

# Development of an Information Systems Strategic Plan for the Municipality of Nueva Era, Ilocos Norte

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**ABSTRACT**

**DELA MERCED, JACQUILINE MACAGBA. Mariano Marcos State University. August 2021. DEVELOPMENT OF AN INFORMATION SYSTEMS STRATEGIC PLAN FOR THE MUNICIPALITY OF NUEVA ERA, ILOCOS NORTE.**

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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.

# CHAPTER I

## INTRODUCTION

### A. Project Context

Innovations and advancements in today's civilization are attributed to smart developments. These progressions make a country liberal and advanced particularly in the field of governance and public service. Optimizing the gift of technology to improve service or even an ordinary activity is indispensable in life especially in this world full of complexities.

In the public sector, advances and upgrades are critical components of the system. These enable cities and communities to deliver an upgraded, advantageous, and sustainable living and working environment. Today, COVID-19 pandemic has put the nation towards the chain of uncertainties. People, businesses, groups, and institutions appreciate the worth and importance of data and technology in this time of pandemic when most of the activities are digitally conducted. It is now technically considered as the most promising resource in delivering great initiatives for the smart city's framework of the different Local Government Unit's (LGU) communities and constituents. ICT is now one of the most important ingredients in boosting a company's productivity.

ICT networks (such as PCs, cell phones, and the internet) make four major contributions to organizations. These networks increase the exposure of commercial companies, provide more knowledge to small businesses, allow businesses to transcend conventional trade barriers, and make banking transfers easier [1].

Over the past decade, an instantaneous growth of IT was seen and begun to be part of every strategic plan of an organization. Information System development is a more effective strategy when modern Information Technologies in organization management are being used. Information Systems Strategic Plan (ISSP) is defined as *the process of identifying a portfolio of computer-based applications designed to assist an organization in executing and realizing its business plans and goals*[2]. The intrinsic features of information systems in today's organizations, such as increased need for technical capability management have raised the ISSP's reputation. The ISSP methodology is used for a number of reasons, including achieving operational objectives, enhancing framework alignment, using IT for competitive benefit, scaling information system delivery systems, enhancing high-level managerial support for information system processes, promoting better system expenditure choices, and optimizing resource usage [3].

The utilization of data and communications advances in government is seen as an enabler for countries to realize computerized change within the conveyance of basic services. ISSP architecture for the Municipality of Nueva Era is dedicated to delivering customized, high-quality services to anyone who requires them. With the advent of new technology to improve facilities, there is also an opportunity to explore a more reliable and cost-effective methods.

Nueva Era, particularly in its LGU, the ongoing dedication to customer support (both external and internal) aids in the improvement of transparency, coordination, and teamwork within the organization. The municipality's strategy is an effort that prioritizes citizens, recognizes civic leadership and renders Nueva Era as an outstanding place to live and work.

The development of ISSP in Nueva Era outlines a number of short-term opportunities to quickly promote the core principles of Sustainability, Mobility, Accessibility, Resiliency, and Transparency. Although, the plan frameworks a three-year work strategy, with an initial emphasis on developing the capacity of Municipal Hall for the future, a continuous stewardship and monitoring requirements ensure that it is on trajectory in achieving its goals.

With a population increase of 11,968 residents as of the 2020 census, the community has expected sufficient human capital expenditure to achieve its target of leveraging the benefits of smarter town initiatives in handling and performing rural operations. The projected land area is 515.02 square kilometers (198.85 square miles), which accounts for 14.85 percent of Ilocos Norte's total land area. Majority of the Nueva Era's land area is mountainous. Among its eleven (11) barangays are Acnam, Barangobong, Barikir, Bugayong, Cabittauran, Caray, Garnaden, Naguillan (Pagpag-ong), Poblacion, Santo Nio, and Uguis [4].

### *B. Statement of the Problem*

The purpose of this study was to develop an Information Systems Strategic Plan for the Municipality of Nueva Era.

Specifically, it strengthens to answers the following questions:

1. What is the profile of the Municipality of Nueva Era as to:
  - 1.1 agency profile and its environment;
  - 1.2 present ICT situation and strategic concern for ICT use; and
  - 1.3 status of the existing ICT infrastructure along with hardware, software, information systems and databases?
2. What are the Information Systems Strategies, current ICT projects being undertaken, and ICT development and investment programs of the Municipality?
3. What are the resource requirements in the Municipality along ICT equipment and services and ICT organizational structure?

### *C. Objectives of the Study*

Generally, this study aimed to develop an Information System Strategic Plan for the Municipality of Nueva Era, Ilocos Norte.

Specifically, the study attempted to:

1. Describe the organizational profile of Nueva Era Municipality as to:
  - 1.1 agency profile and its environment;
  - 1.2 present ICT situation and strategic concern for ICT use; and
  - 1.3 status of the existing ICT infrastructure along with hardware, software, information systems and databases
2. Describe and assess the Information Systems Strategies, current ICT projects being undertaken and ICT development and investment programs of the Municipality;
3. Assess the resource requirements in the Municipality along ICT equipment and services and ICT organizational structure to develop an Information Systems Strategic Plan (ISSP) for the Municipality of Nueva Era, Ilocos Norte.

### *D. Significance of the Study*

This study considerably contributes to the body of knowledge thus benefitting the following:

**Nueva Era municipality personnel.** The findings of the study can help the municipality personnel of Nueva Era in the effective implementation of the guidelines, agenda, and policies of the development of ISSP thus letting the municipality to be more interconnected, firm, and highly achievable for its constituents, groups, and businesses. This can lead towards social and economic development of the municipality. Likewise, it can give the personnel sufficient information about smart town proper planning and implementation in order to perform and serve the LGU. Geared towards transforming into an efficient, sustainable, equitable, and livable communities, the people, groups, and establishments within Nueva Era are to reap the benefits.

**Local government unit of NuevaEra, Ilocos Norte.** The data collected could be helpful in the attainment of the goals and objectives of the municipality in providing services to solve problems that affect its people and the government itself. It would promote proper utilization of available resources and infrastructures to facilitate the conduct of local activities, promotion of local programs, enhancement of communities, development of wide programs and other related LGU programs and activities in general.

**Policy makers.** The study would allow local government policy makers to propose and design an effective and efficient strategic plan for the town of Nueva Era, Ilocos Norte making it the first smart municipality. In doing so, the enhancement and improvement of the town could lead towards its progressive state and sustainability, allowing many social, cultural, environmental, health, educational, and economic opportunities to emerge and making it capable of growth and development for the whole municipality.

**Communities.** The results of the study would address the needs of its members within the local communities and let groups participate in the local agenda and programs for their benefit, providing and ensuring them a quality of life and livable state, while at the same time, giving them the ability to become informed, educated, and participatory in all local government initiatives which help in expediting actions, functions, and processes. The involvement of the communities can be seen and re-evaluated according to its people's concerns and be considered in the implementation of a community-based strategic plan.

#### *E. Scope and Limitation of the Study*

The study focused on the development of a 3-year plan, the information systems strategic plan (ISSP) for the Municipality of Nueva Era. In the development of an ISSP, a Local Government Unit can use current technology and reap its advantages. This study outlined the organization's strategy for utilizing information communications technology in order to accomplish its mission and fulfill its functions. The ISSP aimed to address key information technology requirements that could help the municipality operate more efficiently, effectively, and competently. This study highlighted the critical nature of departing from the conventional paradigm, considering information technology as a distinct instrument relating to the municipality's objectives. Additionally, it could enable the involvement of different LGU offices and agencies in the development of the ISSP concentrating on ensuring that information technology supports the municipality's business operations. Moreover, this study focused on the ISSP's development consisting of a priority list of systems and plans, as well as the cost and delivery schedule over three years.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

This chapter provides a critical review of related literature and studies, which provides the framework of this capstone project.

#### A. *Review of Literature*

##### a) Information Systems Strategic Plan for Sorsogon State College

A local government unit's information system should provide proper communication transmission in order to assure the unit's efficient and effective administration. Every business should be concerned with the quality and quantity of information accessible. This objective may be accomplished by constantly diagnosing and evaluating the operational information system in order to draw pertinent conclusions, identify issues, and develop an appropriate instrument for the operational needs of a local government unit. Within a local government unit, the authors developed a study methodology for assessing the effectiveness of an information service. With the use of questionnaire surveys as the basis of the proposed research method, it is possible to conduct a comprehensive diagnostic of the information system within local government units in order to identify deficiencies in the instruments used by these units and measures that can be taken to improve the system [5].

##### b) Use of ICT in Smart Cities: A Practical Case Applied to Traffic Management in the City of Valencia

The initiative for smart town framework converts whole local city into developed and civilized towns though maximized utility of technological resources in improving its quality of services for its residing and working citizens along the city. In order to achieve the initiatives for a smart town measure, various course of actions is needed to attain specific smart town framework objectives through data collection, processing and use of information for its dissemination among citizens. The use and re-use of information by government or private institutions as open data needs to be encouraged and thereby made more useful and appropriate for people. To accomplish this aim, innovations such as sensor networks, ubiquity, connectivity infrastructure-vehicles and others are becoming critical elements. Technological use of resources opens a lot of opportunities for communities by lessening efforts of doing businesses or essential things to human life and at the same time decreasing rate of devastations such as environmental impacts in conducting such businesses putting the environment and its people from great devastations. Technological solutions become one way of achieving such objectives especially in the sector of Information and Communication Technology (ICT)[6].

##### c) Smart Cities for Wellbeing: Youth Employment and their Skills on Computers

Smart town frameworks give people one's identity and allow them to define their own individuality in a social space where a feeling of inclusiveness is really felt by people living in a town. It becomes everyone's home where people achieve their best options. It is due to the fact that the implementation of a smart town framework involves sustainable development for all its stakeholders as it involves organizations with improved information and technology ecosystems that help achieve the highest degree of person and social well-being with the goal of enhancing the lives of people. A study in the EU assessed the influence of information and communication technologies (ICTs) skills on youth employability. It found out that ICT skill is a factor to employability of an individual and training on computer skills as a key factor for boosting youth employment [7].

d) Using ICT in Smart City

Smart city is an urban version for a smart town as the word implies. Both aspects are common in using high technologies to serve each purpose for their respective areas of concern. Both have the common goal of providing the best for their cities and town communities to improve quality of life of its citizens without causing too much burden to the environment due to lesser footprint involving conduct of activities or needed actions. In order to execute the smart plans and to capture and distribute data to multiple customers, smart cities use ICT. For this purpose, a smart city incorporates numerous facets of urban life and connects many terms, such as wired city, interactive city, smart city, information city, digital city, knowledge city, etc. ICT enabled cities and towns to enhance its services and governance to the people allowing information to be shared, stored and educate its citizens about smart living in a technologically-based city or towns. The role of ICT in local governance increases the level of efficiency and productivity in all aspects of their public services allowing smart city town projects become more possible and effective to respective communities targeted [8].

e) Building a Workforce for Smart City Governance: Challenges and Opportunities for the Planning and Administrative Professions

The position paper addresses the role of ICTs in regulating the transformation process that metropolitan cities will have to endure in the coming years. The subject is analyzed from a value-oriented viewpoint and in the context of nearly two decades of private and public sector technology-driven innovation. In an effort to take stock of past errors and to welcome the possibilities resulting from certain major paradigm changes occurring on the horizon, all this has been discussed. Three key contributions are suggested in the philosophical framework: the facilitation of modern systems of development, delivery and governance; the restructuring of corporate and structural arrangements; and knowledge on human decisions and behaviors. Finally, it is claimed that the integrated dissemination of social media and computer-based modeling in decision making contributes to major changes in smart city management by allowing value-driven, data-intensive and participative models of governance, called extended governance.' In conclusion, the application of ICT to the regulation of the transition that metropolitan cities will have to undergo in the decades to come seems to have tremendous promise. In conclusion, the application of ICT to the regulation of the transition that metropolitan cities will have to undergo in the decades to come seems to have tremendous promise. These innovations would have to be used not only to increase the intelligence of socio-economic systems, but also to create reward mechanisms that facilitate the development of positive public value in order to deliver on their commitments. In reality, the real smart city must learn how to balance individual and societal desires, that is, to harness individual ambitions to generate benefit for society as a whole by achieving economic, social and environmental goals [9].

