved hardware issues not only by procurement but also through training and support for proper usage” (KII 8).

Still, as reiterated in New Corella, “LGUs should prioritize hardware upgrades. It is one of the foundations of successful ETRACS operation” (KII 13).

Without appropriate infrastructure, even the most well-designed systems could not function at full capacity.

Lastly, resource management surfaced as a recurring issue tied to the sustainability of the system. In Braulio E. Dujali, an informant pointed out,

This was echoed in New Corella, which emphasized governance and financial strategy:

“Aside from procurement, we aligned ETRACS with our governance reforms, resource management, and budgeting mechanisms” (KII 13).

Meanwhile, in Talaingod, a supplemental budget was mobilized to support implementation gaps:

“We used the supplemental budget to resolve issues that arose after installation, such as internet upgrades and minor troubleshooting” (KII 15).

Such incompatibility between the current manual system and a digital one could be considered one of the obstacles encountered during ETRACS implementation on a long-term basis. According to Nugraha (2018), the only way to fill this gap is to reengineer the existing workflows to fit into the e-government framework. Moreover, there is a general lack of long-lasting regulatory support, which is usually caused by a poor policy commitment of decision-makers. According to Lumbanraja (2020), technical support should be institutionalized through strategic legislations and policy support so that digital tools such as ETRACS work as planned even at the local governmental unit level. Resource constraints in e-governance refer to limitations or shortages in resources such as budget, manpower, technology, time, and infrastructure that impact the planning, implementation, and performance of e-government projects and services. These constraints often challenge governments, especially at local levels or in developing countries, in delivering effective digital public services (Global Partner, 2018).

In essence, the findings illustrate that resource constraints — particularly in funding and infrastructure — represent significant roadblocks to effective ETRACS implementation. However, they also highlight the role of leadership initiative and fiscal adaptability in overcoming these constraints. LGUs that were able to proactively allocate resources, seek supplemental funding, and

strategically prioritize digital infrastructure had a higher likelihood of sustaining and expanding their system use.

Governance Issues

The effective implementation of ETRACS also relies heavily on **governance mechanisms**, particularly in areas of inter-agency coordination, provincial support, and proactive leadership. Several municipalities reported administrative and policy-related challenges that, if unresolved, risked undermining the system's sustainability.

A critical component cited by many key informants was the need for consistent coordination with RAM ESES, the system provider. As emphasized by the Assessor's Office in Braulio E. Dujali,

“We had to closely coordinate with RAM ESES to resolve technical issues. Sometimes, the response time varies, but it's still better than having no one to assist” (KII 1).

In New Corella, a respondent noted,

“We actively engage with RAM ESES when glitches arise, especially when our IT staff cannot resolve them. Their remote support is necessary for most backend concerns” (KII 4).

In KII 7, it was mentioned that

“RAM ESES has been our go-to for resolving both user errors and system issues—they are familiar with our modules and can patch the problems quickly” (KII 7).

These examples underscore the importance of a responsive service provider and strong support infrastructure for public sector digital tools.

In parallel, support from the Provincial ETRACS Team was vital in helping resolve larger administrative and technical issues. The Treasurer's Office in Asuncion shared,

“We raised our budget constraints and coordination needs to the Provincial ETRACS Team. Their endorsement helped push for our request to the LCE” (KII 2).

The same experience was echoed in Dujali:

“Whenever issues exceeded our capacity, we brought it to the Provincial Government and RAMES E S team via MOA provisions. Their support filled the gaps our LGU couldn't address alone” (KII 3).

Another key informant in San Isidro added,

“We appreciate the coordination between the Provincial Government, LGU, and RAMES E S through the formal MOA. It gives structure to problem-solving” (KII 6).

Finally, policy and leadership action at the local level played a decisive role in overcoming governance barriers.

“Our leadership prepared the budget and addressed implementation issues proactively. It made a difference when the mayor was directly involved in the rollout” (KII 3).

In Kapalong, they recognized the importance of openness:

“We should always be open to evaluation and recommendation when issues arise—ETRACS is new, and continuous improvement must be embraced” (KII 4).

Moreover, the internal coordination between departments was identified as a challenge:

“The MASSO and MTO need to constantly coordinate and update each other. Disconnection leads to errors in RPT records and taxpayer confusion” (KII 12).

Government organizations often exhibit a risk-averse culture, with little incentive to move away from traditional processes. Resistance from both staff and citizens—due to fear of job loss, unfamiliarity with technology, or attachment to paper-based systems—can significantly slow digital adoption (Personal et al., 2024). Also, The absence of comprehensive policies or strategic frameworks for e-governance can lead to fragmented initiatives, lack of interoperability, and duplication of efforts across departments (Barrios et al., 2024). Also, Al-Shboul et al. (2014) added that E-governance often outpaces the development of relevant legal frameworks, resulting in regulatory gaps, unclear mandates, and challenges in enforcing digital rights and responsibilities. There were study also show a low trust in government digital services, often stemming from past failures, lack of transparency, or concerns about corruption, can hinder citizen uptake and engagement with e-governance platforms (Islam et al., 2023)

This theme highlights that, beyond infrastructure and training, sound governance and institutional cooperation are essential for a functional digital tax system. Sustained partnerships with RAM ESES, active support from the province, and responsive local leadership form the backbone of effective ETRACS implementation.

