

Mindoro State University Calapan City Campus

Official Web-Based Platform for Municipal Social
Welfare with offices Child, Youth, Women,
Distressed/Displaced Individuals/Families, Disabled,
Older Persons, Disaster Victims, and 4Ps Beneficiaries
with Innovative Features and Functionalities

A Capstone Project Presented To

Epie F. Custodio

Research Instructor

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Project Context:

In contemporary society, the complexities and diversities within municipal populations necessitate a modern approach to social welfare management. As demographic dynamics evolve, the need for a responsive and inclusive platform becomes increasingly evident. Traditional methods of delivering social services often face challenges in terms of accessibility, coordination, and responsiveness. The integration of technology in social welfare programs not only addresses these challenges but also opens avenues for innovation, efficiency, and data-driven decision-making.

The envisioned web-based platform aims to transcend the limitations of conventional systems by providing a centralized hub that caters to the unique needs of various demographic groups. Each office, dedicated to Child, Youth, Women, Distressed/Displaced Individuals/Families, Disabled, Older Persons, Disaster Victims, and 4Ps Beneficiaries, will have a dedicated section within the platform, ensuring specialized attention to the requirements of each group.

Objectives of the Study

1. To design and develop a user-friendly web-based platform for Municipal Social Welfare Development.
2. To integrate innovative features and functionalities catering to the unique requirements of Child, Youth, Women, Distressed/Displaced Individuals/Families, Disabled, Older Persons, Disaster Victims, and 4Ps Beneficiaries.
3. To enhance accessibility and efficiency in the delivery of social services through the platform.
4. To establish a secure and scalable architecture that ensures the confidentiality of sensitive user information.
5. To assess the impact of the developed platform on the effectiveness of social welfare programs.

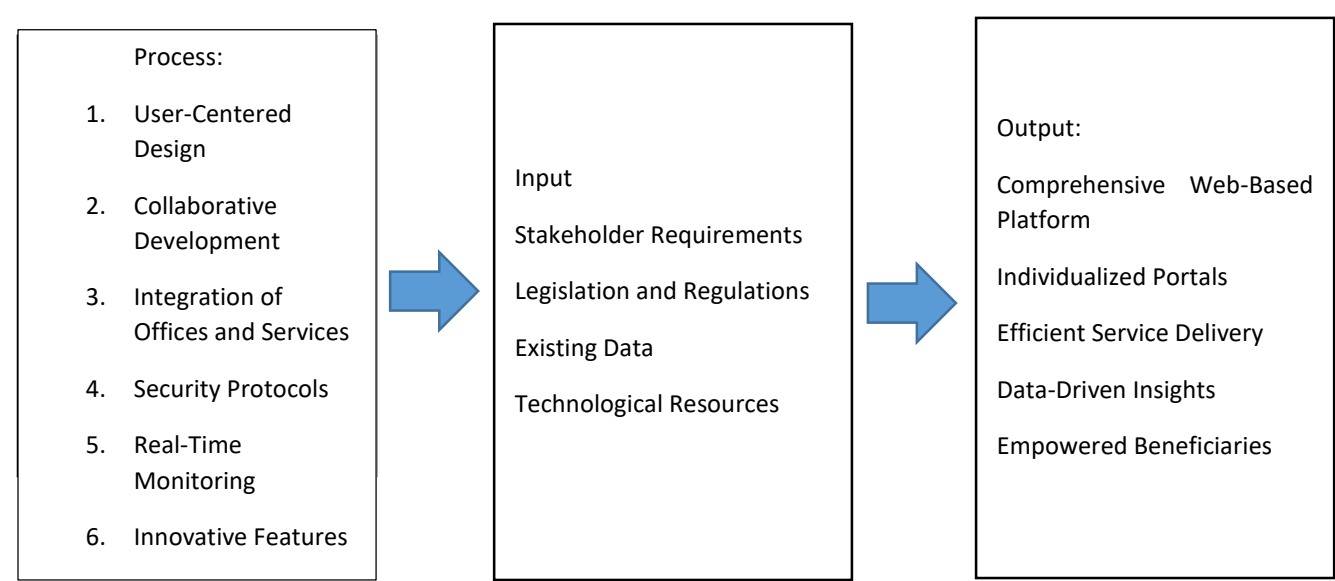
Significance of the Study:

This study is significant as it addresses the increasing demand for an integrated, technology-driven solution for managing and delivering social welfare services. The developed web-based platform will contribute to:

- Improved coordination and collaboration among different offices responsible for various social welfare programs.

- Enhanced accessibility for citizens to avail themselves of the services they need promptly.
- Efficient monitoring and evaluation of social welfare initiatives.
- Data-driven decision-making for optimizing resource allocation.

Conceptual Framework:



Definition of Terms:

- Web-Based Platform: A digital system accessible through web browsers for managing and delivering social welfare services.
- Innovative Features: Novel functionalities and tools that improve the efficiency and effectiveness of social welfare programs.
- Functionalities: Specific capabilities and operations that the web-based platform can perform.
- 4Ps Beneficiaries: Individuals and families benefiting from the Pantawid Pamilyang Pilipino Program, a conditional cash transfer program in the Philippines.

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter is a discussion of literature and the results of other related research to which the present study is related or similar. This gave the authors enough background in understanding the study.

Foreign Literature

(Eny Setyawati Student of Education Administration, Universitas Lampung, Bandar Lampung, n.d.) The development of internet technology and applications provides a good condition for establishing the scientific research management information system. Research on the influence of web-based management information systems for services development has been carried out in various organizations and in various countries. Web-based management information system is the right solution at this time. By using search and review methods, the review process began with a search engine, Google scholar and IEEE, to search for articles with keywords: "web-based management system information for services development". The conclusion of this literature review is that there is a positive and significant influence of web-based management information systems for services development and future research will help to help organizations evaluate the quality of their web-based services, design improvements and ultimately embed their websites into future services. This study includes many cases and the research findings apply only to the web-based management information system for services development. Web-based management information systems can be used to for various organizations and in various countries.

(Liu et al., 2021) The traditional university education and teaching management information system has the problems of low information recall, poor information precision, and long query time. Therefore, this paper designs a university education and teaching management information system based on Web. Through the analysis of the requirements of the higher education and teaching management information system, the design principle of the system is determined, and the structure design of the higher education and teaching management information system is realized; the teaching management information system management process is determined. By calculating the complexity of university education and teaching management information, the priority of query information is determined to effectively improve the processing effect of the system. Finally, the relational

database model is designed to realize the design of university education and teaching management information system. In order to verify the effectiveness of this method, comparative experiments are designed. Experimental results show that this method can effectively improve the low information recall and the poor information precision and shorten the query time.

(Alavi & Leider, n.d.) The knowledge-based theory of the firm suggests that knowledge is the organizational asset that enables sustainable competitive advantage in hypercompetitive environments. The emphasis on knowledge in today's organizations is based on the assumption that barriers to the transfer and replication of knowledge endow it with strategic importance. Many organizations are developing information systems designed specifically to facilitate the sharing and integration of knowledge. Such systems are referred to as Knowledge Management Systems (KMS). Because KMS are just beginning to appear in organizations, there exists little research and field data to guide the development and implementation of these systems or to guide expectations of the potential benefits of such systems. The current study provides an analysis of current practices and outcomes of KMS and the nature of KMS as they are evolving in fifty organizations. The findings suggest that interest in KMS across a variety of industries is very high, the technological foundations are varied and the major concerns revolve around achieving the correct amount and type of accurate knowledge and garnering support for contributing to the KMS. Implications for practice and suggestions for future research are drawn from the study findings.

(Watson et al.) This study compares and contrasts the findings of recent information systems (IS) management studies in ten nations or regions as well as one U.S. multinational study. It examines the key concerns of IS executives in these areas, focusing on identifying and explaining regional similarities and differences. Internationally, there are substantial differences in key issues. Possible reasons for these differences - cultural, economic development, political/legal environment, and technological status - are discussed. The analysis suggests that national culture and economic development can explain differences in key issues. The paper concludes with a revised framework for key issues studies that will more readily support comparison across time and nations.

(Raymond & Bergeron) Project management information systems (PMIS) usually acquired by organizations as software packages

are meant to provide managers with the decision-making support needed in planning, organizing, and controlling projects. However, the actual contribution of PMIS to project success or performance is still unknown. The purpose of this study is to empirically assess the quality of the PMIS presently used in organizations and to examine their impact on project managers and project performance, based on a PMIS success model. This model is composed of five constructs: the quality of the PMIS, the quality of the PMIS information output, the use of the PMIS, the individual impacts of the PMIS and the impacts of the PMIS on project success. Analysis of questionnaire data obtained from 39 project managers confirms the significant contribution of PMIS to successful project management. Improvements in effectiveness and efficiency in managerial tasks were observed here in terms of better project planning, scheduling, monitoring, and control. Improvements were also observed in terms of timelier decision-making. Advantages obtained from PMIS use are not limited to individual performance but also include project performance. These systems were found to have direct impacts on project success, as they contribute to improving budget control and meeting project deadlines as well as fulfilling technical specifications. © 2007 Elsevier Ltd and IPMA.