f) Characterizing the Role of Governments in Smart Cities: A Literature Review

While 'smart city' is a subject discussed in fields of expertise such as urban planning and government technology management, there appears to be no consensus on the meaning of the word at present. The word 'smart' is synonymous with the development of solutions using technology for urban problems. The subject of e-government is older, and perhaps more common and investigated because of this. It is related to the transformation of public policy through the use of information and communication technologies (ICT) in order to increase the efficacy of the government's organizational and administrative processes. It is also related to the public sector's use of the internet to deliver online resources and to broaden civic practices. The projects of both e-government and smart cities depend on the resources of technologies, hardware, software, networks, the internet, utilities and applications, and the use of local governments. In Brazil, since the 2000s, e-government programs have been in progress. In Brazil, e-government projects have been in place since the 2000s. More recently, Brazil has seen several smart cities initiatives which includes the Frente Nacional de Prefeitos (National Front of Mayors) houses the Rede de Cidades Inteligentes e Humanas (Smart and Human Cities Network); the program Minha Cidade Inteligente (My Smart City) of the Ministry of Science,

Technology, Innovation and Communications; the Brazilian Congress is working to form the Joint Parliamentary Committee in support of intelligent and human cities; Curitiba, Vitória and Rio de Janeiro are some examples of cities with smart initiatives; multilateral agencies and development banks are implementing funding lines for this area and, technology providers on a global scale are keenly interested in the subject. Smart cities and e-government were the issues reflected in the proposals of multiple candidates in the local elections in October 2016. However, considering the lack of ICT management activities in Brazilian cities, the Brazilian environment reveals no use of technology in governmental procedures, weak ICT infrastructure, and great obstacles to be addressed in terms of ICT governance and management [10].

g) Information Management Environment, Business Strategy, and the Effectiveness of Information Systems Strategic Planning

The alignment of Information System Strategic Planning (ISSP) on its success and business strategy has a great impact in the organization Information Environment Maturity (IME). The organizational environment for Information Technology / Information System management has three aspects that IME should be measuring for the quality of organizational IME. Firstly, the organizational information management practice; secondly, the degree of IT/IS application in organizations; and the thirdly, the relationship between IT/IS and users. As shown in many studies, aligning ISSP with business strategy increases ISSP success. Organization needs not only to align its strategy with its infrastructure but also to align its business strategy with strategic information systems planning. Moreover, IS Planning and Business Planning alignment is found to be an important performance indicator. The data from 49 organizations in China paved way in the formulation and verification of a research model. The model shows that the higher information management environment maturity and alignment between the ISSP and business strategy, the more successful ISSP [11].

h) Knowledge Sharing Behavior Amongst the Stakeholders and the Efficiency of IS/IT Strategic Planning (ISSP) Influences the Effectiveness of ISSP

To attain the planning objectives, knowledge sharing is essential to IS/IT strategic planning. Many organizational instruments exist that can improve knowledge sharing and transfer, including IT steering committee and strategic IS/IT team. Organizations could practice group interaction mechanisms and knowledge management mechanisms to encourage the formulation of organizational learning environments and fit the organizational context during IS/IT strategic planning. The study shows a growing amount of experimental work that has been conducted examining the relationship between ISSP and organizational context. The results of this study will be of interest to business managers or strategic planners who are initiating or conducting information systems strategic planning exercises, and to researchers in the field of information systems management and planning [12].

i) Local Government Program Planning

The goal of this research is to demonstrate the benefits of an information system to a Philippine Local Government Unit (LGU), specifically the Planning Department's Social Division in Caloocan City Hall. The researchers are having difficulty establishing linkages between the various difficulties addressed in the context of education and health, as well as the necessary treatments or programs. Thus, the researchers proposed a system design framework for developing a data management and analytics system that is a collection of modules and visualizations tailored to the needs of a Philippine local government unit in defining root causes of issues and identifying trends and outliers that are useful in the planning process [13].



j) Planning and Management in Local Government

Strategic planning and management were introduced in the public sector three decades ago and have since been a critical component of various public management reforms. While strategy has been widely implemented in the public sector, understanding of its methods and consequences remains limited, particularly in the United States. The goal of this research is to compare the American and British evaluations of strategic planning and management in Norwegian municipalities. Thus, communities that selected for the prospector's strategic advice and had finances available from favorable net operational results margin embraced strategic planning and management at a higher rate than other towns. Municipalities with a high level of strategic management intensity and stakeholder participation reported that strategic planning had a greater perceived effect than other municipalities. Enhancing the city's educational and social well-being [14].

k) IT Governance Practices of Local Government Units

The research conducted was a disaster response distribution chain, which is the distribution of supplies from a central warehouse to the appointed evacuation centers in a specific area. Its functionality is dependent on the precise location of each category of relief goods within demanded areas, which includes a set timeframe. Because these activities require a finite supply of relief products, trucks, and time, it is critical to develop more data-driven processes to meet these requirements. Thus, Relief operations can be depicted in numerous formats. For contrast, Balcik's Last Mile Distribution Model combines linear programming to eliminate routed costs as well as penalty costs for unfilled demands. The model assigned each kind of relief product to the demand areas visited during the day. The numerous districts explored each day would be limited by the vehicle fleet's capacity as well as the routes available. The research focused on community governance, which encompasses operations at a local government unit (LGU). The purpose of this study is to harmonize IT regulation (ITG) practices with good governance principles (GG) implementation to invite LGUs for proper IT decision-making. A descriptive research method was used in the inquiry, which had a population of sixty. Adapted questionnaires were used to elicit responses from the LGUs-IT Department's IT officer and IT employees. ITG practices and GG incorporation in LGUs are favorably connected, with moderate to high efficiency. This implies an increase in effectiveness and efficiency principles, as well as transparency, responsiveness, equality, and accountability [15].

l) Information Systems Strategic Plan in Tigbauan

This study is about the Municipality of Tigbauan's first Information Systems (IS) strategy formulation paper, produced as guidance to accomplish the ISSP aim. This paper was intended to be user-friendly and to identify important IT requirements that help the municipality perform more efficiently, effectively, and competently. This Information Systems strategic strategy underlines the significance of shifting away from the previous approach of considering IT as distinct instruments unrelated to the municipality's aims. Additionally, it ensures that information technology is used to assist municipal government business operations. The ISSP is primarily used to ensure that the systems and infrastructure selected for deployment in municipal government support the municipality's strategic goals; to ensure that the systems and infrastructure selected for deployment in the municipality support the municipality's strategic goals; and to ensure that the systems and infrastructure selected for deployment in the municipality support the municipality's strategic goals. Agreement among all stakeholders on the IT strategy and associated costs must be gained in order to focus the IT department's tasks and budgeted funds [16].

m) Provincial Government of Agusan Del Sur

Agusan del Sur, being one of the country's most prominent provinces, must keep up with the ever-increasing pace of technological progress. ICT can boost competition, improve the delivery of essential services, increase public transparency, and strengthen impoverished people's capacity. The provincial government is executing the Information System Strategic Plan (ISSP) as a policy tool in order to ensure that ICT is used in crucial areas of government and with the assistance of the Provincial Road Management Facility (PRMF). The ISSP is an essential and critical basis and framework for the advancement of electronic governance. It is used to effect changes in government by reinventing conventional administrative activities and boosting government transparency and democracy. It is a comprehensive plan that consists of many interconnected ideas and visions for the province and the local government of Agusan del Sur. The paper intends to elevate Agusan del Sur province and local government to the forefront of government operations during the next five years (2011-2015) in order to elevate the province and local government to a higher level of prominence [17].

n) ISSP: The Groundwork of Successful IT Projects

The ISSP is a three-year computerization roadmap for an agency that specifies how the organization plans to be using ICT strategically in pursuit of its mission and function fulfillment. Government ISSPs serve as the foundation for Government Information Systems. The Government Information Systems Plan (GISP), also known as the framework as well as guidance for automating government operations and services, NCC ensures that the individual ISSPs are aligned with the GISP goals. More than just a to-do list, the ISSP enables the agency to identify areas where IT might be leveraged to improve operations. The processes should be improved, and issues should be addressed. It can also be used to communicate with the stakeholders in the organization, The ISSP outlines how a government agency will use different information technology components to enhance communication on its business operations and processes. The Philippine Government's Executive Order 265 requires all government agencies and instrumentalities to match their own ISSPs with the Government Information System Plan's goals (GISP). DCI provides in-depth interviews, seminars, IT trainings, consultation, personnel augmentation, studies/analyses, and documentation to develop a comprehensive ISSP that meets National Computer Center requirements, DCI provides trained personnel to its organizations to enhance the agency' IT employment requirements. DCI can assist the agency in realizing enhanced business value while lowering costs and improving the performance of its business operations [18].

o) Philippine Statistical Development Program

The purpose of this proposed phase is to study a three-year information system strategic plan (ISSP) for a higher education institution in the province of Capiz for the academic year 2019-2022. ISSP was developed utilizing a business-driven approach and the Strategic Assessment Model. Alignment of it, as well as efforts with institutional financial predictions, is vital for the institution to remain competitive and achieve its strategic business objectives. The study collected both qualitative and quantitative data, including a review of the institution's overall strategy framework, an assessment of users' IT needs and problems, an assessment of users' IT competencies, participation in strategic planning meetings, and presentation of findings to decision-makers. As a result of this study, which is a comprehensive three-year ISSP for a private HEI, four major IT/IS strategic initiatives were recommended to be prioritized: strengthen the Institution's IT Communications company by attempting to establish an Institutionalized IT Services Division, organize an IS development team to work on in-house IS development for something like the integrated Information System [19].

## B. Review of Related Studies

### a) Capabilities of LGU Basis for Action Plan

The study evaluated the Local Government Units' (LGUs) Geographic Information System (GIS) capabilities in the Philippines' La Union province. The GIS profiles of LGUs were analyzed, as well as the degree of knowledge, awareness, use, and competence of GIS users on selected GIS issues. The limits of GIS use were investigated in order to create a suggested GIS action plan. A qualitative research technique was used to obtain data that was validated by significant results. The data were summarized using explanatory analysis. The results indicate that GIS users in LGUs have a moderate degree of awareness and a basic understanding of several GIS concepts. In LGUs, GIS is utilized sparingly, and GIS users have an average level of competence. Local governments use GIS on a shoestring budget and with minimal technical help. GIS utilization has evident technical, financial, and organizational constraints, including users' insufficient GIS knowledge, costly hardware and software, and a shortage of full-time GIS personnel. According to results, strategies like capacity development, benchmarking, and data sharing have been proposed to assist LGUs in improving their effectiveness. The information was sent flawlessly [20].

### b) Business Model Canvas

This research discusses the technology and information that local governments need to improve their public service-oriented governance wherein many causes were observed including a lack of integration across apps. The researchers employed a business model canvass as an analytical tool, which resulted in the creation of an information system consisting of an IS strategy for the Indonesian province of Sulawesi. However, they continue to face challenges, such as insufficient facilities, infrastructure, and human resources, which impede the regency's effectiveness [21].

### c) Open Data and Geo-based Community Information Systems

Municipalities are the simplest form of government in the Philippines, and they are governed and represented by barangay officials. The barangay authorities are responsible for keeping track of situations involving citizens' health and criminality. It is also the local government's source of information for developing government programs, providing community services, and maintaining peace and order. This study provides a description of a web-based information system for a pilot community in the Philippines that includes information sharing and geo-based features. This system serves as a repository for data and is used for planning, analysis, and decision-making in order to enhance the quality and efficiency of government services in the community [22].