Major Themes and Core Ideas on the areas for improvements in the Enhanced Tax Revenue Assessment and Collection System (ETRACS)

Major Theme	Cluster Theme	Significant Statements
Enhanced Tax Revenue Assessment and Collection System	System Speed and Stability	Improvement areas: stability, training, data accuracy, advanced tech integration; Improvement needed: system speed, UI experience, customization Upgrade the security features of ETRACS
	Interface and User Experience (UX)	Areas for improvement: system stability, performance, interface, and UX Improvements: system reliability, interface, training, data, integration The system is fast in generating tax declarations
	System Security and Backup	Improvement area: data security and system backup Reiterated improvement: system backup and data security Improve data security and backup processes
Conducting a Specialize	Training and Seminars	ETRACS is good, but lack of training limits function attend ETRACS trainings regularly

Trainings for Enhanced Tax Revenue Assessment and Collection System		Undertaking: continuous training and system upgrades
	User Familiarization and Adoption	Employees adopted ETRACS because of training Staff showed hesitation but transitioned to ETRACS Hands-on training helped employees adopt ETRACS
	Continuous Learning and Refreshers	Plan: continuing learning to update and upgrade user skills Ongoing training, system updates, provider coordination implement E-payment to sustain ETRACS
Establishment of Operational Support for Enhanced Tax Revenue Assessment and Collection System	Monitoring by Provincial and Service Providers	Provincial personnel should monitor the system better The provincial team and LFC must discuss issues and recommend interventions
	Technical Support and IT Upgrades	Adjustments: IT and network upgrades, training, process alignment Adjustments: training, internet upgrades, and infrastructure Provide suitable equipment for the system
	Dedicated Support Units and Service Centers	Recommendation: create an independent IT Division with full facilities Recommendation: establish regional service centers for unresolved issues Recommendation: system updates, maintenance, and dedicated tech support

Enhanced Tax Revenue Assessment and Collection System

One of the foremost aspirations identified by local government offices involved in ETRACS implementation is the need to enhance system speed, stability, and overall functionality. Respondents from various municipalities expressed that while the system already facilitates automation, improvements are essential to avoid transaction delays and to support peak operational performance. A key informant from Asuncion pointed out that,

“Stability, training, data accuracy, and better integration are among the areas we hope to improve further” (KII 8).

Meanwhile, the MTO in Sto. Tomas emphasized that system speed and interface responsiveness remain pressing issues, stating that “

We really need to improve how fast the system processes—especially when there are multiple transactions. The interface also needs more customization” (KII 15).

These statements underscore a common recommendation: that local users want a system that is not only functional but responsive and tailored to frontline operational realities.

Equally important to respondents is improving the user experience and system interface, particularly in the context of accessibility and daily use. The Assessor's Office in Kapalong shared that although the system helps generate declarations quickly, enhancements in layout and ease of navigation are necessary.

"System reliability and user interface design can still be improved. Many staff are still adjusting, especially those who are not digitally inclined" (KII 5).

From Dujali, an official added, "It's fast in generating declarations but not very friendly for new users—some steps are still confusing unless you're trained well" (KII 4).

These experiences show that usability, training alignment, and interface logic are core to maximizing ETRACS's adoption and sustainability.

A third area of recommendation is the improvement of system security and data backup protocols. Given the sensitivity of taxpayer records and financial data, local offices strongly advocated for more secure digital infrastructure.

"Data security is an urgent concern,, "we've reiterated that backups and recovery processes must be integrated better" (KII 9).

Similarly, another Informant echoed this concern:

"We deal with thousands of records. If something happens to the system, we need to be confident that our data is safe and recoverable" (KII 4).

These recommendations reflect the LGUs' recognition that the credibility of ETRACS hinges not only on how well it performs but also on how well it protects public data assets. Collectively, these insights reveal that local tax offices are not just passive users but active stakeholders in shaping ETRACS. Their aspirations focus on system stability, user-centered design, and robust data security—key pillars that support the vision of a digitally empowered, accountable, and resilient local fiscal management system.

That is why Enhanced Tax Revenue Assessment and Collection System (ETRACS) was formed as a digital innovation that aims to modernize the processes of revenue collection and administration of Local Government Units (LGUs) in the Philippines. Being a complete and online solution, ETRACS streamlines the evaluation, charging, and restoration of neighborhood taxes, licenses, and fees (Canares, 2016). The essence of its role is to improve efficiency of its operations, enhance transparency and to maximize local revenue collection. It incorporates the core functional modules including the Real Property Tax Module that facilitates automatic valuation of lands, buildings, and machineries; Business Permits and Licensing Module that automated the process of registering and renewing a business permit; and the Tax Collection Module that enables online and counter payments, multiple funds accounting, tracking bounced checks, and issuance of e-receipt (Land and Governance Innovations Consultants, Inc. (2025). According to Tivde (2024) there is also a Taxpayer Registration Module in the system that merges the information of business taxpayers and individual taxpayers to enhance monitoring and reconciliation.