(Brien et al., n.d.) This new Seventh Edition is designed for business students who are or who will soon become business professionals in the fast changing business world of today. The goal of this text is to help business students learn how to use and manage information technologies to revitalize business processes, improve business decision making, and gain competitive advantage. Thus it places a major emphasis on up-to-date coverage of the essential role of Internet technologies in providing a platform for business, commerce, and collaboration processes among all business stakeholders in today's networked enterprises and global markets. The benchmark text for the syllabus organized by technology, this text approaches the material from a managerial perspective. O'Brien defines technology and then explains how companies use the technology to improve performance. Real world cases finalize and enhance the explanation.

(Burton & van den Broek) A key feature of new public management is the tendency to equate quality and accountability with documentation (Tsui and Cheung, 2004). Human service organizations increasingly rely on computer databases to compile and record client information and to demonstrate outcomes for quality assurance and

accountability purposes. This has resulted in substantial changes in work practices, processes and relationships for social workers. This paper draws on interview data from social workers in several Australian agencies to examine professional interactions with, and response to, changes in their work after the introduction of new technologies. It particularly focuses on the shift of accountabilities from professional values and identities to organizational and bureaucratic accountabilities. The paper recognizes that while social workers have always been subject to organizational accountabilities, due to the changes in social service delivery and limited practitioner input into the implementation of new technologies, tensions between professional and bureaucratic accountabilities have intensified.

(Sugawara & Nikaido)

Acinetobacter baumannii contains RND-family efflux systems AdeABC and AdeIJK, which pump out a wide range of antimicrobial compounds, as judged from the MIC changes occurring upon deletion of the responsible genes. However, these studies may miss changes because of the high backgrounds generated by the remaining pumps and by β -lactamases, and it is unclear how the activities of these pumps compare quantitatively with those of the well-studied AcrAB-TolC system of *Escherichia coli*. We expressed adeABC and adeIJK of *A. baumannii*, as well as *E. coli* acrAB, in an *E. coli* host from which acrAB was deleted. The *A. baumannii* pumps were functional in *E. coli*, and the MIC changes that were observed largely confirmed the substrate range already reported, with important differences. Thus, the AdeABC system pumped out all β -lactams, an activity that was often missed in deletion studies. When the expression level of the pump genes was adjusted to a similar level for a comparison with AcrAB-TolC, we found that both *A. baumannii* efflux systems pumped out a wide range of compounds, but AdeABC was less effective than AcrAB-TolC in the extrusion of lipophilic β -lactams, novobiocin, and ethidium bromide, although it was more effective at tetracycline efflux. AdeIJK was remarkably more effective than a similar level of AcrAB-TolC in the efflux of β -lactams, novobiocin, and ethidium bromide, although it was less so in the efflux of erythromycin. These results thus allow us to compare these efflux systems on a quantitative basis, if we can assume that the heterologous systems are fully functional in the *E. coli* host.

(Clemson, n.d.)

Conventional management information systems attempt to aid decision making by providing administrators with all of the potentially relevant data. The critique of this approach is theoretical (from information theory) and practical (from the characteristics of organizational decision makers). An alternative approach, based on general systems theory considerations, is presented. Barry Clemson is an Assistant Professor in the Department of Administration, Supervision, and Curriculum at the University of Maryland. © 1978, Sage Publications. All rights reserved.

(Sari & Alfina, 2021) The purpose of this research is to design and build a Village Service Information System in order to improve the quality of services for village officials and the use of services for village residents. At the application development stage using the Scrum software development method and the application used is Microsoft Visual Foxpro 9. The results of the research that can be concluded are; 1) The ability and skills of village officials in communicating are still low so that in providing services to the community it does not provide satisfaction for the community, 2) Based on the database and form creation process using Microsoft Visual Foxpro 9.0, 3) Based on the database creation, the name of the database is db_pelayan, and the name the tables are tbl_kk, tbl_ktp, tbl_surat, 4) Based on the form using 7 forms, namely: Population Data Input Form, Family Input Form, Letter Administration Data Input Form, Search Form, Report Form, Login Form.

(Wiratmoko, Eko and Lambelanova, 2021) The research method used in the preparation of this thesis is a qualitative research method with a descriptive approach. Data obtained through data techniques: observation, interviews and documentation. The results of this study indicate that the implementation of e-government in the village administration and information system in village Sayang, Jatinangor District, Sumedang Regency, West Java Province is still not good, this can be seen from the following aspects: Standards and targets of e-government policies on village administration and information systems in the village. Sayang refers to the 2016-2020 Sumedang Regency e-government master plan document and the Sayang Village Mid-term Development Plan Document for 2019-2024. Resources include human resources which in terms of quality are not appropriate because they are not implemented by information technology experts and from budget resources the allocation is very small. Communication between organizations is carried out by coordination between the village government of Sayang and

the Communication and Information Office of Encoding and Statistics of Sumedang Regency and Jatinangor District in the form of coaching, facilitation, monitoring and evaluation as well as socialization activities carried out to the community of Sayang Village that have not been implemented. In improving the implementation of e-government in the village administration and information system in village Sayang, it is better to increase the village budget for e-government budget allocation, increase human resources or competent staff, provide socialization to the community, through social media, and in the room. space using billboards and brochures, increasing the commitment of the implementors with each meeting conducting an evaluation of creating social media accounts such as Facebook, WhatsApp and Twitter so that they can introduce village websites.

(Technology, 2020)

E-Government is the government's program and commitment in the effort to develop electronic-based governance and transforms to facilitate the activities of society and business to the knowledge-based society. E-Government can be said to be a system that contains collections of modules that can be integrated with others. Considering the many module components in the e-government authors in this study limits only to population modules such as service and management of population data, KK data, data on population mutations such as population (moving, coming, born, dead) built using the Model View method Web-based and online controller. As well as how to simplify the management of the letter, in addition to facilitate the search population data and information about the development of villagers in each village in real time with terintegrasinya data to each village in addition to facilitate and accelerate the service request and manufacture reporting. So with the existence of this system the kecamatan easier to see the development of data of the population of each village and with this system the kecamatan and village easier to manage the data letter and can facilitate in sending mail to each village. With this research, it is expected Sub-district offices can provide improvement of information service and also data processing of its population.

(Ismagilova et al., 2019) Smart cities employ information and communication technologies to improve: the quality of life for its citizens, the local economy, transport, traffic management, environment, and interaction with government.

Due to the relevance of smart cities (also referred using other related terms such as Digital City, Information City, Intelligent City, Knowledge-based City, Ubiquitous City, Wired City) to various stakeholders and the benefits and challenges associated with its implementation, the concept of smart cities has attracted significant attention from researchers within multiple fields, including information systems. This study provides a valuable synthesis of the relevant literature by analysing and discussing the key findings from existing research on issues related to smart cities from an Information Systems perspective. The research analysed and discussed in this study focuses on number of aspects of smart cities: smart mobility, smart living, smart environment, smart citizens, smart government, and smart architecture as well as related technologies and concepts. The discussion also focusses on the alignment of smart cities with the UN sustainable development goals. This comprehensive review offers critical insight to the key underlying research themes within smart cities, highlighting the limitations of current developments and potential future directions.

(Abbas & Sağsan, 2019)

The current study examines the role of knowledge management (KM) in green innovation and corporate sustainable development (CSD) activities. The researcher collected data from lower, middle and upper-level managers of small, medium and large-sized manufacturing and services firms located in Pakistan. The data was analysed through structural equation modelling (SEM) to investigate how KM processes, namely knowledge creation, acquisition, sharing and application, impact on green technology and green management innovation and environment, social and economic aspects of sustainability. As per the results, KM significantly impacts on green innovation and CSD activities. Green innovation also indicated significant positive impact on CSD. The dimensional analysis indicated that with the exception of knowledge creation and acquisition, which indicated an insignificant impact on social sustainability, all the paths indicated significant results. Moreover, KM is found as equally important for all sizes manufacturing and services firms.

(Vusi Tsabedze Trywell Kalusopa, n.d.)

This article is based on a study whose aim was to develop a framework for the effective management of e-records as a facilitating tool in support of e-government. The IRMT (2004) E-records Readiness Tool was adapted and used as the analytical framework for this study. This tool is designed

to assist organizations to benchmark themselves and to determine where they stand with respect to the management of electronic records. The study mainly used the quantitative research approach, exploiting a survey that utilized a questionnaire as a data collection instrument. The quantitative approach was however complemented by the qualitative approach which utilized observation and interview techniques. Using both quantitative and qualitative approaches made it possible to triangulate and validate the findings. The unit of analysis was Eswatini government ministries, with a survey design involving all 18 the government ministries. The target study participants comprised the Directorate of Eswatini National Archives, the Directorate of Computer Services, the Directorate of E-government, Registry staff and the action officers. The results revealed that the level of e-records readiness in the government ministries is at an infant stage and that opportunities for increasing the depth of e-records readiness exist that require resolve. There was evidence of an irresponsive, weak, and disjointed legislative and policy framework on e-records; lack of contemporary records management skills; slow progress in the implementation of envisaged electronic document records management systems (EDRMS) and low capacity building among records management staff. Among other recommendations proffered is a useful e-record readiness framework that could enhance the management of e-records and spur the e-government drive Eswatini.