### d) Strategic Information System Plan Development

It states that practitioners and scholars have long recognized that strategic information system planning (SISP), which includes aligning business and information systems/information technology strategies, is a piece of common knowledge. Since the 1980s, several methodologies and models have been developed to help in the design and implementation of strategic information systems. These are development approaches that define a set of SISP phrases or strategies that aid in a particular aspect of the SISP process. This study employs a systematic review process, beginning with a search of 2730 papers in nine top-ranked scientific databases. Following a thorough assessment of these papers, a final list of 85 studies devoted solely to SISP development is compiled. This last series of studies compares the steps included in different procedures, as well as the approaches employed for each level. Additionally, an in-depth investigation of development processes resulted in the construction of a general seven-phase framework that encompasses the activities addressed in the literature. The seven phases are as follows: inception, business analysis, information systems/information technology analysis, strategy development, portfolio planning, implementation, and evaluation. Additionally, the paper categorizes SISP facilitation strategies and concludes with recommendations for practitioners and academics [23].

e) Strategic Planning of Information Engineering Methods

The purpose of information systems strategic planning is to provide a technique for addressing a long-term strategy for information systems that is also based on the firm's average strategic plan. To manage a corporation effectively, it is necessary to handle both the organizational and technological components of the company. The organizational component underlines the critical nature of an integrated information systems strategy and its direct link to the organization's objectives. The technical component underlines the critical nature of planning for information system design [24].

f) Empirical Evaluation

This research discusses how information technology (IT) strategic management has long been recognized as a critical component of corporate performance. This research aims to accomplish two goals. The researchers demonstrate that SIS was widely used in these 29 organizations in areas such as strategic IT investment and application planning, and that, while the theoretical review generally supported the literature, some changes to the participation and focus dimensions suggested by Segars were made (1998). The findings have ramifications for practitioners and researchers alike [25].

g) Effects of Strategic Planning in Improving Performance

According to Saravi, Dabirian (2016) the study is proposed due to the connectivity and daily use of "strategic information systems" throughout industry, business organizations, and business firms, as well as the occurrence of the supply chain, which is one of the most fundamental aspects of business (manufacturing, industrial, and services), as the link between suppliers and customers in these categories, which is one of the most fundamental issues in business. However, the relationship between these two variables can aid in the development and promotion of managers, as well as the growth and success of an organization, and they will employ the proposed methods to achieve a high level of efficiency and improvement in project management performance competitive advantage through the development of value-added appropriate use of information systems [26].

h) Synthesis

The aforementioned collection of local studies informs proponents to the fact that the proposed study would resemble to other widely used systems. As mentioned earlier, information system strategic planning assists in the development of the strategy. This section discusses the agency's current approach for accomplishing its mission and responsibilities.

The researches in the previous collections are all connected to the significance of retaining all documents and files. It ensures that these files are safe and easily available for the progress of Information System Strategic Planning (ISSP) in municipal administrations.

i) Conceptual Framework

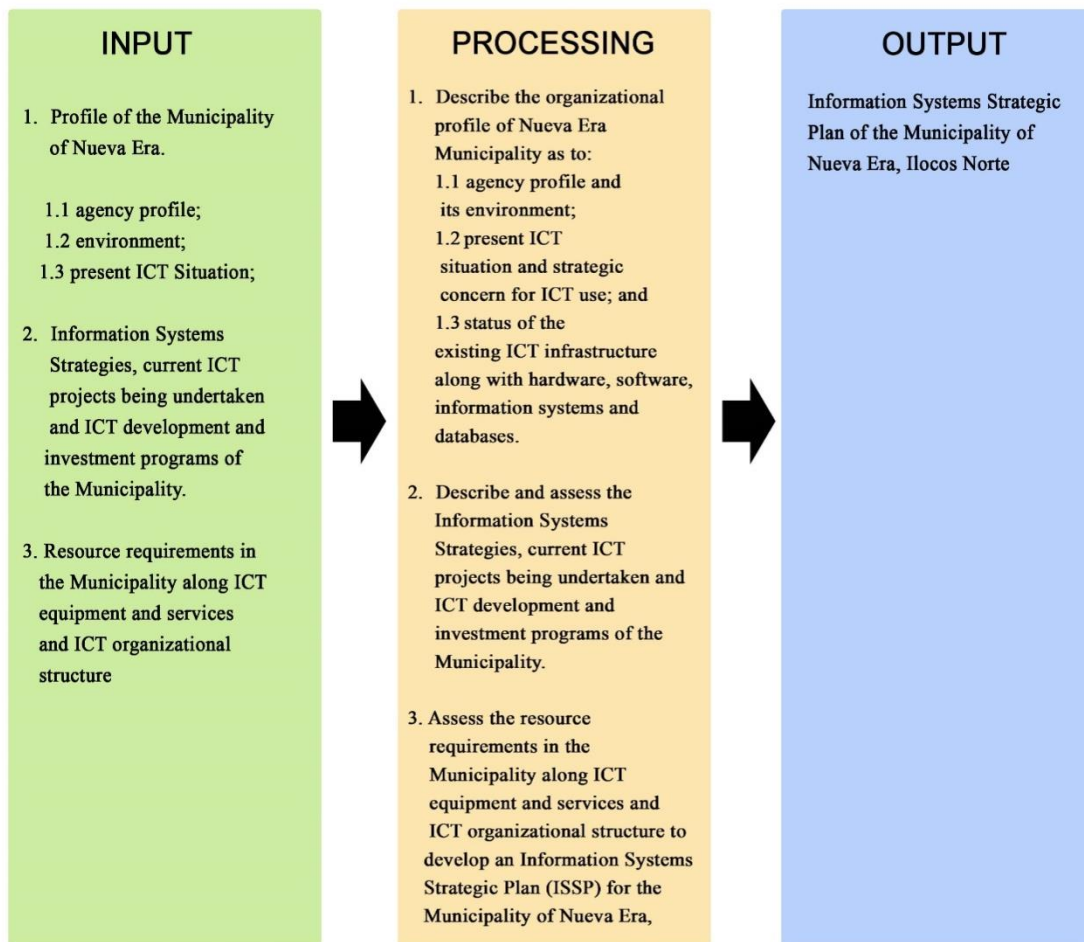


Fig. 1: Conceptual Framework.

Figure 1 shows the conceptual framework of the study utilizing the Input-Process-Output (IPO) model structure in order to properly show the conceptual backbone of the research. It is composed of important variables, the flow of research, research processes, research expected outcomes, and other information relevant to the study. Specifically, the inputs were needed in order to achieve the desired result for this particular study composing of: (1) Profile of the Municipality of Nueva Era as to the agency's profile and its environment, the agency's ICT situation, and the strategic concerns on the ICT usage; (2) Information Systems Strategies along conceptual framework for Information System, detailed description of proposed information systems, database required and network layout, current ICT projects being undertaken and ICT development and investment programs of the Municipality; and (3) resource requirements in the municipality along ICT equipment and services and ICT organizational structure. Data include information about ICT projects, performance measurement framework, inventory of ICT infrastructure, hardware/other ICT equipment and software, application system, information systems, and databases.

Research processes were undertaken through utilizing and maximizing the inputs given in order to arrive at the expected output. Survey instruments were developed, conducted, distributed, retrieved to gather data and were further analyzed through statistical and quantitative research methods, tabular and graphical presentation, and finally interpreted to develop an output which is the Information Systems Strategic Plan for the Municipality of Nueva Era.

## CHAPTER III

### METHODOLOGY

This chapter presents the research methodology of the study. This includes discussion of the research design, sources of data, data collection methods and tools, research process.

#### *A. Research Design*

The study employed descriptive research design. This allowed the proponent of the study to describe the situation, subject, behavior, or phenomenon regarding a particular study as a subject for research inquiries. The research subject or problem was observed and described without influencing or manipulating in any way the different variables. In describing the nature of the subject to its current state and determining the objectives required in order to achieve the statement of goals of the research, the researcher obtained data and designed a smarter and more effective framework based on the results.

Descriptive research was particularly important in this research aspect because it helped the proponent of the study to create a well-founded research framework about the municipality of Nueva Era, Ilocos Norte. The designed framework was analyzed, described, and evaluated for its final assessment.

The formulation of the ISSP was through the Research & Development process consisting of two stages namely planning and analysis. Planning includes bibliographic research and database survey while analysis is the evaluation of survey results and development.

A bibliographic survey was also utilized particularly the comprehensive survey on the works published in line with the particular aspect. Database survey consisted of gathering inclusive information from the municipal government employees of Nueva Era, Ilocos Norte. The data were gathered through the use of survey questionnaires and unstructured interviews. The results of the survey served as the basis in the formulation of the ISSP Strategic Plan for the municipality of Nueva Era.

#### *B. Sources of Data*

**Locale of the Study.** The study was conducted in the municipality of Nueva Era, Ilocos Norte.

**Population and Sampling.** The respondents of the study were the employees of the Local Government of Nueva Era, Ilocos Norte. In determining the participants of the survey, simple random sampling was used.

#### *C. Data Collection Methods and Tools*

A survey questionnaire/ checklist provided by DICT was used in the data collection. The ISSP template includes the following parts:

##### a) Part I. Organizational Profile

This is the first portion of the DICT ISSP Template. It represents the Organizational Profile of Nueva Era Municipal as to Agency Vision and Mission, Agency Profile, Agency and its Environment, ICT Situation, and Strategic Concern for ICE use. The Organizational Profile was utilized as an initial point for self-assessment and in developing the ISSP. This helped the Municipality in identifying data focusing on key performance requirements and results.

- Department/Agency Vision / Mission Statement

This part stated the agency's intention to use ICT to support and understand its vision, mission and goals.

- Mandate

States the legal foundation for the organization's formation and define the main functions required by the legal basis.

- Vision Statement

Declares the organization's wishful projection into the future; a declaration of what your organization wishes to become; and an intuitive image of the organization's desired future state.

- **Mission Statement**  
Asserts the organization's scope and activities, as well as its main products/services that set it apart from others.
- **Major Final Outputs**  
Compile a list of MFOs in accordance with the Organizational Performance Indicator Framework (OPIF). A MFO is a good or service that a department/agency is tasked with delivering to external customers through the execution of programs, activities, and initiatives. The MFOs that are most closely linked with the Philippine Development Plan's Key Result Areas and the key indicators and results provided in the PDP Results Matrices should be highlighted.
- **Department/Agency Profile**  
Agency profile specified the Total Annual ICT Budget for the current fiscal year, the total number of employees including those on part-time or full-time basis, regular, contractual and casual employees and those assigned to regional/extension, provincial and other offices, and the number of regional offices, provincial and other offices.
- **The Department/Agency and its Environment (Functional Interface Chart)**  
Demonstrates the agency and its relationships with its clients, stakeholders, beneficiaries, and other organizations/institutions, whether public, private, or non-governmental, that significantly assist/contribute to the agency's achievement of its MFOs. A prototype diagram is shown in Annex A-1.
- **Present ICT Situation (Strategic Challenges)**  
Clearly discusses the agency's present degree of computerization in narrative form in terms of: 1) mission critical/frontline services, (2) office automation, and 3) web presence. Agency should be able to determine the degree to which ICT is used inside the organization, the proportion (percent) of computer literacy, and the ratio/density of computers. The narrative description provides a macro-level overview of business activities and the information technology environment, including inter-agency applications, interoperability, and standards.
- **Strategic Concerns for ICT use**
  1. **Major Final Output**  
The first column of the table must include a list of each MFO that may be improved or facilitated via the use of ICT. If the MFO authorized by DBM is too general, the need to specify the particular product or service covered by each MFO that may be improved or facilitated using ICT.
  2. **Critical Management/Operating/Business Systems**  
Describe the organization's real business operations/activities in connection to MFO.
  3. **Problems**  
Refer to the impediments/obstacles that obstruct or delay the execution of the specified business operations/activities in Critical Management/Operating/Business Systems.
  4. **Intended use of ICT**  
Indicates the planned ICT solution for resolving the issues raised in the problem's column.

## b) Part II. Information Systems Strategy

This is the second portion of the DICT ISSP Template. It encompasses the development of the Information System Strategy along with Conceptual Framework for Information System, Detailed Description of proposed information systems, Database Required and Network Layout.