The ETRACS has shown that it has proved to be of great advantage to local governments. It is optimized in revenue collection whereby it has reduced human errors and leakages of revenue meaning more local revenue in the municipalities where it has been put in practice. As an illustration,

global surveys reveal that cities such as Moshi in Tanzania realized an increase in revenue by 15-20 percent following the adoption of electronic revenue systems, like ETRACs, on grounds of enlarged taxpayer adherence and manual work (Kweka & Chikoyo, 2021). In Philippines, Daraga in Albay realized a 40 percent drop in the number of days to process tax clearance and success in migration to online business permit activities with ETRACS implementation (Philippine News Agency [PNA], 2020). Additionally, the platform enables the efficiency of operations as it minimizes the processing time by 30-50 percent and allows direct integration with e-payment mechanisms. ETRACS also offers accountability, transparency, and traceability of each transaction because of the use of digital audit trails it is an attribute that enhances trust in local governance by people (Addis Tax Initiative, 2023).

Conducting Specialized Training for Enhanced Tax Revenue Assessment and Collection System

Info consistently emphasized the importance of establishing dedicated operational support structures to sustain the long-term use of the ETRACS system. While the technical functionalities of ETRACS were largely appreciated, many LGUs pointed out that its full potential could only be realized with robust monitoring, consistent technical support, and strengthened coordination between provincial offices and system providers. In KII 1, shared,

“Provincial personnel should monitor the system better to help us address persistent issues” (KII 1).

Also KII 3 noted,

“The LFC and provincial team must regularly meet and recommend timely interventions” (KII 3)

Highlighting the importance of consistent collaboration among governance units. Also KII 4 recommended

“RAM ESES assistance and proactive IT support” to ensure prompt issue resolution and ongoing system reliability (KII 4).

In addition to enhanced coordination, the need for timely technical support and infrastructure upgrades was a recurring recommendation. Multiple respondents identified the necessity of periodic improvements to both the system and the supporting technology environment.

“We need to align training, upgrade our internet, and ensure that our hardware is compatible with the system,” one official reported (KII 10).

In Talaingod, similar adjustments were implemented, including “training, internet upgrades, and infrastructure support,” which were considered essential to optimize ETRACS operations (KII 14).

There should be a provision of “suitable equipment for the system” must also be prioritized to reduce lag and data processing errors (KII 15).

Another key recommendation involved the institutionalization of dedicated support units and service centers to address unresolved technical and operational concerns. Some LGUs proposed the creation of independent IT divisions equipped with the necessary facilities and human resources. For instance, a respondent emphasized,

“There should be a regional IT division that can focus solely on ETRACS concerns” (KII 7).

These insights collectively underscore the idea that ETRACS should not be maintained on a piecemeal basis or rely solely on local troubleshooting efforts. Instead, an organized support framework—composed of provincial monitoring, ongoing IT upgrades, and centralized service units—must be built into the system’s governance and operational model. With such support mechanisms in place, LGUs will be better equipped to maintain the integrity, reliability, and efficiency of the ETRACS platform.

For a governance data consolidate all taxpayer and revenue data into a centralized, cloud-based database to provide a single source of truth. This reduces duplication, inconsistencies, and errors caused by fragmented data sources and ensures all users access the most current data (DIGITEXX, 2025). According to Akitoby, (2018) Pprovide comprehensive training on proper data entry procedures, the importance of accuracy, and use of the ETRACS system. Educate taxpayers on providing correct information during registration and transactions to minimize errors at the source

Establishment of Operational Support for Enhanced Tax Revenue Assessment and Collection System

For many municipalities, the sustainability of ETRACS implementation hinges on the presence of robust and consistent operational support mechanisms. A prevailing recommendation among key informants was the need for strengthened monitoring by provincial authorities and service providers, particularly in rural LGUs where in-house technical capacity is limited. KII 1 stated,

“Provincial personnel should monitor the system better. They should regularly visit and assess the situation, especially if there are problems with the system. Sometimes, it takes too long before someone responds from the provincial or central office” (KII 1).

A similar observation was made in KII 3:

“The provincial or service providers must conduct regular meetings with the LGU for system assessment. Dili lang during installation or activation. They must recommend timely interventions if they see that the system is not functioning well” (KII 3).

In the municipality of KII 4, it was further recommended that

“RAM ESES must provide continuous and proactive assistance, including IT support, especially during times when there are errors in the system or bugs in the modules” (KII 4).

These statements highlight the shared perception that external technical oversight is crucial for keeping the ETRACS system functional and responsive at the local level. The urgency for technical support and IT infrastructure upgrades also emerged as a dominant theme. In KII 10, it is explained,

“We need to improve our facilities—training, internet connection, updated units. Without those, the system can’t function to its full capacity” (KII 10).

For KII 14, another official added,

“The connection is sometimes unstable. Our equipment is not fully compatible with the system’s requirements. The LFC should help realign our network infrastructure and provide the necessary hardware” (KII 14).

These statements underscore that digital readiness—in both human resources and technology—is essential to maximize the benefits of ETRACS. This was echoed by personnel from the Treasurers' Office in Sto. Tomas, who emphasized,

“There should be suitable equipment for ETRACS. Kung daan na ang computer or walay saktong specifications, magka-error jud. It needs a stable system environment to run smoothly” (KII 15).