Local Literature

(Monreal & Palaoag, 2021)

An evacuee needs allocation framework wants to ease the predicting process on disaster preparedness in the province of Albay. The evacuee needs allocation framework will help the provincial government to identify and solve the problem of the current and manual process of the disaster management system in preparation down to the allocation of evacuee needs. An evacuation centre is a place that the Provincial Government provides basic human needs including food, water as well as accommodation during or before the disasters to the affected people. Detailed assessment was conducted by authorized personnel in the government organization to look at how to improve the chances of disaster victims with their

stay in an evacuation centre. In this paper, the study aims to develop a framework that predicts the evacuee needs preparedness as well as the allocation needs on before and during the calamity to help and enhance the current process in the province of Albay. The researcher includes information technology tools such as RFID and GPS to the framework to enhance the efficiency and accuracy in the implementation of the needs allocation during the calamity in the evacuation centres. The paper will lead the provincial government of Albay in predicting the evacuee needs to insure a sufficient and avoid the shortage and excess of goods from the preparation down to the allocation in the evacuation centres and to help the Provincial Disaster Risk Reduction Management Council in allocating and monitoring of budgets for transparency purposes.

(Mikaela et al., 2019) Barangays are the smallest yet the most essential units of the government. The government cascades its services through its officials. However, due to the increasing population, quality of service, especially in handling records and documents declines. After a thorough site investigation and series of surveys an integrated "Document Management System" is proposed to alleviate these problems and Barangay Paligui in Apalit, Pampanga was chosen to be the model. Using Kanban Agile Methodology and extensive reviews of literature, the DMS, an open-source system was conceptualized whose primary aim is to provide a centralized document management system that can be accessed by any barangay officials using their office desktop computers and mobile phones. It utilizes OwnCloud as the infrastructure for securing, storing, and sharing the files and a customized interface for users is written in HTML, CSS, JavaScript, and PHP. The users evaluated the system and found it to be useful and accepted for use.

(Bondoc, 2019) The purpose of this paper is to develop a Web-based Barangay Information System named "e-Barangay" for barangay Mangga, San Isidro, Nueva Ecija. The researcher employed the developmental method of research in the design and development a Web-based Barangay Information System. The e-Barangay was developed using System Development Life Cycle (SDLC) methodology and assessed by IT experts, and local officials of barangay Mangga. The level of acceptance of the developed system was evaluated based on international standard for the evaluation of software also known as the ISO 9126. The system adhere to the standard set by ISO 9126 and garnered a mean rating of 4.24 from IT expertss which translates as "excellent". Also, a mean rating of 4.23 which

translates to "excellent" was gathered from the responses of the local officials from barangay Communal. The e-Barangay was deemed acceptable since respondents were pleased with the system's features and felt that it was functional and easy to use. The system would be beneficial to barangay Mangga in streamlining their administrative processes and managing document request. Also, by implementing the e-Barangay system, it can serve as a database for local statistics of the barangay.

(Olipas et al., n.d.) This study aimed to design and develop a web-based Barangay Information and Record Management System. It integrated Short Message Service (SMS) to provide a more accessible means to distribute barangay announcements. The project utilized a developmental method of research. The proponents have designed and developed the system based on user requirements and specifications, observation and interview results among the key barangay officials, and analysis of the manual processes available documents. The designed and developed web-based system has been developed using different software development analysis and design tools and models such as Gantt chart, Use-case Models, Entity-relationship models, and Data flow diagrams. The proponents were able to design and develop the system, and it was found out that the developed system could provide better means of delivering services at the barangay level.

(Bautista, n.d.) Politically speaking, the Philippines is composed of local government units (LGUs) classified as province, city, municipality and barangay where each is allowed to manage its own resources. The smallest administrative unit of the country, the barangay, serves as the foundation from which the country's success emanates. The more than forty two thousand barangays all over the country are the primary implementers of the different vision, projects and undertakings of the government for the community. Thus, empowerment of individual barangay may eventually lead to a stronger, more resilient and more prosperous society. The advent of modern technology opens wider opportunities for barangays to serve its constituents better through computerization of the documents it provides such as barangay clearance, certificate of indulgency, letter of recommendation, annual report and others. Motivated by the vision of empowering this self-governing political system digitally, the researcher aimed to determine the advantages of ICT and develop an office management system that will hasten the transactions performed and documents provided by

the barangays. The developed system was designed to be accessed only by the authorized users to ensure the integrity of all transactions. The study determined the significant features, and the most appropriate method of system development used in the development of an effective and reliable barangay management system. The output of the study was evaluated based on the ISO 926 Software Quality Assurance Model by employees of selected barangays and was assessed with high level of acceptability

(Susmerano & Yamada, 2022) Using multiple case studies design, the paper examined how selected local governments in the Philippines implement the policy on auxiliary social services for persons with disability (PWDs) and analyzed how the implementation is influenced by factors such as local policy guidelines, financial resources, and local institutional actors. It was found that local policies play a key role in providing knowledge and guidance to local governments on social services that need to be delivered and could serve as basis for budget allocation. Financial resources can also influence the operation of the unit/office responsible to deliver the services, the types of services that the local government is able to deliver, the number of PWDs that can be provided with services, and the capacity building activities for local government workers. Likewise, local institutional actors can affect the functionality of responsible offices as well as the extent and coverage of services provided to PWDs.

(Melad et al., n.d.) This study assesses the payment system of the Pantawid Pamilyang Pilipino Program (4Ps or Pantawid Pamilya) in terms of the amount, frequency, and mode of payment delivery of the cash transfers. The study is an early attempt of the Institute to examine the Pantawid Pamilya implementation and recommend improvements in its payment system in light of the enactment of RA 11310 which institutionalized the program and identified PIDS to conduct regular assessments on the program's implementation and impact. The underlying framework for the study is based on the idea that the amount of cash grants and its delivery

system should be able to encourage desired behaviors among beneficiaries and help achieve the program's target outcomes. The study answers the research objectives using a combination of qualitative and quantitative methods of analysis that include a review of the available literature on payment systems of international CCTs; re-assessment of the cash grant values in relation to original intended levels and devaluation due to inflation; assessment of the implementation of the payment system including challenges, facilitating factors, and alternative ideas; and an assessment of the impact of the design features of the payment system on select outcome variables. The study uses administrative data of the Department of Social Welfare and Development (DSWD), survey data from the program's 3rd impact evaluation, interviews of key program implementers in the payment system, focus group discussions with beneficiaries, and an online survey focused on the payment delivery aspect of the Social Amelioration Program (SAP) among Pantawid Pamilya beneficiaries. The results show that the program needs to be more responsive in adjusting the benefit level of the cash grants vis-à-vis inflation and threats to welfare of the beneficiaries. With regard to payment frequency, there is no strong demand by the beneficiaries for more frequent payouts. Changes in frequency of payment should also be carefully examined to know if benefits outweigh additional costs in the operations. Although the payment delivery system has improved through the years primarily due to the conversion of mode of payment to cash cards, some opportunities to improve the payment delivery of the program are still present. Finally, the experience with the SAP distribution demonstrated the ease and speed of distributing assistance in times of emergencies when recipients (e.g., 4Ps beneficiaries) are identified and a payment system in place.

(Abenir et al., 2021) The Philippines has a great amount of its people living under the poverty line which is 16% of the population. Most of the people try to find a living using agricultural means but due to some inequality and corruption in the country, most Filipinos have a hard time buying necessities for their daily lives. With this, the Pantawid Pamilyang Pilipino Program was initiated by the DSWD to help alleviate the numbers of Filipinos living under the poverty line by complying with the necessary requirements. However, some Filipinos benefit from the program without complying the requirements at all. The researchers then suggested to

create a website to help track the status of each beneficiary and see if they are complying with the requirements set by the DSWD to obtain the conditional cash grants. For the monitoring, the system will identify the beneficiaries whether they are progressing through the program and receiving the cash grants. The aim of the website is to enhance the 4Ps program in reducing the number of ghost beneficiaries and to enable the DSWD to efficiently monitor their beneficiaries.

(Merced1 & Pagtaconan2, n.d.) Developments and changes in the government setting are necessary and integral components of the framework in order to provide an improved, favorable and sustainable living and working environment. As they become systematically more complex through interconnected frameworks and increasingly rely on the use of information and communication technology to meet the needs of their citizens, the smart city concept has been developed as a strategy to work with different cities. This strategic plan includes a high-level structure, focused on local government and stakeholder engagement, to direct and organize smart city programs. Information System Strategic Plan (ISSP) is an essential practice that helps organizations define strategic applications and match the approach of an organization with successful information systems in order to achieve the goals of the organization. This research study developed an Information Systems Strategic Plan (ISSP) for the municipality of Nueva Era, Ilocos Norte. The ISSP is an initiative that focuses on people first, recognizing its civic leadership and making the municipality of Nueva Era an excellent place to live and work and making sure that the business operations of the municipality government are supported by Information Technology. The components that are used in the Information System Strategic Plan were based on the ISSP template given by the Information and Communication Technology Department (DICT). The ISSP covered the municipality's 3-year plan. Finally, the adoption and implementation of ISSP can transform the municipality into a more developed and civilized town through maximizing the utility of technological resources to improve its quality of services for both residing and working citizens of Nueva Era, Ilocos Norte.