- **Conceptual Framework for Information Systems (Diagram of IS Interface)**  
Present the overall design of all information systems, including subsystems, connections, data or information sources, and databases. Refer to Annex A-2 for a sample of an Information Systems Conceptual Framework. Symbols with corresponding colors are utilized. Red symbols indicate new information systems, blue for enhancements, black for operational and continuing information systems, and green for information systems/applications that are made available through the iGovPhil Program and other cross-agency ICT projects. (See Annex A-3 for the Catalogue of Shared Services that iGovPhil and other cross-agency ICT initiatives)
- **Detailed description of proposed information systems**  
Tables are prepared including the subsystems (SSs). The following items are prioritized and arranged in ascending order, the first being the most important.
  1. **Name Of Information System/Sub-System**  
Compiles a list of all information systems (ISs) planned for development or improvement, as shown in the conceptual framework.
  2. **Description**  
Specifies each information system in terms of its primary characteristics, functions, and major data generated.
  3. **Status**  
Indicates if the referenced information system is for development or enhancement purposes.
  4. **Development Strategy**  
Specifies whether the information system is intended for internal development, outsourcing, or a similar arrangement. Another possibility is to utilize ready-made or off-the-shelf software.
  5. **Computing Scheme**  
Shows the computing method that is suggested for each IS/SS. The computing scheme is defined on page ii-a no. 5.
  6. **User Internal**  
Indicates which office/group/unit within the organization utilizes the IS exclusively (internal user/s).
  7. **User External**  
Directs any entities that are not affiliated with the organization but use the system (external user/s).
  8. **System Owner**  
Designates the organizational unit that created the IS (owner) and is responsible for its ongoing maintenance and management.
- **Database Required**  
Databases to be created or enhanced in terms of its purpose and content in general are defined. It provided samples of datasets, identified database for build-up, conversion or migration, and accepted the IS of the database.
  1. **Name of Database**  
Indicates the database's name.
  2. **General Contents/ Description**  
Describes the purpose and content of each database in general. Provide representative datasets.
  3. **Status**  
Specifies if the database is being built, converted, or migrated.
  4. **Information Systems Served**  
Categorizes the information system that makes use of the specified database.
  5. **Data Archiving/Storage Media**  
Determines the method or format in storing/preserving the data.



6. User Internal  
Directs which office/group/unit within the organization utilizes the database exclusively (internal user/s).
7. User External  
Point out any external entities that access the database but are not part of the organization (external user/s).
8. Owner  
Signposts the organizational unit that is responsible for database management (owner).

- Network Layout

The general design of network architecture showing the retained and proposed infrastructure including the number of data centers, servers and capacity requirements is presented. Using different colors with matching representation, red is used if the project is in development, blue if enhancement, black if operational and ongoing, and green if funded via the iGovPhil program or other cross-agency ICT initiatives. (Please refer to Annex A-3 for the Catalogue of Shared Services that iGovPhil and other cross-agency initiatives). For examples of cross-agency and internal network architectures, see Annex A-4.1 and Annex A-4.2.

c) Part III. Detailed Description of ICT Projects

This is the third part of the DICT ISSP Template consisting the representation of the ICT Projects in terms of Internal ICT Projects, Cross-Agency ICT Projects, and Performance measurement framework.

- Internal ICT Projects

- Name/Title  
Indicates the planned ICT project's name/title.
- Objectives  
Specifies precise goals.
- Duration  
Directs the length of time the project will take.
- Deliverable  
Lists the deliverables (e.g. policies for issuance, trainings to be conducted, covered ISs and DBs identified in Part II-B and II-C, infrastructure, etc.)

- Cross-Agency ICT Projects

Outlines the name/title of the proposed ICT project together with the list specific objectives and indicated the duration of the project. The deliverables are enumerated like policies for issuance, trainings to be conducted, covered ISs and DBs. The lead and implementing agency is likewise distinguished.

- Performance Measurement Framework

The hierarchy of outcomes of the ICT Project are transcribed and clustered into intermediate outcome, immediate outcome, and outputs with the measurable indicators that would prove that the outcomes and outputs.

- Hierarchy of targeted result  
Creates an order of the ICT Project's results, categorizing them as intermediate, immediate, and outputs.
- Objectively verifiable indicator (OVI)  
Determines the quantifiable indicators to be used to verify the Hierarchy of targeted and attained outcomes and outputs.
- Baseline data  
Gets the baseline data for the indicator stated in OVI prior to the execution of the ICT project.

- Target  
Makes a list of the project's objectives for each OVI, taking into consideration the information in the Baseline data.
- Data collection method  
Determines the data collecting techniques that are to be used in acquiring the necessary data.
- Responsibility to collect data  
Determines which internal or external unit of the agency is in charge of collecting and analyzing the agency's data.

#### d) Part IV. Resource Requirements

The fourth part of the DICT ISSP template which covers the assessment of the Resource Requirements in terms of Deployment of ICT and Services and ICT Organizational Structure.

- Deployment of ICT Equipment and Services

- Item  
Refers to the equipment that are to be deployed (e.g. laptop, printers, etc). Objects of expenditures should be grouped into allocation classes (CO or MOOE) and further categorized. ICT cost items are classified in Annex A-6. Technical specifications should not be included and a separate list should be kept in the existing ICT inventory.
- Name of Office/ Organizational Unit  
Specifies the location of the information technology objects.
- Proposed Number of Units  
Indicates the quantity of units to be deployed.

#### ICT Organizational Structure

- B.1 Existing ICT Organizational Structure

Creates a diagram of the current ICT organizational structure and indicates the position on the plantilla and the number of permanent, contractual, outsourced, or project-based employees per position.

- B.2 Proposed ICT Organizational Structure

Illustrates the suggested ICT organizational structure. It uses numbers to indicate the overall number of permanent, contractual, outsourced, or project-based personnel employed in different positions.

- B.3. Placement of The Proposed ICT Organizational Structure in the Agency Organizational Chart

Proposes a new organizational structure and includes a visual representation on how the suggested structure situates in the organizational chart. Likewise, it indicates which office needs direct oversight and control.

#### e) Part V. Development and Investment Program

ICT items like laptop, printers and other tools are indicated and classified into Allotment Class (CO or MOOE) categorized per Object of Expenditures. The number of units and the location where the ICT items are specified and deployed.

- ICT Projects Implementation Schedule

Compiles a list of all planned information technology initiatives. It also indicates the calendar year of implementation of the suggested ICT projects.

- Information Systems (IS) Implementation Schedule

Compiles the suggested list of all information systems. Likewise, it indicates the year in which the IS, subsystems, or modules are developed.

- Summary of Investments

Indicates the summary of investments per year, cost breakdown, and the ICT items acquired. Similarly, it includes the continuing costs of existing operational applications/information systems/databases and continuing & ongoing projects. The physical targets and corresponding estimated cost needed for each ICT item are signposted.

- Year 1 Cost Breakdown

Provides a cost breakdown for three consecutive years and indicates the ICT project's name in the appropriate column heading.

- f) Part VI. Inventory of ICT Infrastructure

This covers the assessment of the Inventory of ICT Infrastructure in terms of Hardware / Other ICT Equipment, and Software, Application system, information systems, and databases.

- Hardware / Other ICT Equipment. Identifies the state of the hardware, software, network and other ICT resources used to manage information by Nueva Era Municipality.
- Software, Application System, Information Systems and Databases. Classifies the updated existing benchmark and standards software, Application System, Information Systems and Databases and provided inputs to the MITHI Steering Committee in determining the ICT budget requirements of the agency.

Information on the profile, organizational structure and the development and investment programs of the municipality were elicited from secondary sources and were requested from authorized personnel.

#### *D. Research Process*

Data collection underwent a systematic research process from the initial to the ultimate phase of research. Initially, the proponent of the study secured permits and informed consent from LGU administrators and participants. A letter of request was sent to the municipal office of Nueva Era, Ilocos Norte and the researcher waited for the approval prior to the commencement of the research investigation in the respective offices of concern. In order to assure full participation and cooperation of the respondents, the researcher administered an informed consent allowing the respondents to know the benefits and risks of research on their decisions to participate in the survey. The study's intent was clarified, and the confidentiality of the data was guaranteed. The researcher personally conducted the survey and empirical observations to obtain the needed information that constituted primary and secondary sources of data. The survey questionnaire/ tool/ checklist was disseminated and distributed to selected participants to acquire the perceptions and stands on the issues presented in the instrument which had direct implications on the understanding of study. Following the responses made on the survey tools, 100% retrieval or return rate of the instruments was expected. The data obtained was subjected to data checking, analysis, and interpretation.

## CHAPTER IV

### RESULTS AND DISCUSSIONS

This chapter presents the results based on the surveys and interviews conducted. These results were used in the development of the Information Systems Strategic Plan (ISSP) of the Municipality of Nueva Era.

#### *A. Organizational Profile of Nueva Era, Ilocos Norte*

Nueva Era envisions itself as a more socio-economically integrated upland municipality in the province of Ilocos Norte with a sustainable and vibrant environment, protected cultural resources, and an abundance of natural and man-made wonders. These dreams are all made possible because of its tourist-friendly, upright, hardworking, inspired, and conscientious citizenry headed by enlightened leaders dedicated to both advancement and sustainability of the municipality.

##### a) Vision

Along with its vision, the municipality is committed to (1) promote meaningful, productive interaction between an effective and efficient legislative, and dynamic and vibrant civil society; (2) promote positive Filipino values among the families; (3) provide programs for drug free and responsible youth sector; (4) create programs for sustainable development; (5) provide programs aimed at food security; (6) develop proficient, motivated, and inspired workforce on the organization; (7) promote arts and tourism; (8) provide quality services to all sectors; and (9) make the local development plans anticipatory and proactive of climate change and disaster impacts.

##### b) Mission

Toward this end, we are committed to pursue: Promote meaningful, productive interaction between an efficient, efficient legislative, and dynamic, vibrant civil society; The promotion of positive Filipino values among the families; Programs for drug free and responsible youth sector; Program for sustainable development; Programs aimed at food security; Development of proficient, motivate, and inspired workforce on the organization; The promotion of arts and tourism; The provision of quality services to all sectors; Make the local development plans anticipatory and proactive of climate change and disaster impacts.

##### c) Agency and its Environment

Nueva Era is currently operating on an annual budget for 162,072,170.00, of which 29.13% (47,221,898.00) is appropriated to personal services, 20.28% (32,875,543.09) for Maintenance and Other Operating Expenses, 14.01% (22,712.154.00) for Capital Outlay and 36.57% (59,262.574.40) for Non-Office Expenditures. To emphasize the importance of ICT spending in accomplishing the municipality's goals, it is proposed that 2.86 percent or approximately 4,635,142.00 be dedicated to the first year of ICT implementation and an annual allocation for ICT shall be allocated at least 1.32%.

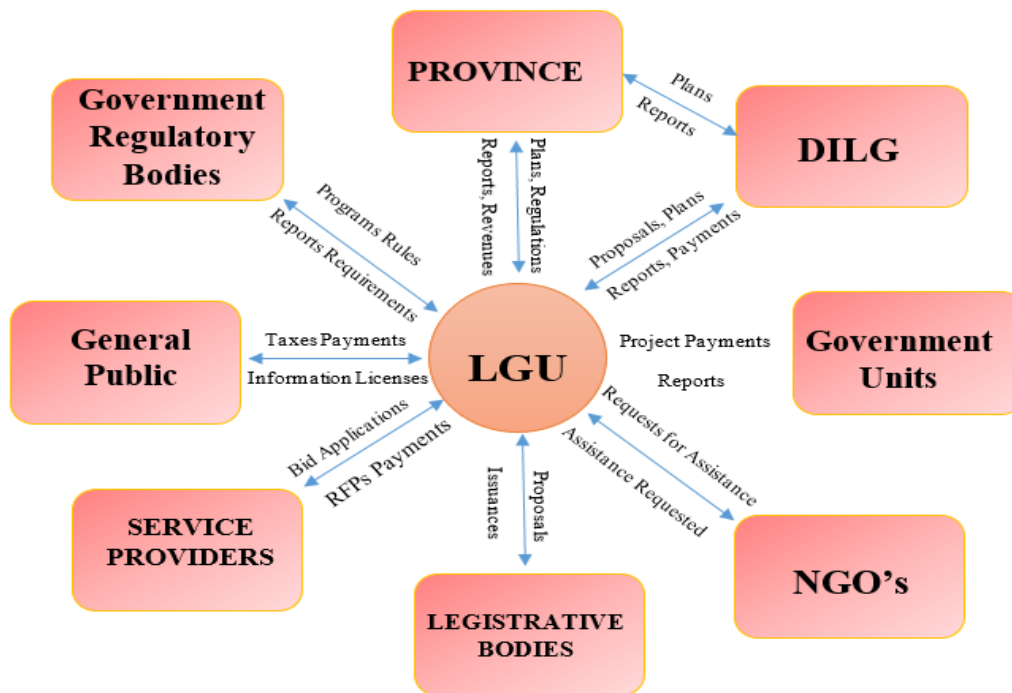


Fig. 2: The Municipality of Nueva Era and its Environment.