Moreover, a number of LGUs recommended the creation of dedicated support units or service centers to address persistent technical challenges. In Talaingod, an MTO officer proposed,

“We should have an independent IT Division within the LGU, complete with facilities, so that issues are addressed right away. Dili na ta maghulat pa sa province or central office. We need real-time troubleshooting” (KII 7).

Likewise, respondents from Nabunturan and New Corella supported the idea of regionalized support mechanisms, noting,

“There should be a regional service center for ETRACS. Kana nga center should handle system updates, maintenance, and provide technical staff that can respond quickly” (KII 13).

Also, KII 16 added,

“ETRACS requires continuous technical support. A dedicated regional hub can help fix bugs, backlogs, and other system concerns that LGUs can't handle alone” (KII 16).

These insights collectively emphasize that ETRACS should not be seen as a one-time digital solution but as a long-term governance tool that demands structured technical assistance and operational investment. Without reliable system monitoring, updated infrastructure, and responsive support services, its potential for improving tax revenue assessment and collection may not be fully realized. The LGUs' aspirations indicate that establishing operational support mechanisms is fundamental to building sustainable, efficient, and digitally empowered local government systems.

The study by Mbise and Baseka (2022) offers valuable insights into the role of digital tax administration systems in improving tax compliance, particularly among Small and Medium Enterprises (SMEs). This study is particularly relevant to the establishment of operational support systems like the Enhanced Tax Revenue Assessment and Collection System (ETRACS) in the Philippines. It reinforces the idea that digitization, when effectively implemented and supported by proper infrastructure and user capacity, leads to improved efficiency, transparency, and accuracy in tax administration. The findings suggest that similar systems, if adapted to the local context, can enhance revenue collection mechanisms in local government units (LGUs) by reducing manual errors, streamlining taxpayer interaction, and promoting compliance. Furthermore, the study emphasizes the need for continuous investment in ICT infrastructure and taxpayer education to maximize the benefits of digital transformation in public financial management (Cerenó, 2024).

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study explored the implementation of the Enhanced Tax Revenue Assessment and Collection System (ETRACS) in all municipalities within the Province of Davao del Norte, Philippines, focusing on

practices, challenges, and corresponding recommendations as perceived by personnel from the Municipal Assessor's Office (MASSO) and Municipal Treasurer's Office (MTO). The study employed a qualitative approach using Key Informant Interviews (KIIs) with both assessors and treasurers across multiple LGUs. Findings of the study revealed four (4) major themes related to the implementation of ETRACS. First is the Standardization of Tax Assessment and Collection Processes, which includes the use of digital tools to streamline assessment, billing, and collection procedures. Second is the Capacity Building through Training and Staff Familiarization, which highlights the importance of continuous training and onboarding to strengthen user adaptation and system utilization. Third is the Establishment of Operational Support, which emphasizes the need for proactive technical assistance, provincial monitoring, and sufficient IT infrastructure to ensure uninterrupted implementation. Lastly, the Improvement of System Efficiency and Data Accuracy reveals the aspirations and technical recommendations shared by LGU personnel to optimize ETRACS functionality, security, and user interface.

The study also uncovered three (3) recurring challenges in ETRACS implementation. These are (1) Limited Technical Support and Infrastructure, including outdated equipment, unstable internet connectivity, and lack of dedicated IT personnel; (2) Inconsistencies in System Usage, such as variations in how MASSO and MTO utilize modules, lack of full integration, and coordination gaps; and (3) Resistance to System Adoption, particularly among staff unfamiliar with digital tools or those with limited exposure to system functionalities.

In response to these challenges, several strategies and recommendations were put forward. These include the institutionalization of regular and specialized training, provision of updated equipment and stable network systems, establishment of regional service centers and local IT divisions, and enhancements to data security, interface usability, and backup protocols. Furthermore, respondents emphasized the need for strong inter-LGU coordination and sustained engagement with system providers to ensure long-term operability and local ownership of ETRACS.

Overall, the findings reflect that while ETRACS has significantly improved local tax administration by promoting transparency and automation, its continued success is largely dependent on responsive support systems, capacity development, and adaptive governance practices among local government units in Davao del Norte.

Conclusion

This study employed a descriptive qualitative design and utilized Key Informant Interviews (KIIs) to examine the practices, challenges, and recommendations in the implementation of the Enhanced Tax Revenue Assessment and Collection System (ETRACS) across selected municipalities in the Province of Davao del Norte. A total of fifteen (15) key informants from the Municipal Assessor's and Treasurer's Offices participated in the study, representing diverse LGU contexts. Their insights were transcribed, coded, and analyzed using thematic analysis to extract meaningful themes and categories.

The study sought to explore three central areas: the existing practices in ETRACS implementation, the challenges encountered by LGU personnel, and the strategies or recommendations proposed to improve the system. Based on the findings, four (4) major implementation practices were identified: standardization of assessment and collection processes, capacity building through regular training, operational support systems, and ongoing system enhancement for better efficiency and data accuracy. These findings imply that while ETRACS is fundamentally a digital system, its successful implementation depends on human, institutional, and infrastructural factors that promote adaptability, compliance, and data-driven governance.