(Samonte et al., n.d.) This study aims to develop an interactive visualization tool for the Philippines'

Department of Social Welfare and Development's National Household Target System for Poor Poverty Reduction (NHTS-PR) or Household List - in use for E-Government Data Analysis. Household List is an information management system that identifies who and where the poor are. The study is about an interactive web-based visualization tool in which the user will use filters to visualize, compare and generate reports. The study is concerned with e-government - this tool can be utilized by government agencies to identify household list through a multimedia data visualization and web application of presentations and reports of the poor households in the Philippines. The study has then successfully utilized Household List's data and has assisted social protection programs and other government agencies in their decision-making during planning phase including determining qualified beneficiaries of their programs in relation to poverty.

(Herman et al., n.d.) Community-based primary care information systems are one of the building blocks for national health information systems. In the Philippines, after the devolution of health care to local governments, we observed "health information system islands" connected to national vertical programs being implemented in devolved health units. These structures lead to a huge amount of "information work" in the transformation of health information at the community level. This paper describes work done to develop and implement the open-source Community Based Health Information Tracking System (CHITS) Project, which was implemented to address this information management problem and its outcomes. Several lessons learned from the field as well as software development strategies are highlighted in building community level information systems that link to national level health information systems.

(Marte & Schwefel) Strengthening the information support for decision making has been identified as an important first step toward improving the efficiency, effectiveness, and equitability of the health care system in the Philippines. A Philippine-German Cooperation is in partnership toward developing a need-responsive and cost-effective Health and Management Information System (HAMIS). Four information baskets are being strengthened specifically to address these needs in a cost-effective way: public health information systems, hospital information systems, information systems on economics and financing, information systems on good health care management. BLACKBOX is the management information system for public health programs, vital statistics, mortality and notifiable diseases of the

Philippines. It handles and retrieves all data that is being collected by public health workers routinely all over the Philippines. The eventual aim of BLACKBOX is to encourage the development of an information culture in which health managers actively utilise information for rational planning and decision making for a knowledge based health care delivery.

(Gillingham, 2019) The problems with current forms of electronic information systems (IS) being used by social welfare agencies have been documented by researchers internationally and attention is turning to how they might be better designed and used. In this article, drawing from ethnographic research about IS implementation and evaluation with a number of social welfare agencies, two different approaches—one simple and one complex—to designing and using IS in social welfare agencies are presented. The advantages and disadvantages of each approach, as emerged from discussions with research participants, are explored. The aim of the article is to assist both decision makers and practitioners in social welfare agencies to clarify their needs in relation to how future IS are designed and used.

(Claire Ong Carpio, n.d.) Barangay is where the initial planning and implementation of projects and undertakings in the community take place but ironically it has the least amount of available information that serves as baseline for planning and policy implementation. The Barangay Management System or e - barangay is a web - based management system which shall reinvent barangay management from a traditional and centrally dependent unit towards a more inclusive and citizens-oriented scheme. It essentially aims to streamline existing administrative processes in terms of requesting documents, filing complaints and generating apt and accurate local statistics. The researcher has adopted the prototype methodology in the development of the system. It focuses on creating and testing system features, graphical user interface and scheduling iterations. This iteration lays down the foundation for development which includes functionality and usability testing to ensure the effectiveness, efficiency and reliability of the developed system. The researcher has likewise utilized the available data from the target local government unit to conceptualize the entirety of the system. And lastly, the researcher recommends for the integration of fiscal processes into the system as well as the

transliteration of system contents to local dialects for extensive user conception.

(In et al., 2016) Barangays are the smallest yet the most essential units of the government. The government cascades its services through its officials. However, due to the increasing population, quality of service, especially in handling records and documents declines. After a thorough site investigation and series of surveys an integrated "Document Management System" is proposed to alleviate these problems and Barangay Paligui in Apalit, Pampanga was chosen to be the model. Using Kanban Agile Methodology and extensive reviews of literature, the DMS, an open source system was conceptualized whose primary aim is to provide a centralized document management system that can be accessed by any barangay officials using their office desktop computers and mobile phones. It utilizes OwnCloud as the infrastructure for securing, storing, and sharing the files and a customized interface for users is written in HTML, CSS, JavaScript and PHP. The users evaluated the system and found to be useful and accepted for use.

Synthesis:

The foreign and local literature reveals a multifaceted landscape of information systems, management practices, and technological applications. Internationally, studies delve into diverse domains, encompassing the role of web-based management information systems, project management, knowledge management, and the impact of cultural and economic factors on information systems.

The global perspective underscores the significance of Information Systems Strategic Plans (ISSP) for municipalities, showcasing how they can enhance civic leadership and transform communities into technologically empowered entities. Noteworthy is the emphasis on a people-centric approach, recognizing the pivotal role of technology in improving the quality of services for citizens.

On a local scale, the studies are grounded in the Philippine context, addressing specific challenges and opportunities. The literature spans a spectrum, ranging from disaster preparedness frameworks that incorporate RFID and GPS technologies to optimize evacuee needs allocation, to the development of efficient Barangay Information

Systems that streamline administrative processes and document management.

The Philippines' focus on e-Government initiatives is evident, as seen in the proposals for systems like "e-Barangay" and a web-based Barangay Information and Record Management System. These projects aim to empower barangays, the smallest administrative units, through computerization and digital management, ultimately contributing to a more resilient and prosperous society.

Moreover, research sheds light on the implementation of policies related to social services, particularly for persons with disabilities (PWDs), emphasizing the role of local policies, financial resources, and institutional actors. The synthesis underscores the interconnectedness of factors influencing the successful execution of social service policies.

The Pantawid Pamilyang Pilipino Program (4Ps) also takes center stage, with studies addressing issues of program compliance, tracking beneficiaries, and assessing the payment system's effectiveness. The integration of technology, such as a tracking website, is proposed to ensure transparency and reduce the number of ghost beneficiaries.

Finally, the synthesis includes studies on smart city concepts, open-source community-based health information systems, and innovative approaches to document management, providing a holistic view of how technology can be harnessed to address varied challenges across different sectors.

In essence, the synthesis underscores the global relevance of information systems and management practices while emphasizing the Philippine context's unique challenges and innovative solutions. The studies collectively advocate for technology-driven strategies to enhance governance, service delivery, and societal well-being.

Chapter III

Methodology

This chapter presents the methods and strategies used in this study in order to develop an approach that matches its objectives. It was obtained using different, processes, specifications, analysis, data gathering instrument, and evaluation that guide the researchers to manage and control research.

Development Method

Development Method

The "DEVELOPMENT OF Official Web-Based Platform for Municipal Social Welfare with offices Child, Youth, Women, Distressed/Displaced Individuals/Families, Disabled, Older Persons, Disaster Victims, and 4Ps Beneficiaries with Innovative Features and Functionalities" will employ the System Development Life Cycle (SDLC) to ensure the production of an efficient and high-quality system. This project will use an Iterative and Incremental Model, which allows for improvements to be made throughout the development process. The SDLC is divided into four phases: collecting requirements, design and development, testing, and implementation. These steps will be followed in order to create a successful system.

The research followed the following phase.

1. Planning. In this phase, researchers conduct interviews and observations according to the problem that needed to
2. be resolved. Researchers developed the objectives and plans of the project that serves as the foundation to

produce the desired output of the system at the end of the study.

3. Requirements Gathering. In this phase, researchers will gather more information and data requirements needed for the development of the system. Also, determine the functional and non-functional requirements of the project.

4. Design. During this phase, researchers will begin to design the hardware and software of the system according to the requirements of the users. The developer will thoroughly plan and implement trial and error to be able to meet the

desired output of the user interface.

5. Development. During this phase, researchers will start the coding process for the functionality of the system through Visual Studio Text Editor Application and PhpMyAdmin as administrator tool for the database, wherein database will serve as data storage of the system and CodeIgniter 4 as the framework of the proposed system.

6. Testing. In this phase, researchers will execute the pre-deployment of the system for trial and error just to see if the device is properly functioning.

7. Implementation. In this phase, researchers will create the iteration of the project after the testing process in order to analyze and improve the design and functionality which needs more improvements to meet the project objectives.

8. Maintenance. In this phase, researchers must maintain the functionality of the system during deployment to maintain its performance. Also, researchers will determine and fix the errors that may occur over a period of time.

Gantt Chart

In this section, Gantt Chart is presented to show the plans and schedules of the project timeline. All the development stages up to the completion of the project were documented in this chart. This helps the researchers to know the deadlines needed to accomplish and show breakthroughs in various tasks.

Table 11. Gantt Chart

General	Task Date																			
	Oct				Nov				Dec				Jan				Feb			
	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week
1.Planning																				
1.1 Conduct an interview																				
1.2 Define project objectives																				
1.3 Define project plan																				
1.4 Approval of project plan																				
2.Requirements Gathering																				
2.1 Data Collection																				
2.2 Functional																				
2.3 Non-Functional																				
3.Design																				
3.1 Frontend software design																				
4.Development																				
4.1 Back-end coding																				
5.Testing																				
5.1 Functionality testing																				
5.2 User interface testing																				
6.Implementation																				
7.Maintenance																				
7.1 Project monitoring																				
7.2 Resolve system errors																				


Legend:  - Completed/ Done

Table 11 shows the whole process of developing QualiTEApp. It displayed the various tasks and marks as completed on certain date. Researchers will be kept informed of the progress of the development which will help them not to miss out on steps and differentiate tasks from the

Requirements Specifications

The user must meet the required functions of the system in order to fully use the system. This includes the functional requirements, user interface, software interface, hardware interface, and security interface. Users must familiarize themselves with the processes and procedures of the system.