Figure 2 illustrates the municipality of Nueva Era and the relationships that it has with its clients and stakeholders as well as beneficiaries, other organizations, and entities that make important contributions to the achievement of its vision and missions. The figure above is based on AnnexA-1 of the DICT.

d) Present ICT Situation

In terms of the municipality’s ICT situation, all offices or divisions are equipped with computer units (desktop and/or laptop) basically used for document processing and other reports generation. Storage devices such as external hard drives and flash drives are being used for storage of data and data sharing among offices in the municipality. The municipality acquired multi-functional printers and document scanners for document production. Also, a fingerprint scanner is being used for attendance recording of all employees.

The municipality has implemented the following information systems for faster services to its clientele:

- *Philippines Civil Registry Information System (PhilCRIS)*. This system allows encoding of sensitive information from civil registry documents, storing of essential data, query and retrieval of encoded records, printing and issuance of approved copies of encoded civil registry documents, generation of transmittal archives, and data management.
- *Real Property Tax Information System (RPTS)*. RPTS is a computerized system that supports the Assessor's office in estimating real estate taxes due. It includes features for land appraisal depending on market value as well as changes for inflation. This system is linked to the Treasurer's office's RPTS module for billing and collection activities.

On the other hand, Internet connectivity in terms of Mobile Data connection is unstable due to the geographical location of the municipality. The municipality is connected to PLDT Fiber, and all offices are likewise connected to the local area network.

SKILLS	None		Basic		Intermediate		Advanced	
	P	%	P	%	P	%	P	%
Word Processing applications	0	0.00	24	85.71	3	10.71	1	3.57
Spreadsheet applications	0	0.00	23	82.14	4	14.29	1	3.57
Presentation applications	0	0.00	26	92.86	2	7.14	0	0.00
Database applications	3	10.71	24	85.71	0	0.00	1	3.57
Multimedia applications	10	35.71	17	60.71	1	3.57	0	0.00
Web design applications	11	39.29	15	53.57	1	3.57	1	3.57
Web search engines	10	35.71	15	53.57	2	7.14	1	3.57
Communication applications	7	25.00	19	67.86	2	7.14	0	0.00

Table 1: Level of ICT skills proficiency of personnel(n=28)

Table 1 presents the results of the assessment conducted on the level of ICT skills of personnel. The level of ICT skills among the employee respondents from the municipality marked mostly basic in terms of their skills in word processing, spreadsheet, presentation, database, multimedia, web design, web search, and communication.

e) Strategic Concern for ICT Use

MAJOR FINAL OUTPUT <sub>1</sub>	CRITICAL MANAGEMENT/ OPERATING/ BUSINESS SYSTEM <sub>2</sub>	PROBLEMS <sub>3</sub>	INTENDED USE OF ICT <sub>4</sub>
Residence Information	<ul style="list-style-type: none"> <li>- Individual Information</li> <li>- Personal Information</li> <li>- Basic health Information</li> </ul>	<ul style="list-style-type: none"> <li>- Slow documentation of the information process</li> <li>- No updated listing of the Residence information</li> <li>- Long queue on information records</li> <li>- Inaccessibility of residence Information listing</li> </ul>	Residence Computerized Information System <ul style="list-style-type: none"> <li>- Online Access of the Residence Information by means of QR code</li> <li>- boost government services</li> <li>- streamline transactions</li> </ul>
Municipality social media	<ul style="list-style-type: none"> <li>- clear description of the organization</li> <li>- find contact information</li> <li>- Fresh, quality content</li> <li>-</li> </ul>	<ul style="list-style-type: none"> <li>- Data meant for the general public and constituents is difficult to obtain.</li> <li>- It is difficult to exchange information between citizens and local government officials.</li> <li>- difficult conducts its business with the public in a more effective and timely manner</li> </ul>	Municipality Website <ul style="list-style-type: none"> <li>- Web-based content management system.</li> <li>- Online forms and contact information.</li> <li>- Calendars and events</li> <li>- Department pages and contact information.</li> <li>- Board and committee pages.</li> <li>- Legal notices and ordinances</li> </ul> Community information

Human Resource	<ul style="list-style-type: none"> <li>- store employee information</li> <li>- manage time,</li> <li>- assist in hiring processes,</li> <li>- handle finances and benefits information</li> </ul>	<ul style="list-style-type: none"> <li>- Delay in retrieval of Employee's information</li> <li>- Time consuming in search a needed report/information.</li> <li>- Workforce growth has not been kept up to date.</li> <li>- Difficulty tracing job benefits</li> </ul>	<p>Human Resource Management System</p> <ul style="list-style-type: none"> <li>- Employee Information Management</li> <li>- Recruitment and Hiring</li> <li>- Benefits Management</li> <li>- Financial Management like Payroll or Compensation</li> <li>- Time and Attendance Management</li> </ul>
Business Permit & Licensing	<ul style="list-style-type: none"> <li>- Payment of Mayor's Permit business tax and fees for licenses</li> <li>- Mayor's Permit registration requirements <ul style="list-style-type: none"> <li>- New</li> <li>- Renewal</li> <li>- Revocations</li> </ul> </li> <li>- Issuance of Business Permit</li> </ul>	<ul style="list-style-type: none"> <li>- Difficult to locate the file.</li> <li>- Filling-up of Application and Renewal Form takes a lot of time</li> <li>- Manual data banking and device storage are time-consuming activities.</li> <li>- Processing of Application and Checking of Requirements are done manually that leads to a slow transaction</li> </ul>	<p>Business Permit and License System</p> <ul style="list-style-type: none"> <li>- updates the LGU's business/mayor's permit and establishment master files</li> <li>- maintains data on business permit-related transactions which include: <ul style="list-style-type: none"> <li>- new applications</li> <li>- renewals of business permits,</li> <li>- closure of business establishments.</li> </ul> </li> </ul>
Payroll	<ul style="list-style-type: none"> <li>- Keep and update employee's information</li> <li>- calculate the payroll each pay period</li> <li>- monitor leaves/absences and late/overtime of employees</li> </ul>	<ul style="list-style-type: none"> <li>- requires extra attention in order to make critical legislative updates.</li> <li>- resistant to major errors and consumes a significant amount of time</li> <li>- Employee data such as leaves, reimbursements, overtime submissions, and so on are usually manually entered or uploaded.</li> <li>- Excel spreadsheets with detailed require a great deal of supervision.</li> <li>- Keeping sensitive employee records on paper or in spreadsheets is not a safe way.</li> </ul>	<p>Payroll Processing System (PAYROLL)</p> <ul style="list-style-type: none"> <li>- Improves Compliance</li> <li>- Calculates Deductions and Net Income</li> <li>- Prepares Tax Forms</li> <li>- Keeps Records Effortlessly</li> <li>- Eliminates Payroll Errors</li> <li>- generates the payroll of the LGU including remittance reports.</li> </ul>

Budget Preparation & Monitoring	<ul style="list-style-type: none"> <li>- budget preparation,</li> <li>- budget authorization,</li> <li>- budget execution and accountability.</li> <li>- analyze sources of funds</li> <li>- monitor all expenditures</li> </ul>	<ul style="list-style-type: none"> <li>- Slow data retrieval</li> <li>- Information is inaccurate</li> <li>- Don't have the right tools to can help create and analyze budget</li> </ul>	<b>Budget and Expense Monitoring System (BEMS)</b> <ul style="list-style-type: none"> <li>- Consolidating all budgets in an entity and generating information such as Estimated Cash Balance Statements</li> <li>- Maintains the agreed budget of each unit in a database</li> <li>- apprehending reports on budget deficits and variances between budgeted sums and real expenses.</li> </ul>
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Table 2: The municipality's strategic concerns for ICT use

Table 2 offers the list of each service of the municipality which can be facilitated by the adoption of ICT. This covers the following services specifically Residence Computerized Information System, Human Resource Management System, Business Permit and Licensing System, Payroll Processing System, and Budget and Expense Monitoring System.

## f) Hardware /Other ICT Equipment

All of the offices as per the personnel of the municipality have desktops and laptops/notebook/netbook.

Department	Desktop	Laptop	Printer (3in1)	Printer	Copier	Router / Wi-fi	Network Gateway	Switches
Office of the Mayor and Chief Administrative Office (CAO)	2	1		2	1	1		
Human Resource Management Office (HRMO) and Municipal Civil Registrar (MCR)	3		2			1		
Municipal Planning and Development Office (MPDO) and Municipal Disaster Risk Reduction Management (MDDRM)		2	1					
Budget Office	2	1	2			1		
Engineering Office	2	1	1	1		1		
Assessor	3	1	1	1				
Treasury	6	2	4	2		1		
Accounting	3	1	2			1		
Department of the Interior and Local Government (DILG)	1	1	1					
Sangguniang Bayan Office	1			1		1		
Municipal Social Welfare and Development Office (MSWDO)	1	1	1			1		
Municipal Health Office (MHO)	2		2			1		
ICT	2						1	3



<b>TOTAL</b>	<b>28</b>	<b>10</b>	<b>18</b>	<b>6</b>		<b>9</b>	<b>1</b>	<b>3</b>
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Table 3: Existing Hardware and other ICT Equipment.

The table 3 confirms that the Municipality of Nueva Era is well-equipped in terms of ICT equipment.

*B. Information Systems Strategies, Current ICT Projects being Undertaken and ICT Development and Investment Programs of the Municipality*

a) Conceptual Framework

This is the general design of all information systems, including subsystems, links, data or information sources, and databases.

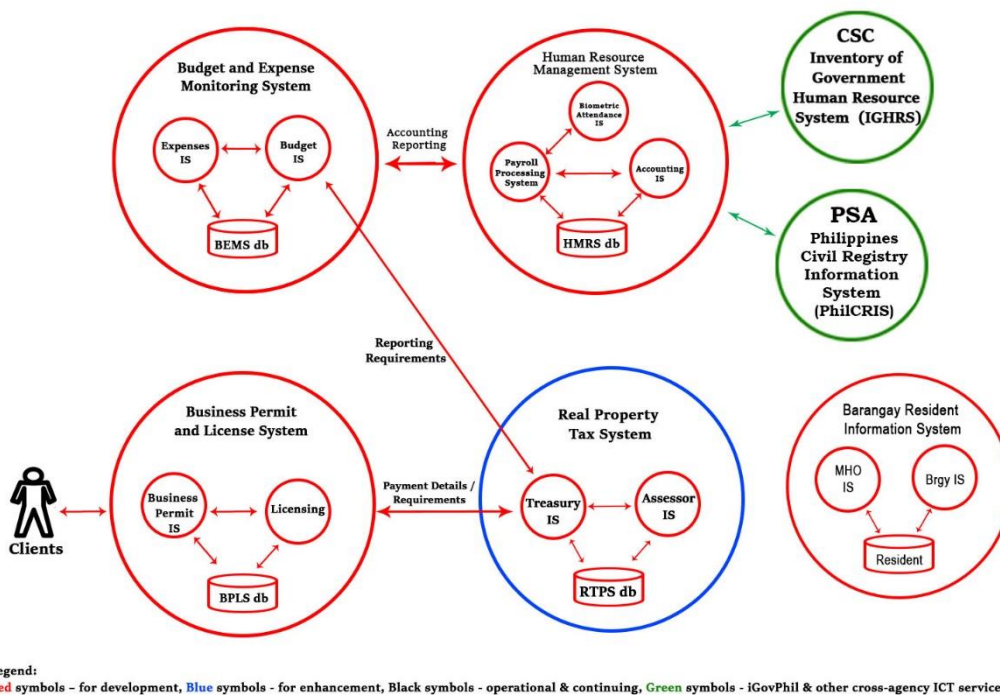


Fig. 3: Conceptual Framework for Information Systems.