In terms of challenges, the study revealed recurring barriers such as inadequate IT infrastructure, limited technical support, system underutilization, and digital resistance among personnel. These challenges imply that technological adoption in local governance is a multifaceted process that requires both top-down support and bottom-up readiness. The inconsistencies in system usage between MASSO and MTO highlight the need for more cohesive inter-office collaboration and shared accountability.

To address these issues, respondents proposed strategic actions, including the institutionalization of training programs, establishment of dedicated IT divisions or regional service centers, upgrading of hardware and internet systems, and optimization of the ETRACS interface and security features. These recommendations suggest that stakeholders view ETRACS not just as a digital tool but as an evolving governance platform that requires continuous improvement, user empowerment, and responsive support systems.

Overall, the study concludes that ETRACS has the potential to significantly enhance local tax administration in Davao del Norte. However, realizing this potential requires sustained investment in capacity-building, infrastructure, and collaborative institutional frameworks that support the long-term viability and responsiveness of digital governance systems.

Recommendations

Based on the findings and conclusions of this study, several recommendations are presented to enhance the implementation and sustainability of the Enhanced Tax Revenue Assessment and Collection System (ETRACS) across the municipalities of Davao del Norte. First, it is highly recommended that local government units (LGUs) institutionalize regular and specialized training programs for personnel involved in ETRACS operations. These trainings should not only cover technical navigation and system functionalities but also provide refresher sessions and onboarding for new staff. Such initiatives will promote consistent use, reduce resistance to digital tools, and build institutional capacity over time.

Second, the provincial government, in collaboration with the ETRACS service providers, must strengthen the delivery of technical support to the LGUs. This involves providing timely, on-demand assistance especially for municipalities with limited internal IT capacity. Technical support mechanisms, such as provincial monitoring visits, remote helpdesk services, and feedback-driven interventions, must be formalized to minimize system disruptions and ensure continuous operations.

Third, upgrading information technology infrastructure remains a critical priority. LGUs are encouraged to invest in updated computer units, reliable internet connectivity, power backup systems, and data servers to enhance the performance of ETRACS. These infrastructure upgrades are vital to ensuring that the system runs efficiently and can accommodate future digital innovations in tax administration.

Fourth, it is recommended that uniform operational guidelines and standard protocols be developed and enforced across LGUs. Clear standard operating procedures (SOPs) must be jointly created by the Municipal Assessor's and Treasurer's Offices to eliminate implementation inconsistencies and promote coordinated actions. Likewise, regular coordination meetings and internal communications can help bridge operational gaps and foster a unified approach to digital governance.

Fifth, municipalities should consider establishing local IT divisions or regional service centers dedicated to system maintenance and troubleshooting. These support units can reduce reliance on external providers, facilitate faster response times to technical issues, and ensure continuous user support. This localized setup will help enhance responsiveness and build LGUs' digital independence.

In addition, future upgrades to ETRACS should focus on improving its user interface, processing speed, and system security. Respondents stressed the need for a more intuitive interface that supports user-

friendly navigation, particularly for non-technical personnel. Data backup systems, encryption protocols, and recovery plans must be embedded within ETRACS to safeguard sensitive taxpayer and financial records.

Another recommendation is to promote inter-LGU collaboration and peer learning. Municipalities that demonstrate effective ETRACS implementation can serve as benchmarks for others through knowledge-sharing sessions, site visits, or capacity-building forums. Facilitated by the provincial government, such initiatives will allow LGUs to learn from one another and replicate successful practices.

Finally, it is recommended that LGUs integrate ETRACS within broader digital governance initiatives, including financial systems, geographic information systems (GIS), and e-payment platforms. Doing so will improve data accuracy, increase transparency, and enhance the overall efficiency of local revenue administration. Future research is also encouraged to evaluate the long-term impacts of ETRACS on revenue collection performance, taxpayer compliance, and public service delivery. These insights will help refine system development and inform evidence-based policy decisions moving forward.