Functional Requirements

Functional requirements define how the system works and how it should be worked to function properly to avoid unnecessary events happening. This part will discuss the presentation of the system, this can be reviewing the process and how the data are operated to produce or create a functional output. It is important to discuss the functional specification of the proposed system for the benefit of the future researchers.

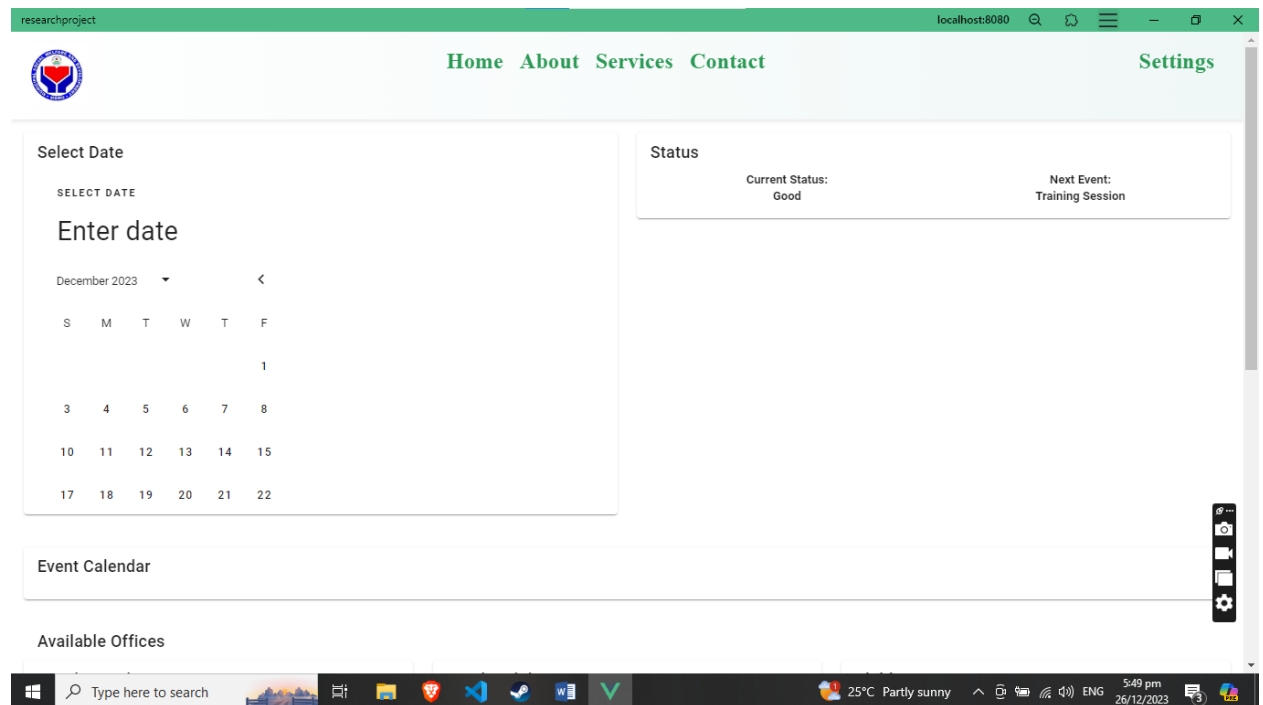
Feature	Description
Reporting	-Generate comprehensive daily reports that encapsulate key metrics and activities relevant to the organization. These reports should be customizable to cater to the specific needs of different stakeholders, allowing for the inclusion of pertinent data and insights. Additionally, the system should provide export options, such as PDF or Excel, facilitating easy sharing and archiving of reports. Real-time data updates are crucial for ensuring the accuracy and timeliness of information in dynamic reporting scenarios.
User Management	- The user management component encompasses fundamental features like user registration, login functionality, and robust authentication mechanisms to secure user accounts. A critical aspect is the implementation of role-based access control (RBAC), enabling administrators to define and manage different levels of permissions for various users. User profile management functionalities, including the ability to update, deactivate, or delete accounts, should be seamlessly integrated. An audit trail feature is essential for tracking

	and monitoring user activities, ensuring transparency and security.
Event Manager	- Facilitate efficient creation and management of events within the system. Events should be defined by essential details such as date, time, location, and participants. A notification system ensures that participants are kept informed of event updates and receive timely reminders. The system should support RSVP functionality to streamline participant responses. Integration with calendars is paramount, providing automatic scheduling and ensuring that events are seamlessly incorporated into the broader organizational schedule.
Calendar Tracking	- Calendar tracking involves the provision of a shared calendar offering team-wide visibility into upcoming events and deadlines. Events on the calendar should be color-coded for easy identification and differentiation. Integration with external calendars, such as Google Calendar or Outlook, enhances interoperability. Synchronization across devices ensures that team members have access to real-time updates and can stay organized regardless of their location or preferred device.
Office-by-Office Process	- The office-by-office process feature allows for the definition and documentation of office-specific processes and workflows within the system. This includes the ability to assign and track tasks related to these processes. Collaborative tools for communication within office teams are integrated to enhance coordination and efficiency. Furthermore, the system should support seamless integration with other modules, such as events and reports, enabling a cohesive workflow that aligns with the unique needs of each office or department.

User Interface

The user interface is also a significant part of the project because it facilitates interaction between the user

and the program. The user interface for the created system is depicted in the tables below. Each discusses the description given and assisted the reader in visualizing the project as a whole.



Hardware Interface

The hardware used in this project follows the required specifications in developing this system. The hardware interface included in this method defines the logical and physical characteristic of each interface between the software product and the hardware component of the system. The proponents used an Intel(R) Core(TM) i5 and 12.0GB Random Access Memory and a hardware of 512 GB storage that would be sufficient for the storage of the OS, databases, files, and other important things to be used.

Software Interface

The software interface is the one of the most important interfaces because it describes the difference between the system and other software components (name and version) including database, operating system, tools, libraries, and integrated commercial components. The proponents used

different applications such as Php, MySQL server for database management for the web application we Vue.js, Vue 3.0.0, Vue-router 4.0.0, Laragon 5.2, Brave, GitHub, Codeigniter4, Axios 1.2.1, Visual Studio Code and WebSpy.

Security Requirements

Before determining if the program is secured, the researchers first determined exactly what a security requirement is all about. The researchers ensured that the system is accessed only by authorized persons. Through username and password, the admin and users can have access to the system.

Technical Background

The technical background gives important information regarding technical aspects of the project which makes it easier to define what is required in easy-to-understand words for developers. The next sections go over hardware and software specifications.

Hardware Specifications

Hardware Specifications refers to the technical descriptions of the hardware items, its components, and capabilities. Table 3 below presents the different hardware components to be used for the completeness of this project.

Hardware	Functions	Specification		Unit
		Minimum	Recommended	
Computer /Processor	Computers and Servers, it is Use for hosting the software applications. Adequate processing power, memory, and storage capacity.	Intel (R)core (TM) i3-7020U CPU	I3 and above of versions	1
RAM	It serves as a type of volatile computer memory that is used to store and provide quick access to data that is actively being used and processed by a computer's CPU (Central Processing Unit).	2gb	4gb	2

Software Requirements

Software Specification refer to the representation of the software used by the system. Table 2 below presents the software specifications to be used by the project.

Software Used	Minimum Specification	Recommended Specification	
Operating System	Windows 7 or macOS 10.12	Windows 10 or latest	
Visual Studio Code	Visual Studio Code 1.50.0	Latest stable version of Visual Studio Code	

CodeIgniter	CodeIgniter 3.1.11	CodeIgniter 4.4.3	
Axios	Axios 1.2.1	Axios 1.6.2	
Vue	Vue 2.0.0	Vue 3.0.0	
Vue-router	Vue-router 3.0.0	Vue-router 4.0.0	
PhpMyadmin	PhpMyAdmin 4.9.0	PhpMyAdmin 5.2.1	
Laragon	Laragon 4.0.16	Laragon 5.2	
Brave	Brave Browser 1.15.72	Brave Browser v1.61.100	
GitHub	Access to GitHub through a web browser	Git client installed (e.g., Git Bash) for advanced version control features	
WebSpy	WebSpy 2.0.0	WebSpy 3.0	

System Analysis and Design

System analysis and design are concerned with the planning and development of information systems by understanding and specifying in detail what a system should perform as well as how the system's components should be implemented and work together

System Overview

The "Official Web-Based Platform for Municipal Social Welfare" is a cutting-edge system designed to revolutionize the delivery of social welfare services across diverse offices, including Child, Youth, Women, Distressed/Displaced Individuals/Families, Disabled, Older Persons, Disaster Victims, and 4Ps Beneficiaries. Serving as a centralized hub, this platform integrates innovative features and functionalities to streamline critical functions and enhance the overall efficiency of social welfare management.