Figure 3 shows the overall architecture of all information systems, including subsystems, linkages, data sources, and databases. The Human Resource Management systems tracks the employment record, talents, capacities, wages, and accomplishments of the employees in a short amount of time. The payroll system is designed to store all of the relevant details about employee salaries and taxes. These operations include time tracking, income calculation, withheld taxes and deductions, copying and distributing checks, and reporting payroll taxes to the government. Meanwhile, the biometric Attendance System can be used to gather payroll details for attendance. Collected data are saved in the HRMS database.

The Business Permit and License System creates and maintains the LGU's master files for business/mayor's permits and establishments. Additionally, it collects and preserves reports on business permit-related activities, which involve new business permit approvals and renewals, as well as business establishment closures.

The Budget Expense and Monitoring System (BEMS) is a digital system that takes over the manual process of consolidating spending details of all departments within an organization and generates information such as Projected Cash Flow Statements. It retains a log of each unit's authorized budget, capturing details on budget balances and variances between budgeted and real expenses.

This proposed conceptual structure informs everyone about the communication of the frameworks that could assist the municipality in taking the first step toward being a smart municipality.

b) Detailed Description of the Proposed Information System

This includes the description of ICT projects as Internal ICT projects, Cross-Agency ICT projects, and a framework for performance assessment. The majority of systems are under development, and the plan for development included outsourcing.

- Barangay Resident Information System

Barangay Resident Information System is suitable for use by barangay workers who have access to barangay residents' profile details and also the basic health background for direct reporting. It provides better storage, quicker file recovery, ensures dependability and consistency, and allows for faster file monitoring. The system is presently being developed in-house with the assistance of the Mariano Marcos State University software development team. DILG owns the system, which may be accessed by internal users MSWD and MHO, as well as external users Barangay Officials, and Residents of the Nueva Era.

- Municipality Website

This is a series of interconnected webpages, typically containing a homepage, that are prepared and maintained as a collection of municipal information. Internal users' ICT personnel maintain the site, while external users are government agencies and employees, as well as the general public, who need information about the province.

- Biometric Attendance System

This is a technical term referring to the process of identifying an employee by means of a thumb mark for systematic attendance. Internally, the Human Resources department is responsible for precise employee monitoring, access control, and integration with HRMS.

- Payroll Processing System

A payroll processing system refers to the process of compensable employees at the end of a payroll period. The applications include algorithms that determine gross and net pay amounts based on input data such as hours worked and pay rates.

- Business Permit and License System (BPLS)

The Business Permit and License System creates and maintains the Local Government Unit's business/permit mayor's and establishment master files. It also collects and preserves details on business permit-related transactions such as new business permit approvals and renewals, as well as business establishment closures.

- Budget and Expense Monitoring System (BEMS)

A program that automates the process of budgeting, spending and allocating funds for various projects inside a company. It is a budget spending tracking program that handles an organization's financial demands.

c) Databases Required

Concisely described as databases to be built or improved, including examples of datasets intended for build-up, conversion, or migration, pointing to the IS that used the database.

- Residence

Composing of individual characteristics, it includes the individual's name, gender, date of birth, district of residence, nationality, mother's maiden name, and place of birth registration.

- HRMS

It holds the database of Nueva Era Personnel records, land management, and a human resource growth plan are among the main types of information generated.

- DTR

The database that records employees of Nueva Era as an input into the payroll scheme for salary and other remuneration calculations.

- **Payroll**  
An automated payroll system that enables employees' payroll information and for compensation purposes.
- **Business Permit and License System (BPLS)**  
This collects and preserves details on business permit-related transactions such as new business permit approvals and renewals, as well as business establishment closures.
- **Budget and Expense Monitoring System (BEMS)**  
A database system's operation which is responsible in the accounting of all actual assets and associated records on the land such as ownership, assessed value, and other relevant details.

### Network Layout

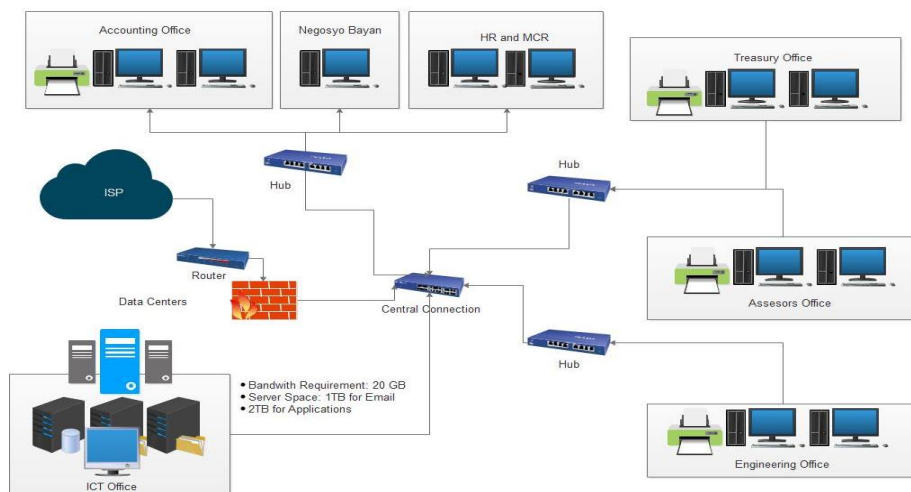


Fig. 4: First Floor Proposed Architectural Network.

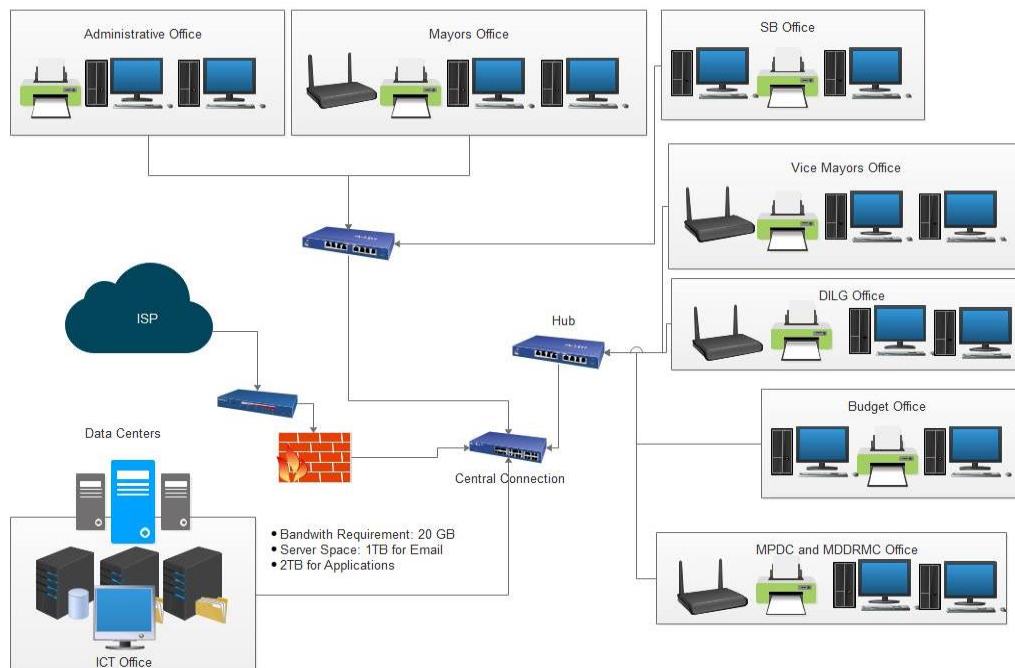


Fig. 5: Second Floor Proposed Architectural Network

Figures 4 and 5 on page 58, illustrates the proposed first and second floors Architectural Network Design. Both illustrations outline the specifications required to meet the proposed system's requirements. All offices were linked to the ICT office where the server is located. The ICT office had two distinct servers: one devoted to archives and another to documents. Each accounting, finance, and engineering office had its own wireless router for devices that need WIFI connectivity. Treasury and accounting were linked to a single hub for LAN delivery, while Accounting, nEgoso Bayan, Human Resources, and MCR were all connected to a single hub for LAN distribution. For optimal transmission rates, a bandwidth requirement of 20 GB is needed. 1TB of storage is reserved exclusively for emails, and 2TB of storage is reserved exclusively for applications such as resident ID system, Biometric Attendance System, HRMS, BEMS and the Payroll system. To ensure data integrity, it must move via the firewall.

#### d) Internal ICT Projects

The time frame for these internal ICT projects was based on the usual number of months required to create a custom software. In typical Software Development Life Cycle (SDLC) models, there are generally five to seven stages, each of which has a distinct time period associated with it. Planning and requirements last for two to four weeks depending on the nature of the project. Another two to four weeks for design and architecture, three to eight months for development and coding, and a additional two to four weeks for implementation. Testing and maintenance normally take three to six weeks, and finally, production ensues three weeks or more to complete [28].

- Rank 1: Barangay Resident Information System

This system aims to identify Nueva Era residents in an electronic and efficient way, enhance the quality of services, improve the retrieval of residents' records especially in the case of an emergency.

- Rank 2: Municipality Website

The goals of this project are the following: to inform constituents on information needs, to communicate with their citizens, to provide a tremendous opportunity for improved communication between towns and increased community resilience, to upsurge residents' opportunities to engage in, to become an updated municipal government, and to showcase the diverse communities.

- Rank 3: Human Resource Management System (HRMS)

To manage the municipality's data, to create an easy reporting system, to improve human relations within the organization, to provide a full-service payroll solution, to track employee development, to provide the ability to run operational reports, and to track human resource data are the aims of the project.

- Rank 4: Biometric Attendance System

To decrease the quantity of paperwork generated by the payroll department, to minimize time theft, to enhance employee responsibility, and to improve payroll accuracy are the project's targets.

- Rank 5: Payroll Processing System

To enhance compliance by calculating deductions and net income, to improve the preparation of tax forms and maintaining records, to eliminate payroll mistakes, and to generate the LGU's paycheck including its remittance reports are the intentions of this project.

- Rank 6: Business Permit and License System (BPLS)

This project is geared towards automation in the process of applying and generating of Mayor's Permits and other permits, as well as the computation of taxes and fees, billing, payment, and collection liquidation. Moreover, the system aims to manage billings and payments across multiple tax years while maintaining transaction and payment records, to update the municipal business/permit, and to maintain track of data on business permit-related taxes and fees.

- Rank 7: Budget and Expense Monitoring System (BEMS)

To consolidate the budgets of all units within an organization, generate reports such as Projected Cash Flow Statements to maintain the agreed-upon budget of each unit in a database, capture reports on budget deficits and variances between budgeted sums and actual expenses, and to capture reports

on budget deficits and variances between budgeted sums and actual expenses are the projected benefits of the project.

e) ICT Projects Implementation Schedule

All information technology initiatives that are currently being considered are all listed below. Similarly, the calendar year of implementation and recommended information on the technology projects are enumerated.

Name of ICT Project	Year 1	Year 2	Year 3
Office Productivity			
ICT Project 1 – Barangay Resident Information System			
ICT Project 2 – Municipal Website			
ICT Project 3 – HRMS			
ICT Project 4 – Biometric System			
ICT Project 5 – Payroll System			
ICT Project 6 – Business Processing and Licensing System			
ICT Project 7 – Budget Expense Monitoring System			

Table 4: Project Implementation Schedule

Table 4 presents the implementation schedule of the proposed ICT projects. The office productivity project is expected to be completed in its third year. While the other ICT projects specifically on information systems development projects are scheduled only for 1 year. With this, it is expected that the municipality will have the above-mentioned information systems in full operation at the end of 3 years.

• Estimated Development Cost:

A total of Php 4,635,142.00 shall be allocated for this proposed ICT implementation and to be sourced out from the fund of the local government unit following the guidelines of RA. No. 9168 and RA. No. 6957 as amended by RA No. 77218, specifically on the guidelines on the preparation, review and approval and implementation of Information Communications Technology projects proposed financing.

An operational plan and a detailed breakdown of funding depend upon the submitted Approved Budget Contract.