References

1. Abrigonda-Corpuz, R. (2020). Adoption of Digitization in the City Assessor's Office towards Efficient Delivery of Services. *Asia Pacific Journal of Education, Arts and Sciences*, 7(3), 109–115.
2. Addis tax initiative. (2023). *The Digital Transformation of Tax Administrations | ATI*. www.addistaxinitiative.net. <https://www.addistaxinitiative.net/news/digital-transformation-tax-administrations-0>
3. Akitoby, B. (2018, March). *Improving Tax Collection, Raising Tax Revenue and Lessons in Tax Reform* - IMF F&D Magazine. IMF. <https://www.imf.org/en/Publications/fandd/issues/2018/03/akitoby>
4. Akutey, A. B. -, & Tiimub, B. M. (2021, September). *Triangulation in research*. ResearchGate. https://www.researchgate.net/publication/355425953_Triangulation_in_Research
5. Al Sayegh, A. J., Ahmad, S. Z., AlFaqeeh, K. M., & Singh, S. K. (2022). Factors affecting e-government adoption in the UAE public sector organisations: the knowledge management perspective. *Journal of Knowledge Management*, 27(3), 717–737. <https://doi.org/10.1108/jkm-09-2021-0681>
6. Al-Shboul, M., Rababah, O., Al-Shboul, M., Ghnemat, R., & Al-Saqqa, S. (2014). Challenges and Factors Affecting the Implementation of E-Government in Jordan. *Journal of Software Engineering and Applications*, 07(13), 1111–1127. <https://doi.org/10.4236/jsea.2014.713098>
7. Andaya, E. J., John, R., & Ilustre, R. G. (2025). Digital governance in the Philippines: a scoping review of current challenges and opportunities. *Global Sustainability Research*, 4(1), 89–111. <https://doi.org/10.56556/gssr.v4i1.1204>
8. Asaduzzaman, M., & Virtanen, P. (2016). Governance Theories and Models. *Global Encyclopedia of Public Administration, Public Policy, and Governance*, 1–13. https://doi.org/10.1007/978-3-319-31816-5_2612-1
9. Barnay, A., Davis, J., Dimson, J., Gibbs, E., & Korn, D. (2018). *Four innovations reshaping tax administration*. <https://www.mckinsey.com/~media/McKinsey/Industries/Public%20and%20Social%20Sector/Our%20Insights/Four%20innovations%20reshaping%20tax%20administration/Four-innovations-reshaping-tax-administration.pdf>

10. Barrios, N., Ann, Moreno, & Moreno, F. (2024). *M P RA Evaluating the Efficacy of e-Government Initiatives in Addressing Local Governance Challenges in the City of Zamboanga, Philippines Evaluating the Efficacy of e-Government Initiatives in Addressing Local Governance Challenges: A Case Study of Zamboanga City, Philippines.*
11. Bureau of Local Governance Finance. (2017). *Memorandum Circular No. 06-02-2017*. GOVPH. <https://blgf.gov.ph/memorandum-circular-no-06-02-2017/>
12. Canares, M. P. (2016). Creating the Enabling Environment for More Transparent and Better-resourced Local Governments: A Case of E-taxation in the Philippines. *Information Technology for Development*, 22(sup1), 121–138. <https://doi.org/10.1080/02681102.2015.1121857>
13. Cereno, C. D. (2024, June 9). *Impact of Digital Transformation on Regional and Local Government*. ResearchGate; unknown. https://www.researchgate.net/publication/381612517_Impact_of_Digital_Transformation_on_Regional_and_Local_Government
14. Chen, Y.-C., & Thurmaier, K. (2008). Advancing E-Government: Financing Challenges and Opportunities. *Public Administration Review*, 68(3), 537–548. <https://doi.org/10.1111/j.1540-6210.2008.00889.x>
15. Creswell. (2007). *APA PsycNet*. Psycnet.apa.org. <https://psycnet.apa.org/record/2006-13099-000>
16. D’Ascenzo, M. (2015). Global Trends in Tax Administration. *Journal of Tax Administration*, 1(1). <http://jota.website/article/view/15/30>
17. DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured Interviewing in Primary Care Research: a Balance of Relationship and Rigour. *Family Medicine and Community Health*, 7(2). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6910737/>
18. Department of Finance - Bureau of Local Governance. (2015). *MANUAL ON REAL PROPERTY APPRAISAL AND ASSESSMENT OPERATIONS DEPARTMENT OF FINANCE BUREAU OF LOCAL GOVERNMENT FINANCE.*
19. DIGITEXX. (2025, May 17). *Digi-Texx*. DIGI-TEXX. <https://digi-texx.com/technology/improve-data-accuracy/>
20. Doramia Lumbanraja, A. (2020). Urgensi Transformasi Pelayanan Publik melalui E-Government Pada New Normal dan Reformasi Regulasi Birokrasi. *Administrative Law and Governance Journal*, 3(2), 220–231. <https://doi.org/10.14710/alj.v3i2.220-231>
21. Eleyan, D., Hazineh, S., & Alkhateeb, M. (2022). E-Government: Limitations And Challenges: A General Framework For To Consider In Both Developed And Developing Countries. *INTERNATIONAL JOURNAL of SCIENTIFIC & TECHNOLOGY RESEARCH*, 11, 1.
22. Fariza Sapie, & Masnona Asiri. (2024). Certainty of implementation of assessor’s office mandates: The case of Jolo Municipal Government. *Deleted Journal*, 1(1), 1–18. <https://doi.org/10.62596/9mfmd576>
23. Farzianpour, F., Amirian, S., & Byravan, R. (2015). An Investigation on the Barriers and Facilitators of the Implementation of Electronic Health Records (EHR). *Health*, 07(12), 1665–1670. <https://doi.org/10.4236/health.2015.712180>
24. Gao, P., & Gunawong, P. (2014). *Understanding eGovernment failure from an actornetwork perspective: The demise of the Thai Smart ID Card.*

