Mindoro State University Calapan City Campus

Official Web-Based Platform for Municipal Social Welfare with offices PWD, Senior Citizen, Solo Parents and Day Care worker

A Capstone Project Presented To

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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 PWD, Senior Citizen, Solo Parents and Day Care worker

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:

Process:

User-Centered Design

Collaborative

Development

Integration of Offices and

Services

Security Protocols

Real-Time Monitoring

Innovative Features

Input

Stakeholder Requirements

Legislation and Regulations

Existing Data

Technological Resources

Output:

Comprehensive Web-Based

Platform

Individualized Portals

Efficient Service Delivery

Data-Driven Insights

Empowered Beneficiaries

Process:

1. User-Centered

Design

2. Collaborative

Development

3. Integration of

Offices and Services

4. Security Protocols

5. Real-Time

Monitoring

6. Innovative Features

- 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 SetyawatiStudent 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 appraoches 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

deci sion making by providing administrators with all of the

potentially rele vant 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 con

siderations, is presented. Barry Clemson is an Assistant

Professor in the Department of Admin istration, 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-Governmet 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 terintegerasinya 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 1

Week 2

Week 3

Week 4

Week 1

Week 2

Week 3

Week 4

Week 1

Week 2

Week 3

Week 4

Week 1

Week 2

Week 3

Week 4

Week 1

Week 2

Week 3

4

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 oats

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 U

n

i

t

Minimum Recommende

d

Computer

/Process

or

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.

mswd

Send Transaction

Status

MSWD WEBSITE

User

DATABASE

Send updates/

Event Management/

Approval

Transaction

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

User System Admin

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

wil1 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 November 28, 2023 Agreed in the

client project proposal

Deployment December 20, 2023 Approved

Approval

System development December -

Few errors in

major

and monitoring 2023 feature

period

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