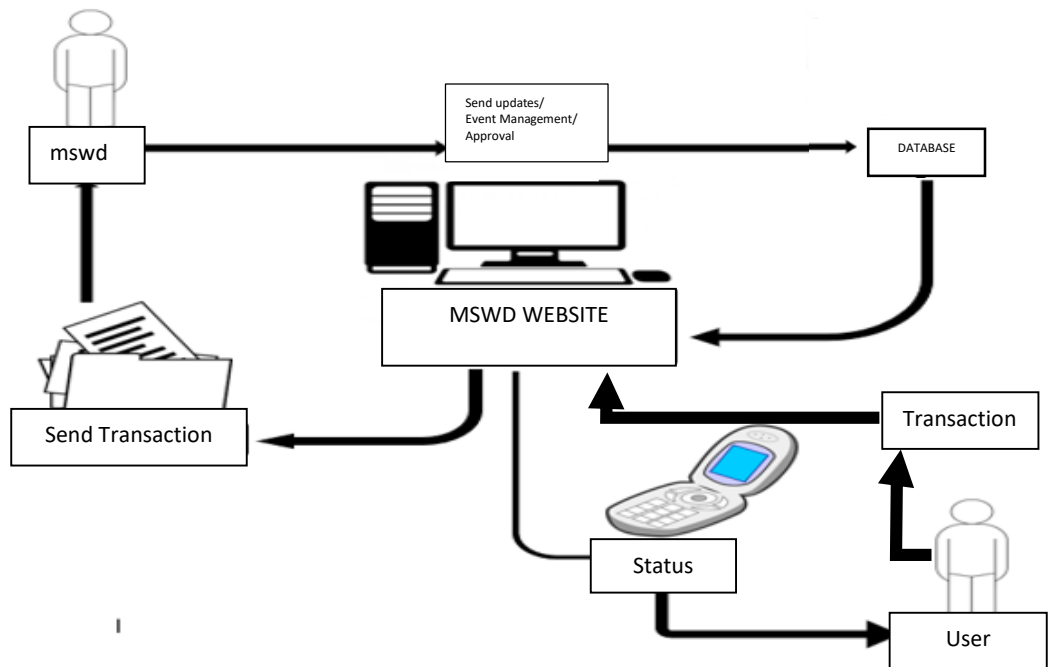
Within the Child Office, the platform facilitates child-specific case management, educational and healthcare program coordination, and collaborative tools for focused initiatives. The Youth Office benefits from dedicated modules supporting youth development programs, skill-building, and vocational training tracking, fostering youth engagement and participation. The Women's Office is equipped with tools for managing women-centric support services, empowerment programs, and reporting on gender-based initiatives.

The platform extends its reach to offices dealing with Distressed/Displaced Individuals/Families, Disabled, Older Persons, Disaster Victims, and 4Ps Beneficiaries, providing tailored solutions for each. These include emergency response coordination, disability-specific assistance tracking, elderly care programs, disaster recovery and rehabilitation tracking, and compliance management for 4Ps beneficiaries.

In addition to these specific office functionalities, the platform offers innovative features such as real-time and customizable reporting tools, role-based access control for secure user management, a coordinated event manager for workshops and training sessions, a shared calendar with color-coded events, and office-specific workflows to ensure seamless coordination and communication. This comprehensive system empowers municipal social welfare offices to deliver impactful services and support, fostering a more connected and responsive approach to meeting the diverse needs of the community.

System Architecture

A system architecture shows the representation and structure of the system.



The system architecture involves a user interface layer allowing registration, login, profile management, event tracking, transactions, and logout. Within this layer, modules facilitate user interactions. The backend includes services for user registration/authentication, profile management, event tracking, transactions, admin approval/rejection, and event broadcasting. Databases store user profiles, events, transactions, and admin actions. Integration ensures seamless communication between the user interface and backend, incorporating external services.

Use Case Diagram

A representation of a user interaction with the system and depicting the specifications of a use case. A use case diagram can portray the different types of users of a system and the various ways that they interact with the system.

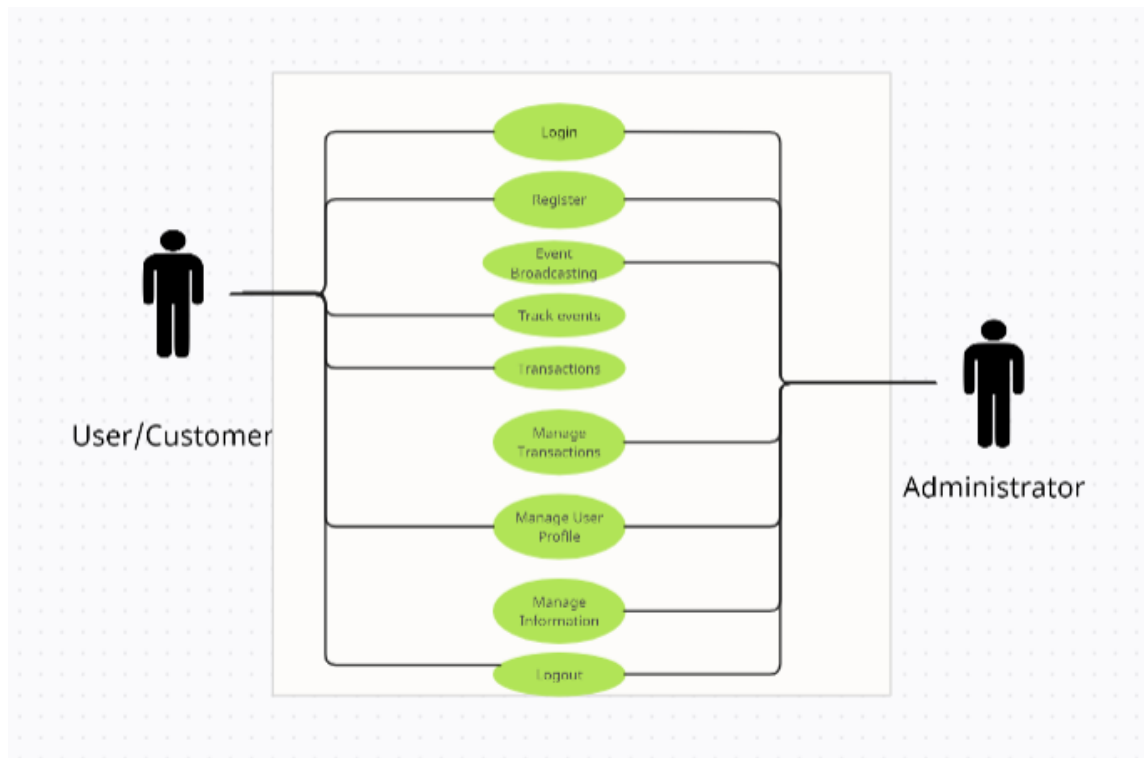


Figure 5. Use Case Diagram

The Figure 5 shows The use case diagram illustrates the interactions and functionalities of a user registration and management system. The "Register User" use case involves users initiating the registration process to create accounts, while the "Login" use case enables authenticated users to access the user interface. Within the interface, users can "Manage Information," allowing them to update and handle personal details. The "Track Events" use case facilitates the viewing and tracking of upcoming events, providing notifications. Users can also initiate transactions such as payments or event registrations through the "Make Transactions" use case. The system incorporates an "Admin Approval/Rejection" use case where administrators review and approve or reject user transactions, ensuring secure interactions. The "Event Broadcasting by Admin" use case allows administrators to broadcast events to all users, enhancing communication. Finally, the "Logout" use case signifies users terminating their sessions for data security. The diagram encapsulates the dynamic interactions and features of the user-centric

system, offering a comprehensive overview of user activities and system functionalities.

Activity Diagram

This part of the document presents the flow of the project using an object-oriented flowchart. Its purpose is to capture the dynamic behavior of the system. It focuses on the execution and flow of the behavior of a system instead of implementation.