25. Gereziher, B., & Shiferaw, Y. (2020). Corporate Social Responsibility Practice of Multinational Companies in Ethiopia: A Case Study of Heineken Brewery S.C. In *British Journal of Arts and Humanities*. <https://doi.org/10.34104/bjah.020036055>
26. Global Partner. (2018). *The Future of Governments in a World of Resource Constraints - Global Government Forum*. Globalgovernmentforum.com. <https://www.globalgovernmentforum.com/the-future-of-governments-in-a-world-of-resource-constraints/>
27. Graham, J., Amos, B., & Plumptre, T. (2003). *GOVERNANCE PRINCIPLES FOR PROTECTED AREAS IN THE 21 ST CENTURY Prepared for The Fifth World Parks Congress Durban, South Africa*.
28. Granfon, J. A., Lagare, W. N. J. D., Aling, D. A., Dangcalan, N. B. D., & Ebanay, A. A. (2023). Factors Affecting Tax Compliance of MSMEs in Dipolog City. *International Journal of Multidisciplinary: Applied Business and Education Research*, 4(4), 1350–1364. <https://doi.org/10.11594/ijmaber.04.04.29>
29. Islam, Md. N., Hossain, Md. A., Islam, Md. K., & Been, T. (2023). E-Governance Challenges and Opportunities for Improving Public Service Delivery and Citizen Engagement. *the European Proceedings of Social & Behavioural Sciences*. <https://doi.org/10.15405/epsbs.2023.11.10>
30. Kaanael Simon Mbise, & Lukundo Baseka. (2023). Impact of Digital Systems on Tax Compliance Among SMEs. *the Journal of Informatics*, 2(1). <https://doi.org/10.59645/tji.v2i1.94>
31. Kettinger, W. J., Lee, C. C., & Lee, S. (1995). Global Measures of Information Service Quality: A Cross-National Study. *Decision Sciences*, 26(5), 569–588. <https://doi.org/10.1111/j.1540-5915.1995.tb01441.x>
32. Kiefer, T., Hartley, J., Conway, N., & Briner, R. B. (2015). Feeling the Squeeze: Public Employees' Experiences of Cutback- and Innovation-Related Organizational Changes Following a National Announcement of Budget Reductions. *Journal of Public Administration Research and Theory: J-PART*, 25(4), 1279–1305. <https://www.jstor.org/stable/24484966>
33. Korstjens, I., & Moser, A. (2018). Series: Practical Guidance to Qualitative research. Part 4: Trustworthiness and Publishing. *European Journal of General Practice*, 24(1), 120–124. <https://doi.org/10.1080/13814788.2017.1375092>
34. Land and Governance Innovations Consultancts, Inc. (n.d.). *ETRACS | LGI Consultants PH*. Lgi.com.ph. <https://lgi.com.ph/integrated-it-solution-to-tax-administration-for-transparency-tax-efficiency/>
35. Land and Governance Innovations Consultants, Inc. (2025, June 26). *ETRACS | LGI Consultants PH*. Lgi.com.ph. <https://lgi.com.ph/integrated-it-solution-to-tax-administration-for-transparency-tax-efficiency/>
36. Lateef, K. S. (1992). *Evolution of The World Bank's thinking on Governance*.
37. Lincoln, & Guba. (2019). *RWJF - Qualitative Research Guidelines Project | Lincoln & Guba | Lincoln and Guba's Evaluative Criteria*. Qualres.org. <http://www.qualres.org/HomeLinc-3684.html>
38. Lindgren, I., Madsen, C. Ø., Hofmann, S., & Melin, U. (2019). Close encounters of the digital kind: A research agenda for the digitalization of public services. *Government Information Quarterly*, 36(3), 427–436. <https://doi.org/10.1016/j.giq.2019.03.002>
39. Mónica López Martínez, López-Tirado, J., & Rafael Pulido Jurado. (2022). Guadalalcázar y su entorno. Una joya botánica de la campiña cordobesa Paisaje, historia y vegetación. *Boletín de La Real Sociedad Española de Historia Natural*, 116, 153–164. <https://doi.org/10.29077/bol.2022.116.lopezmartinez>