The Local Government Unit is in charged and required to monitor the development of the project and to ensure that funding is distributed fairly and justly to maximize opportunity for all.

*C. Resource Requirements in the Municipality*

In this section, the resource requirements for the municipality of Nueva Era are presented. These resource requirements include ICT equipment and ICT related services, and ICT man.

Item	Name of Office	Proposed Number of Units		
		2022	2023	2024
1. Office Productivity				
A.Capital Outlay				
ICT Machinery and Equipment				
·Desktop	All Offices	20	10	10
·Laptop	All Offices	15	5	5
·Network Equipment	All Offices	15	5	5
Printing Equipment				
·Printers	All Offices	15	5	5
·Photocopier	ICT Office	1		
	Mayor's Office	1		
B.MOOE				
·Training Expenses		1	1	1
ICT Project 1 – Residence Computerized Information System				
A.Capital Outlay				
ICT Machinery and Equipment				
·Laptop	All Barangays and ABC Office	12		
·Network Equipment	All Barangays and ABC Office	12		
·Server	ICT Office	1		
Printing Equipment				
·Printers	All Barangays and ABC Office	12		
B.MOOE				
·Web Hosting		1		
·Development Cost		1		
·Training Expenses		1		
·Communication Allowance		1		
ICT Project 2 – Municipal Website				
A.Capital Outlay				
ICT Machinery and Equipment				
·Laptop	ICT Office	1		
B.MOOE				
·Web Hosting		1		
·Development Cost		1		
·Training Expenses		1		
ICT Project 3 – HRMS				
A.Capital Outlay				
ICT Machinery and Equipment				
·Laptop	HR Office		1	

·Server	ICT Office		1	
Printing Equipment				
·Printer	HR Office		1	
B.MOOE				
·Development Cost			1	
·Training Expenses			1	
ICT Project 4 – Biometric System				
A.Capital Outlay				
ICT Machinery and Equipment				
·Desktop	HR Office		1	
·Fingerprint Scanner	HR Office		1	
Printing Equipment				
·Printer	HR Office		1	
B.MOOE				
·Development Cost			1	
ICT Project 5 – Payroll System				
A.Capital Outlay				
ICT Machinery and Equipment				
·Desktop	Accounting Office		1	
Printing Equipment				
·Printer	Accounting Office		1	
B.MOOE				
·Development Cost			1	
ICT Project 6 – Business Processing and Licensing System				
A.Capital Outlay				
ICT Machinery and Equipment				
·Desktop	Treasury		2	
·Server	ICT Office		1	
Printing Equipment				
·Printer	Treasury		2	
B.MOOE				
·Development Cost			1	
ICT Project 7 – Budget Expense Monitoring System				
A.Capital Outlay				
ICT Machinery and Equipment				
·Desktop				2
Printing Equipment				
·Printer				2
B.MOOE				
·Development Cost				1

Table 5: Deployment of ICT Equipment and Services.

Table 5 presents the ICT items to be deployed per project categorized according to object of expenditures and classified into allotment class.

Aside from having a stable and sufficient ICT infrastructure, the municipality has to establish an ICT office dedicated to support the ICT needs of the municipality. At present, there is no ICT office. However, IT personnel was assigned to take charge of the ICT needs of the municipality.

Republic Act No. 10844 An Act Creating the Department of Information and Communications Technology, defining its powers and functions appropriating funds therefore, and for other purposes. This Act shall be known as the “Department of Information and Communications Technology Act of 2015”. In Sec. 17, Structure and Staffing Pattern - Subject to the approval of the DBM, the Department shall determine its organizational structure and create new divisions or units as it may deem necessary, and shall appoint officers and employees of the Department in accordance with the civil service law, rules and regulations [28].

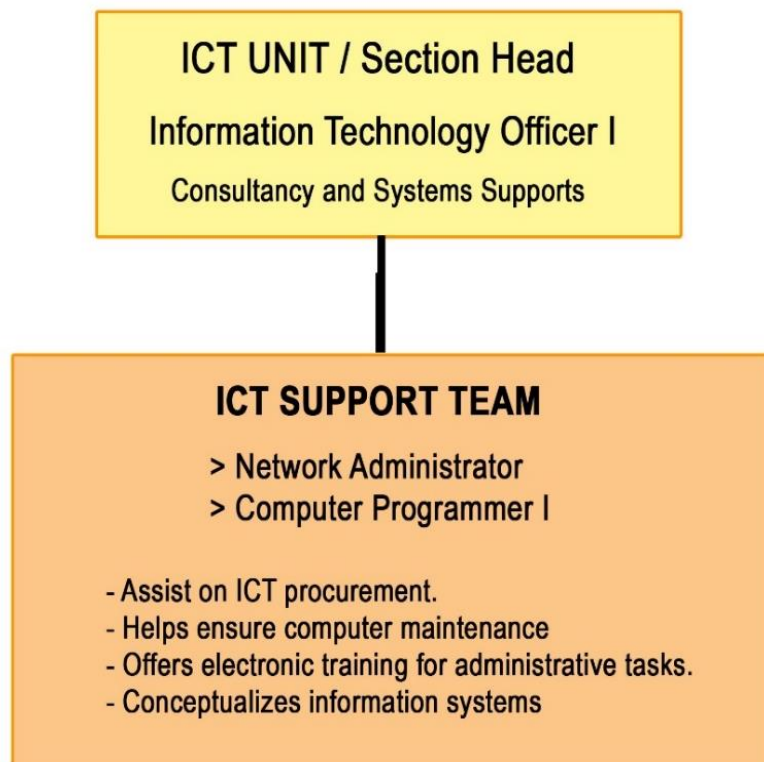


Fig. 6: The Proposed ICT Organizational Structure of the Municipality.

Figure 6 indicates the overall organizational structure of the proposed ICT section of the municipality. This includes the creation of new ICT positions such as Information Technology Officer I, Network Administrator and Computer Programmer I. This section is responsible for the administration, development and maintenance of information technology systems and services. The suggested information technology structure is based on the work that will be done during the ISSP's deployment. Because most of the systems are outsourcing, the ICT support team is in-charge in the installation and maintenance of local area networks (LANs), wide area networks (WANs), network segments, the Internet, and intranet systems. Itsteam also ensures security and availability to particular network activity of the users.



## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary, conclusions, and recommendations of the study.

#### A. Summary

This research study developed an information systems strategic plan for the municipality of Nueva Era, Ilocos Norte. The research study utilized the Research and Development (R&D) methodology which is composed of two stages namely planning and development.

The respondents of the study were the employees of the Local Government of Nueva Era, Ilocos Norte. The data were gathered using survey instruments.

In the government setting, developments and improvements are significant and integral parts of the system to be able to provide enhanced, favorable, and sustainable living and working environments for their respective cities and communities. Digital conduct of transactions in the Local Government Unit is now technically considered as the most promising resource in delivering great initiatives for smart city's framework of the different Local Government Unit's (LGU) communities and constituents.

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. This makes sure that the business operations of the municipality government are supported by Information Technology.

Several strategic planning frameworks exist, but the ISSP template of the DICT was applied to this case:

- *Organizational Profile*: This serves as a representation of Nueva Era Municipal's organizational profile, including the agency's vision and mission, agency profile, agency and its climate, ICT situation, and strategic concern for ICE use.
- *Information System Strategy*. Includes the development of the ISS Strategy, the Conceptual Information System Framework, detailed description of potential information systems, the required database and the network layout.
- *ICT Projects*: Represent the ICT Projects in terms of Internal ICT Projects, Cross-Agency ICT Projects, and a system for measuring performance.
- *Resource Requirements*. Assess the Resource Requirements for ICT and Service Deployment, as well as the ICT Organizational Structure.

Making Nueva Era a smart town enables the whole municipality on the use of ICT to improve its operational efficiency, to maximize organizational productivity, to exchange information with the people, and to improve the quality of community services as well as the health of its constituents.

Finally, the adoption and implementation of ISSP can transform the municipality into a well-developed and civilized town through maximizing the utility of technological resources and improving its quality of services for its residing and working citizens.

### B. Conclusions

Based on the findings, it can be concluded that: Nueva Era is currently operating on an annual budget for 162,072,170.00 and to emphasize the importance of ICT spending in accomplishing the municipality's goals, it was proposed that 2.86 percent or approximately 4,635,142.00 be dedicated to the first year of ICT implementation and an annual allocation for ICT shall be at least 1.32%. At present, the municipality has a total of 153 employees.

In terms of the municipality's ICT situation, all offices or divisions were equipped with computer units (desktop and/or laptop), and for storing and sharing of data, external hard drives and flash drives were being used. In addition, the municipality had multi-functional printers and document scanners for document production and fingerprint scanner for attendance recording of all employees.

The municipality also implemented Philippines Civil Registry Information System (PhilCRIS) and Real Property Tax Information System (RPTS) for faster services to its clientele.

In terms of ICT Skills of its employees, most of the respondents from the municipality had *Basic Skills* in word processing, spreadsheet, presentation, database, multimedia, web design, web search, and communication.

As regards to internet connectivity, the municipality is currently connected to PLDT Fiber and all offices are connected to the local area network. In terms of ICT tools and equipment, the municipality was well-equipped and majority of the employees were using Windows 7 and Windows 8 and up. Word and Spreadsheet were the *Most Used* applications in all the departments.

With regard to the Information Systems Strategies Plan, an ISSP that addresses all of the municipality's strategic objectives was developed. It addressed the creation and execution of the development of application such as Barangay Resident Information System, HRMS, BAS, PPS, BPLS and BEMS, database or system used by a department to optimize internal processes, a stable and reliable network, a comprehensive website capable of serving as a gateway to information about the municipality, its departments, and its procedures and forms, and a well-trained and responsive information technology staff. Prioritization of these projects, as well as the logical design and execution, were established and evaluated on a regular basis by the municipality's administration.

As to resource requirements, the municipality had a stable and sufficient resource requirement, however, the establishment of an ICT office must be dedicated to support the needs of the municipality.

It can be concluded, further, that there is a need to develop an Information Systems Strategic Plan (ISSP) for the Municipality of Nueva Era, a strategic plan that focuses on people first, recognizing civic leadership, and an extensive community that converting the municipality into an excellent place to live and work. Truly, this is a plan that can make the municipality a smart town.

### C. Recommendations

In the light of the findings and conclusions drawn, the following are recommended:

- The administration to consider the adoption and implementation of the Information Systems Strategic Plan for the municipality;
- The administration of the Municipality of Nueva Era to reflect on the establishment of a different unit under the Human Resources Department to direct and monitor the implementation of the strategic plan following the policy provided by civil service and other government agency concern;
- The administration of the Municipality of Nueva Era to spearhead the development of the system to make the municipality a smart town;
- The administration to initiate the conduct of an evaluation study to determine training and seminars needed by the personnel to equip them with ICT knowledge and skills;

- The personnel to attend seminars and training or any developmental activities to further equip employees with ICT knowledge and skills;
- The researcher to present the Information Systems Strategic Plan to the municipality's administration;
- A similar study can be conducted to other municipalities to come up with a more holistic plan and system to be adapted by different municipalities in Ilocos Norte; and
- The study itself including all the discovered information serves as a contribution to future studies as a quick reference guide to the development of information systems strategic plans.

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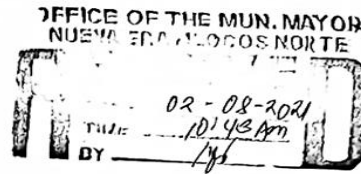
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### APPENDIX A

## LETTER OF REQUEST TO THE OFFICE OF THE MAYOR

January 25, 2021

HON. ALDRIN R. GARVIDA  
Municipal Mayor  
Nueva Era, Ilocos Norte



Dear Mayor:

Warmest greetings!

I am **Jacquiline M. dela Merced**, currently enrolled in the **Master in Information Technology (MIT)** program at the Mariano Marcos State University, Graduate School. I am at present conducting my Capstone Project 2 entitled, **“DEVELOPMENT OF AN INFORMATION SYSTEMS STRATEGIC PLAN FOR THE MUNICIPALITY OF NUEVA ERA, ILOCOS NORTE”** which is a final requirement for the MIT degree. The study aims to develop an information systems strategic plan for the municipality of Nueva Era, Ilocos Norte.