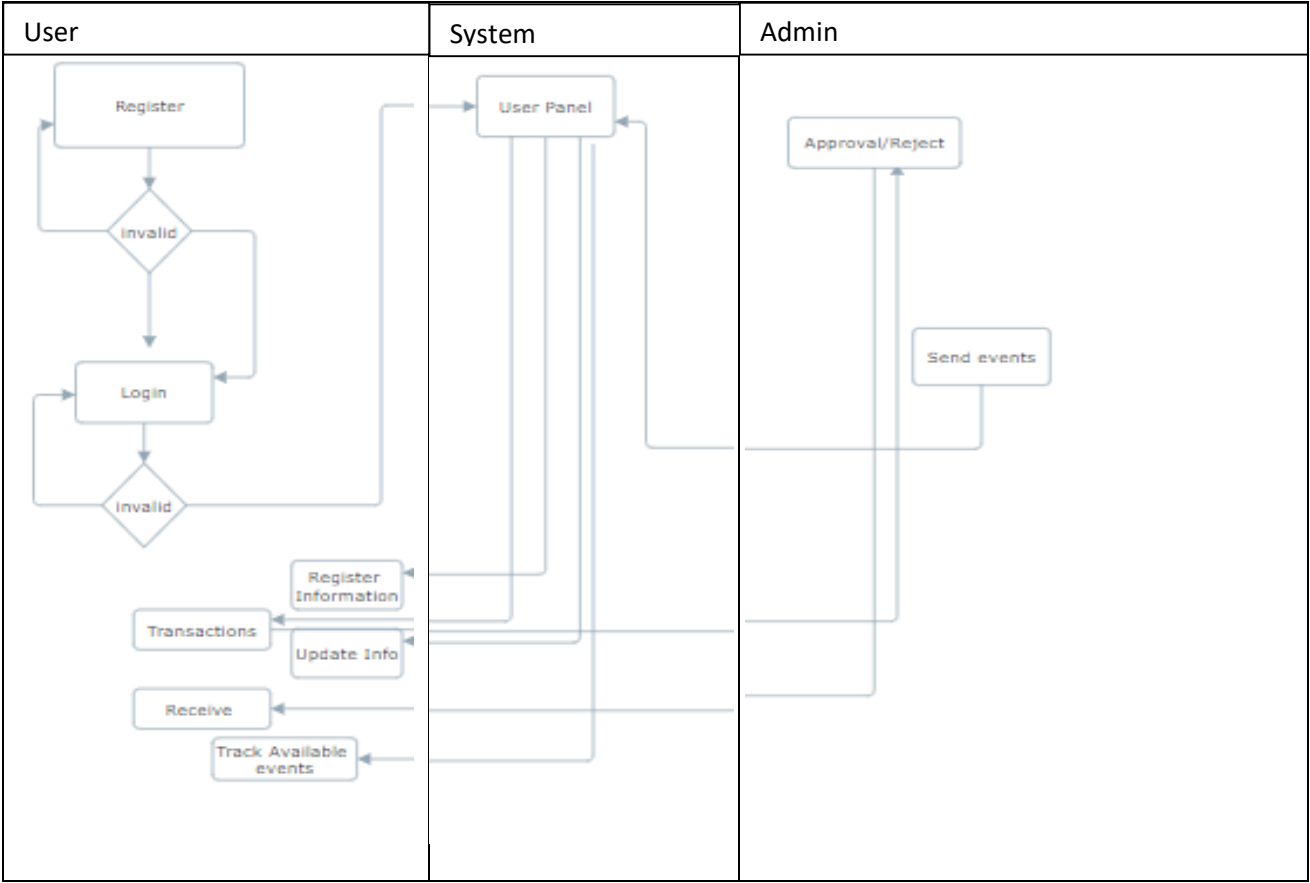


Figure 6. Activity Diagram

The activity diagram for the Official Web-Based Platform for Municipal Social Welfare with offices Child, Youth, Women, Distressed/Displaced Individuals/Families, Disabled, Older Persons, Disaster Victims, and 4Ps Beneficiaries with Innovative Features and Functionalities outlines a user-centric system encompassing registration, login, and user interface navigation. Upon registration, users authenticate themselves through the login process and access a centralized user interface for managing personal information, tracking events, and conducting transactions. Within this interface, users can seamlessly update their information, track events, and initiate transactions. The system incorporates an administrative layer that reviews and approves or rejects user transactions, ensuring a secure and controlled environment. Additionally, administrators can broadcast events to users, enhancing communication. The diagram concludes with a user logout, solidifying the system's emphasis on user-friendliness, efficient information management, and transparent transaction processes.

Data Flow Diagram (DFD)

The data flow diagram is like a map that shows the flow of information for any processes of the system. From here, the context diagram and diagram 0 are discussed.

Context Diagram

This presents the basic overview of the whole system or process being analyzed.

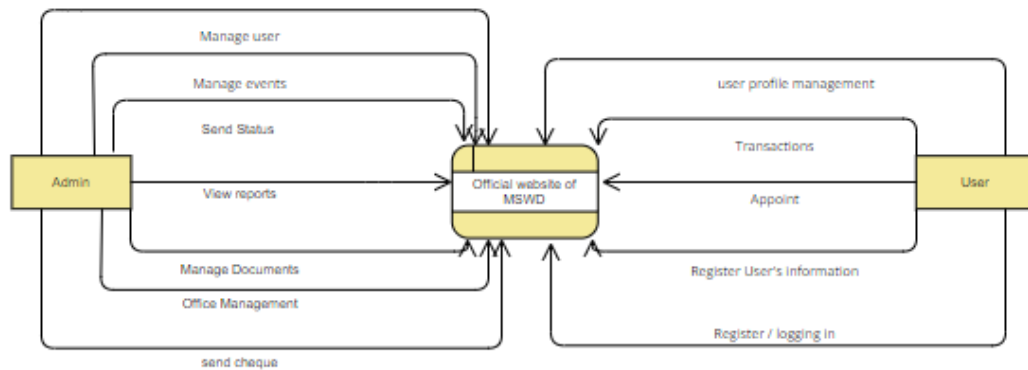


Figure 7. Context Diagram

Figure 7 shows the development on how the proposed system will work and function in respective areas that they are designed to work on.

Diagram 0

The Diagram 0 of Resort Management and Guest Experience Enhancement System shows the flow of information to visualize the processes of the project.

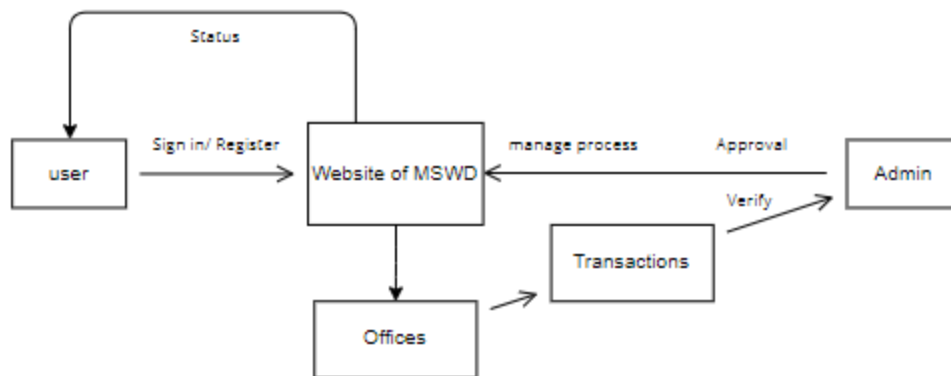
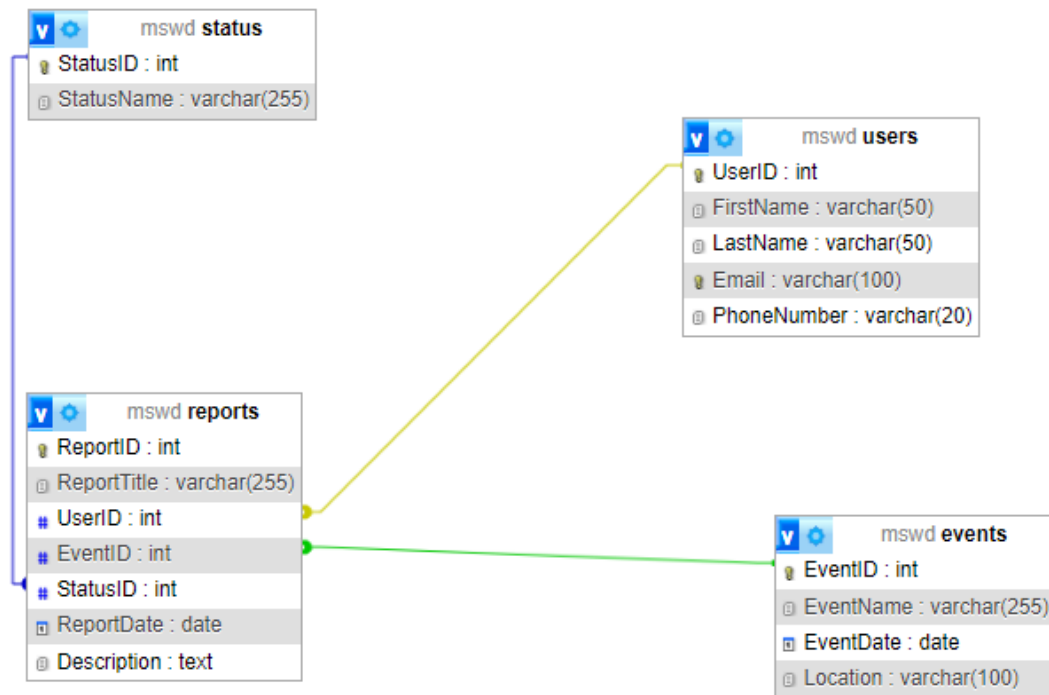


Figure 8. Diagram 0

This figure is diagram 0 of the system and it shows the whole data system of the project and emphasizes the way it interacts with the external entities.

Figure 9. Database schema

The diagram illustrates the overall structure and interrelationships of various tables within the database. It depicts how the tables are interconnected using primary keys and foreign keys, which creates a relationship between them. The primary key serves as a unique identifier for each record in the table, while the foreign key creates a link between tables by referencing the primary key of another table. The diagram provides a visual representation of the database schema and the relationships between tables, which allows for efficient data manipulation and maintenance while ensuring data consistency and accuracy.



Testing and Evaluation

This is the type of task that must be completed for all components of the system to be thoroughly tested and the system to be effectively implemented. The system has undergone various revisions in order to maximize the number of services that it can provide. We also make certain that the system is usable.

Implementation Plan

If the proposed system is adopted by certain people, the researchers have devised an implementation strategy. If this is the case, the system as well as its documentation will be turned over. It will be used as a guide for the client who will oversee system updates and maintenance. There should be a letter of agreement stating that the system is freely given to the user and that the researchers will not be responsible for the project's updating and maintenance. If the initiative is approved, the researchers are planning to conduct several strategies.