40. Moustakas, C. E. (1994). *APA PsycNet*. Psycnet.apa.org. <https://psycnet.apa.org/record/1996-97117-000>
41. Nchuchuwe, F., & Friday. (2017). *Governance and Public Service Delivery in Nigeria: The Role of Information and Communication technologies CUCEN2017 E-GOVERNANCE, REVENUE GENERATION AND PUBLIC SERVICE DELIVERY IN NIGERIA: AN OVERVIEW OF THE E-TAXATION SYSTEM IN LAGOS STATE*. <https://eprints.covenantuniversity.edu.ng/10336/1/Paper048%20FINAL%20Num7.pdf>
42. Nugraha, J. T. (2018). E-GOVERNMENT DAN PELAYANAN PUBLIK (STUDI TENTANG ELEMEN SUKSES PENGEMBANGAN E-GOVERNMENT DI PEMERINTAH KABUPATEN SLEMAN). *Jurnal Komunikasi Dan Kajian Media*, 2(1), 32–42. <https://doi.org/10.31002/jkkm.v2i1.758>
43. Pal, A., Singh, D., & Dhaliwal, R. K. (2020). Identification and Relevance of E-readiness Assessment Tools for ICT Use in Agriculture. *Current Journal of Applied Science and Technology*, 93–102. <https://doi.org/10.9734/cjast/2020/v39i1630741>
44. Parsu, P. A., Zeithaml, V., & Berry, L. (1988). SERVQUAL A Multipleitem Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*, 64, 12–40.
45. Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health Services Research*, 34(5 Pt 2), 1189–1208. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1089059/>
46. Personal, M., Archive, R., Barrios, N., Ann, Moreno, & Moreno, F. (2024). *M P RA Evaluating the Efficacy of e-Government Initiatives in Addressing Local Governance Challenges in the City of Zamboanga, Philippines Evaluating the Efficacy of e-Government Initiatives in Addressing Local Governance Challenges: A Case Study of Zamboanga City, Philippines*.
47. Pitt, L. F., Watson, R. T., & Kavan, C. B. (1995). Service Quality: A Measure of Information Systems Effectiveness. *MIS Quarterly*, 19(2), 173. <https://doi.org/10.2307/249687>
48. Polit, D. F., & Beck, C. T. (2012). *Nursing Research : Principles and Methods* (7th ed.). Lippincott Williams & Wilkins.
49. Remler, D. K., & G, G. (2015). *Research methods in practice : strategies for description and causation*. Sage.
50. Ribeiro, J. F., & Santiago, C. D. S. (2019). O secretário executivo atuando como assessor parlamentar. *Secretariado Executivo Em Revist@*, 15(1), 42–61. <https://doi.org/10.5335/ser.v15i1.8462>
51. Rotimi, O., Foluso Olugbenga, A., Adekunle, A., & Adebola, B. (2020). *E-Tax Administration and Tax Compliance among Corporate Taxpayers in Nigeria*. [https://www.atreview.org/admin/12389900798187/Article%204\(3\)%2093-101.pdf](https://www.atreview.org/admin/12389900798187/Article%204(3)%2093-101.pdf)
52. Shareef, M. A., Mukerji, B., Dwivedi, Y. K., Rana, N. P., & Islam, R. (2019). Social media marketing: Comparative effect of advertisement sources. *Journal of Retailing and Consumer Services*, 46(1), 58–69. <https://doi.org/10.1016/j.jretconser.2017.11.001>
53. SHKARLET, S., OLIYCHENKO, I., DUBYNA, M., DITKOVSKA, M., & ZHOVTOK, V. (2020). Comparative analysis of best practices in e-Government implementation and use of this experience by developing countries. *Administratie Si Management Public*, 34(118-136), 118–136. <https://doi.org/10.24818/amp/2020.34-07>
54. Stahl, N., & King, J. (2020). Understanding and using trustworthiness in qualitative research. In *Journal of Developmental Education* (Vol. 44, Issue 1, pp. 26–28).

55. Supriyanto, A., & Mustofa, K. (2024). *E-gov readiness assessment to determine E-government maturity phase*. <https://doi.org/10.1109/icsitech.2016.7852646>
56. The U.S. Agency for International Development. (2016). *USAID Strengthening Urban Resilience for Growth with Equity (SURGE) Project INTEGRATED REPORT ON REAL PROPERTY TAX ASSESSMENT IN CDI CITIES Strengthening Urban Resilience for Growth with Equity (SURGE) Project*.
57. Thompson, P. (2019, August 15). *Technology Acceptance Model*. Open.library.okstate.edu; Oklahoma State University Libraries. <https://open.library.okstate.edu/foundationsofeducationaltechnology/chapter/2-technology-acceptance-model/>
58. TIVDE, J. K. (2024). Leveraging E-Taxation for Enhanced Revenue Generation in Nigeria. *International Journal of Research and Innovation in Social Science*, VIII(IX), 661–670. <https://doi.org/10.47772/IJRISS.2024.809059>
59. Tongco, M. D. C. (2007). Purposive Sampling as a Tool for Informant Selection. *Ethnobotany Research and Applications*, 5(5), 147–158. <https://ethnobotanyjournal.org/index.php/era/article/view/126>
60. Villaroman, L. (2017). Factors Affecting Collection of Real Property Tax in the Provincial Treasurer's Office of Nueva Ecija. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3093130>
61. World Bank. (2020). *404 Error - Page Not Found*. www.worldbank.org. <https://www.worldbank.org/en/topic/governance/brief/governance-institutions-covid-19-response-resources>
62. Wuarmanuk, B. M. (2019). Questioning the E-Invoicing System, Tax E-Billing & E-Filling Systems against Amount of VAT Receipt [Menyoal Sistem E-Faktur, Kanal E-Billing Pajak & E-Filling Terhadap Jumlah Penerimaan PPN]. *Proceeding of Community Development*, 2, 317. <https://doi.org/10.30874/comdev.2018.340>
63. Yasay, D. Q. (2009). Functionality of Special Education Fund (SEF): Its Role on Improving Basic Education. *JPAIR Multidisciplinary Research*, 3(1). <https://doi.org/10.7719/jpair.v3i1.80>
64. Zulueta, J., Piscitello, A., Rasic, M., Easter, R., Babu, P., Langenecker, S. A., McInnis, M., Ajilore, O., Nelson, P. C., Ryan, K., & Leow, A. (2018). Predicting Mood Disturbance Severity with Mobile Phone Keystroke Metadata: A BiAffect Digital Phenotyping Study. *Journal of Medical Internet Research*, 20(7), e241. <https://doi.org/10.2196/jmir.9775>