Table 7. Implementation Plan

Activities	Date	Progress Notes
Meeting with the client	November 28, 2023	Agreed in the project proposal
Deployment Approval	December 20, 2023	Approved
System development and monitoring period	December - 2023	Few errors in major feature

References

1. Abbas, J., & Sağsan, M. (2019). Impact of knowledge management practices on green innovation and corporate sustainable development: A structural analysis. *Journal of Cleaner Production*, 229, 611-620.
<https://doi.org/10.1016/j.jclepro.2019.05.024>
2. Abenir, C. J., Canlas, J. V. R., Ladao, A. A. A., Ajero, J. A. U., Castillo, J. M., Tamayo, M. B., Rodrigues, R. L., Marfa, A. D., Urbano, R. H., & Serrano, E. A. (2021). Pantawid Pamilyang Pilipino Program 4Ps: A Profiling System. *2021 1st International Conference in Information and Computing Research (ICORE)*, 102-106.
<https://doi.org/10.1109/iCORE54267.2021.00037>

3. Alavi, M., & Leider, D. (n.d.). Knowledge management systems: emerging views and practices from the field. *Proceedings of the 32nd Annual Hawaii International Conference on Systems Sciences*. 1999. HICSS-32. Abstracts and CD-ROM of Full Papers, 8.
<https://doi.org/10.1109/HICSS.1999.772754>
4. Bautista, R. M. (n.d.). *Promoting Digital Empowerment through Implementation of Barangay Management System*.
<https://pnrsolution.org/Datacenter/Vol3/Issue2/283.pdf>
5. Bondoc, B. C. (2019). Towards Digitization through e-
Barangay "A Web-based Barangay Information System." *Journal of Humanities and Education Development*, 1(2), 88-91.
<https://doi.org/10.22161/jhed.1.2.5>
6. Brien, B. J. A. O., Marakas, M., Hills, T. M., & Price, R. (n.d.). *Management information systems*. 4(2).
7. Burton, J., & van den Broek, D. Accountable and Countable: Information Management Systems and the Bureaucratization of Social Work. *The British Journal of Social Work*, 39(7), 1326-1342. <https://doi.org/10.1093/bjsw/bcn027>
8. Claire Ong Carpio. (n.d.). *Barangay Management System*.
<http://ijmrmap.com/wp-content/uploads/2020/07/IJMRAP-V3N1P78Y20.pdf>
9. Clemson, B. (n.d.). Beyond Management Information Systems.

In *Educational Administration Quarterly* (Vol. 14, Issue 3, pp. 13-38). <https://doi.org/10.1177/0013161X7801400305>

10. Eny Setyawati Student of Education Administration, Universitas Lampung, Bandar Lampung, I. H. H. (n.d.). *Web-Based Management Information System for Services Development: A Literature Review. Vol 4 No 3* (03 March 2021).
11. Gillingham, P. (2019). Developments in Electronic Information Systems in Social Welfare Agencies: From Simple to Complex. *The British Journal of Social Work*, 49(1), 135-146. <https://doi.org/10.1093/bjsw/bcy014>
12. Herman, T., Marcello, A., Marcello, P., & Maramba, I. (n.d.). Linking primary care information systems and public health vertical programs in the Philippines: an open-source experience. *AMIA ... Annual Symposium Proceedings. AMIA Symposium*, 311-315.
<http://www.ncbi.nlm.nih.gov/pubmed/16779052>
13. In, T., Paligui, B., & Natividad, R. (2016). *Implementing Document Management System (Dms)*. February, 113-118.
14. Ismagilova, E., Hughes, L., Dwivedi, Y. K., & Raman, K. R. (2019). Smart cities: Advances in research—An information systems perspective. *International Journal of*

Information Management, 47, 88-100.

<https://doi.org/10.1016/j.ijinfomgt.2019.01.004>

15. Liu, J., Wang, C., & Wu, Y. (2021). Research on the Management Information System of College Education and Teaching Based on Web. *Security and Communication Networks*, 2021, 1-8. <https://doi.org/10.1155/2021/5090813>
16. Marte, B. A., & Schwefel, D. The Philippine management information system for public health programs, vital statistics, mortality and notifiable diseases. *International Journal of Bio-Medical Computing*, 40(2), 107-114. [https://doi.org/10.1016/0020-7101\(95\)01133-Y](https://doi.org/10.1016/0020-7101(95)01133-Y)
17. Melad, K. A. M., Araos, N. V. V., & Orbeta, A. C. (n.d.). *Giving cash to the poor: A study of Pantawid Pamilya cash grants generosity, frequency, and modality PDF Logo*. <https://doi.org/http://hdl.handle.net/10419/241048>
18. Merced1, J. M. dela, & Pagtaconan2, and W. C. R. (n.d.). *Development of an Information Systems Strategic Plan for the Municipality of Nueva Era, Ilocos Norte*. [https://www.ijisrt.com/assets/upload/files/IJISRT22AUG220_\(1\)_\(1\).pdf](https://www.ijisrt.com/assets/upload/files/IJISRT22AUG220_(1)_(1).pdf)
19. Mikaela, A., Rangel, A. C., Rangel, A. C., Cortez, C. A., & Pineda, A. A. (2019). *IMPLEMENTING DOCUMENT MANAGEMENT SYSTEM (DMS) TECHNOLOGY IN BARANGAY PALIGUI*,

APALIT, PAMPANGA.

https://doi.org/https://www.researchgate.net/publication/352698633_IMPLEMENTING_DOCUMENT_MANAGEMENT_SYSTEM_DMS_TECHNOLOGY_IN_BARANGAY_PALIGUI_APALIT_PAMPANGA

20. Monreal, R. N., & Palaoag, T. D. (2021). Developing a Framework on Predicting Evacuee Needs for Disaster Risk Reduction Management in the Province of Albay. *IOP Conference Series: Materials Science and Engineering*, 1077(1), 012043. <https://doi.org/10.1088/1757-899X/1077/1/012043>
21. Olipas, C. N., Luciano, R. G., Cochanco, A., Santos, B. M. A. D., Cajucum, A. E. B., Tabelin, F. L., & Taberna, J. H. (n.d.). *WEB-BON: THE DESIGN AND DEVELOPMENT OF A WEB-BASED BARANGAY INFORMATION AND RECORD MANAGEMENT SYSTEM*. https://www.researchgate.net/publication/366877340_WEB-BON_THE_DESIGN_AND_DEVELOPMENT_OF_A_WEB-BASED_BARANGAY_INFORMATION_AND_RECORD_MANAGEMENT_SYSTEM
22. Raymond, L., & Bergeron, F. Project management information systems: An empirical study of their impact on project managers and project success. *International Journal of Project Management*, 26(2), 213-220. <https://doi.org/10.1016/j.ijproman.2007.06.002>
23. Samonte, M. J. C., Bahia, R. J. D., Dollete, C. J. T.,

& Forlaje, S. B. A. (n.d.). *An Interactive Visualization Tool of E-Government Data Analysis of the Poorest of the Poor Household List in the Philippines*.

<https://dl.acm.org/doi/abs/10.1145/3288155.3288170>

24. Sari, S. I., & Alfina. (2021). Village Service Information System. *International Journal Education and Computer Studies (IJECS)*, 1(2), 63-67.
<https://doi.org/10.35870/ijecs.v1i2.604>
25. Sugawara, E., & Nikaido, H. Properties of AdeABC and AdeIJK efflux systems of *Acinetobacter baumannii* compared with those of the AcrAB-TolC system of *Escherichia coli*. *Antimicrobial Agents and Chemotherapy*, 58(12), 7250-7257.
<https://doi.org/10.1128/AAC.03728-14>
26. Susmerano, E. B., & Yamada, K. (2022). Revisiting auxiliary social services for persons with disability: The Philippines case. *International Journal of Social Welfare*, 31(2), 187-202. <https://doi.org/10.1111/ijsw.12498>
27. Technology, I. (2020). Analysis and Design of Village Management Information Systems (VMIS) based on MVC and E-Government in Indonesia. *Journal of Computer Science, Information Technologi and Telecommunication Engineering*, 1(2), 63-69. <https://doi.org/10.30596/jcositte.v1i2.4969>
28. Vusi Tsabedze Trywell Kalusopa. (n.d.). *Towards a*

framework for e-records readiness in support of e-government in eSwatini. Vol. 37 (2018).

<https://www.ajol.info/index.php/esarjo/article/view/179849>

29. Watson, R. T., Kelly, G. G., Galliers, R. D., & Brancheau, J. C. Key Issues in Information Systems Management: An International Perspective. *Journal of Management Information Systems*, 13(4), 91-115.

<https://doi.org/10.1080/07421222.1997.11518144>

30. Wiratmoko, Eko and Lambelanova, R. (2021).

IMPLEMENTATION OF E-GOVERNMENT ON VILLAGE ADMINISTRATION AND INFORMATION SYSTEM IN SAYANG VILLAGE JATINANGOR DISTRICT SUMEDANG REGENCYWEST JAVA PROVINCE.

<http://eprints2.ipdn.ac.id/id/eprint/701>