In lieu, I would like to request permission from you that I be allowed to gather data and conduct interview in your municipality. If this will be a *fait accompli*, this project will provide the municipality a guide in achieving a smart municipality which will eventually use to deliver better service to your constituents.

I appreciate your action to this request. God bless and more power, Sir.

Respectfully yours,


  
**JACQUILINE M. DELA MERCED**  
Researcher

Noted by:

  
**WILBEN CHRISTIE R. PAGTACONAN**  
Adviser

Approved by:

  
**GERRY L. CONTILLO, DIT**  
Program Chair, MIT

 ⇒ to be ascited  
Daryl / Rachel

**APPENDIX B****SURVEY QUESTIONNAIRE****Development of Information Systems Strategic Plan for the Municipality of Nueva Era, Ilocos Norte**

Name (Optional):
Position/Designation:
Department:

I am grateful for your participation and assistance in answering this questionnaire. The information you provided will be used only for academic purpose. I can ensure full confidentiality of your information and its safety.

**The following questionnaires contain question regarding General Issues of Information System in the Agency**

For each question, please mark your response with a tick (✓), unless otherwise indicated. For “other” responses, provided a brief response.

- Does the company use Information System?  
 Yes                       No
- How long have your agency been using Information System?  
 Less than 2 years                       2-5 years  
 5-8 years                       8-10 years  
 More than 10 years
- How is the municipality connected with another agency?  
 Through Information System  
 Through handheld papers and Documents  
 Both
- Does Information System speedup the internal communication?  
 Yes                       No                       No change
- How does the working speed of the staff become after using Information System?  
 Increased                       Increasing                       Decreased

**Part I will rate the respondent's computer skills. Please place a check mark ( ✓ ) in the appropriate box: 'None,' 'Basic,' 'Intermediate,' or 'Advanced.'**

	Working with:	None	Basic	Intermediate	Advanced
1	Word Processing applications				
2	Spreadsheet applications				
3	Presentation applications				
4	Database applications				
5	Multimedia applications				
6	Web design applications				
7	Web search engines				
8	Communication applications				

**Part II will elicit the respondent's responses on the information systems strategies of the municipality**

Questions	YES	NO
<b>A. On Management</b>		
• Does your Information System is suitable enough to keep pace with dynamic agency environment?		
• Does Information System help your firm to get rid of mistakes or erroneous problems?		
• Has the control system been more effective than before by using Information System?		
<b>B. On Public Service</b>		
• Does the company provide online service to the public?		
• Is it true that after arrival of Information System it provides easy access to information for the public?		
• Does the IS provide the client with updated information in a quick interval		
• Does Information System have an impact on decision making?		

<b>C. Assessment for Information System</b>		
• Does your municipal use computers? <i>(Computer included Personal Computers, tablets and other portable devices such as Smartphones)</i>		
• Does your agency employ ICT specialist? <i>(ICT specialist are employees for whom ICT is the main job. For example, to develop, operate or maintain ICT systems or application)</i>		
• Does your agency provide any type of training to develop ICT related skills?		
• Does your agency can maintain the ICT infrastructure? <i>(Servers, computers, printers and networks)</i>		
• Does your agency can support for office software? <i>(Word processors, spreadsheets, etc.)</i>		
• Does your agency have a Website?		
• Does your agency use any of the following social media?		



• Social networks ( <i>Facebook, LinkedIn, etc.</i> )		
• Enterprise’s blog or microblogs ( <i>Twitter, Presently, etc.</i> )		
• Multimedia content sharing websites ( <i>YouTube, Picasa, SlideShare, etc.</i> )		

Criteria	YES	NO
<b>• Generating Reports</b>		
<b>If reports are submitted, by what means are they sent?</b>		
• Telephone		
• e-mail		
• Fax		
• Delivered Documents		
<b>If reports are submitted, how frequently?</b>		
• Weekly		
• Monthly		
• Quarterly		
• Yearly		
<b>Hindrances in Obtaining Reports</b>		
• Delay in Passing Reports		
• Inconsistent data		
• Lack of Funds		
<b>Maintaining Records</b>		
• Filing Cabinet		
• Hard drive (Soft copy)		
• Cloud Storage		
<b>Method in notifying the Public</b>		
• Printed Advertisement		

Part III of the research instrument will elicit information on the projects being undertaken by the municipality.

Criteria	YES	NO
<b>A. Administrative systems currently used in the Municipality</b>		
• Resident Information System <i>(System suitable for use by barangay workers who have access to barangay residents' profile details and also the basic health background for direct reporting.)</i>		
• Municipality Website <i>(A set of interconnected webpages, usually including a homepage, generally located on the same server, and prepared and maintained as a collection of municipal information.)</i>		
• e-BPLS <i>(Automates application and generation of Mayor's Permit and other permits, computation of taxes and fees, billing, payment, and collection liquidation processes.)</i>		
• HRMS or HRIS <i>(Software that is used for data entry, data tracking and the data information requirements of an organization's human resources)</i>		

<i>(HR) management, payroll and bookkeeping operations, etc.)</i>		
<ul style="list-style-type: none"> <li>• <b>Biometric Attendance System</b> <i>(A technical method that uses a thumb mark to identify an employee for the purposes of systematic attendance.)</i></li> </ul>		
<ul style="list-style-type: none"> <li>• <b>Payroll System</b> <i>(Software designed to organize all the tasks of employee payment and the filing of employee taxes. These tasks can include keeping track of hours, calculating wages, withholding taxes and deductions, printing and delivering checks and paying employment taxes to the government.)</i></li> </ul>		
<ul style="list-style-type: none"> <li>• <b>Budget and Expense Monitoring System (BEMS)</b> <i>(The BPMS takes over the manual task of consolidating the budgets of all units in an organization and produces reports such as Projected Cash Flow Statements. It maintains in a database the approved budget of each unit, thus information on budget balances and variances between budgeted amounts and actual expenditures are captured.)</i></li> </ul>		
<ul style="list-style-type: none"> <li>• <b>Real Property Tax Assessment System (RPTAS / RPTA)</b> <i>(Provides an electronic method for calculating taxes owed on real estate assets conducted by the Assessor's office)</i></li> </ul>		

If the response is NO, please specify the system that is currently in use in your department:

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How long have you been using this system?

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**Part IV of the research instrument will gather information on the status of the existing infrastructure of the municipality.**

<b>A. Network</b>		
Which of the following network resources does your LGUs have?		
<b>• Intranet</b>	<b>YES</b>	<b>NO</b>
• Local Area Network (LAN)		
• Wide Area Network (WAN)		
• Virtual Private Network (VPN)		
<b>• Internet Connection</b>		
• Leased line		
• Digital Subscriber line		
• Mobile Data		
• Integrated Service Digital Network (ISDN)		
• Satellite		
<b>Information and Communications Technology Environment</b>		
<b>Criteria</b>	<b>YES</b>	<b>NO</b>
<b>B. Hardware</b>		
• Desktop		
• Laptop / Notebook / Netbook		
• Servers		
• Application server		
• Web server		
• Database server		
• File server		
• Mail server		
• Tablets		
• Smart Phone (Official Unit)		
<b>C. Hardware Peripherals</b>		
• Multi-functional printer (Print, scan, copy, fax)		
• Printer		
• Document Scanner		
• Uninterruptible Power Supply (UPS)		
• Generator Set		
• Fingerprint Scanner (Biometric)		
• Access Card Scanner		
<b>D. Is there available Communications?</b>		
• Telephone service		
• Fax		
• Radio call		
• Satellite phone		
• Internet Connection		
<b>E. Software: Operating System for Workstations (Desktop and Laptops)</b>		
• Older than Windows XP		

• Windows XP		
• Windows 7		
• Windows 8 and up		
• Linux		
• Mac OS		
<b>F. Data Archiving System</b>		
• Manual		
• Electronic		
• Both/Combination		
<b>G. Electronic Data Archiving Mode</b>		
• Conventional		
• Cloud		
<b>H. Conventional Mode: Medium of storage of the Archived data</b>		
• Optical Disk (e.g., CD-ROM, DVD)		
• Hard Disk		
• Flash drive		
• External Hard Drive		

## APPENDIX C

### INTERVIEW GUIDE

Interviewee: Daryll B. Foronda  
Admin Aide VI  
MPDC Office

Interviewer: Jacqueline M. dela Merced

- A. Personal Information
- B. Greetings
- C. Introduction of the Study
- D. Interview proper
  - 1. Do you use Information System/s in your municipality?
  - 2. How long have your agency been using Information System?
  - 3. How is the municipality connected with another agency?
  - 4. Does Information System speedup the internal communication?
  - 5. How does the working speed of the staff become after using Information System?
  - 6. Does your Information System is suitable enough to keep pace with dynamic agency environment?
  - 7. Does Information System help your firm to get rid of mistakes or erroneous problems?
  - 8. Has the control system been more effective than before by using Information System?
  - 9. Does the company provide online service to the public?
  - 10. Does the IS provide the client with updated information in a quick interval?
  - 11. Does Information System have an impact on decision making?
  - 12. Does your municipal use computers?
  - 13. (Computer included Personal Computers, tablets and other portable devices such as Smartphones)
  - 14. Does your agency provide any type of training to develop ICT related skills?
  - 15. Does your agency can maintain the ICT infrastructure? (Servers, computers, printers and networks)
  - 16. Does your agency have a website?
  - 17. Does your agency use any of the following social media?
    - Social networks (Facebook, LinkedIn, etc.)
    - Multimedia content sharing websites (YouTube, Picasa, SlideShare, etc.)

## APPENDIX D

### NUEVA ERA, ILOCOS NORTE

ISSP 2022-2024

#### PART I: ORGANIZATIONAL PROFILE

##### A. DEPARTMENT/AGENCY VISION/ MISSION STATEMENT

###### A.1 Mandate

*Mandated under Section 16 of the Local Government Code of 1991 or Republic Act 7160 provides that every Local Government Units shall exercise the power expressly granted, those necessarily implied therefrom, as well as powers necessary, appropriate, or incidental for its efficient and effective governance, and those which are essential to the promotion of the general welfare.*

###### A.2 Vision Statement

Nueva Era is envisioned to be more socioeconomically developed upland municipality of the province of Ilocos Norte with balanced and diversified environment, preserved cultural heritage, offering wealth of natural tourist attractions and man-made wonders through a tourist-friendly, upright, hardworking, empowered and vigilant citizenry propelled by enlightened leaders committed to sustainable growth and development under the guidance of the divine providence.

###### A.3 Mission Statement

Toward this end, we are committed to pursue:

- Promote meaningful, productive interaction between an efficient, efficient legislative, and dynamic, vibrant civil society;
- The promotion of positive Filipino values among the families
- Programs for drug free and responsible youth sector;
- Program for sustainable development;
- Programs aimed at food security;
- Development of proficient, motivate, and inspired workforce on the organization;
- The promotion of arts and tourism;
- The provision of quality services to all sectors;
- Make the local development plans anticipatory and proactive of climate change and disaster impacts.

**PART I: ORGANIZATIONAL PROFILE****B. DEPARTMENT/AGENCY PROFILE****B.1 Current Annual ICT Budget**

Nueva Era is currently operating on an annual budget for 162,072,170.00, of which 29.13% (47,221,898.00) is appropriated to personal services, 20.28% (32,875,543.09) for Maintenance and Other Operating Expenses, 14.01% (22,712.154.00) for Capital Outlay and 36.57% (59,262.574.40) for Non-Office Expenditures. To emphasize the importance of ICT spending in accomplishing the municipality's goals, it is proposed that 2.86 percent or approximately 4,635,142.00 be dedicated to the first year of ICT implementation and an annual allocation for ICT shall be allocated at least 1.32%.

**B.2 ORGANIZATIONAL STRUCTURE****B.2.1 Personal Inventory**

NUMBER OF EMPLOYEES	
Permanent	44
Temporary	0
Co-Terminus	2
Casual	15
Job order	89
Contractual	3
Total	153

**PART I: ORGANIZATIONAL PROFILE**

<b>Number of Employees per Office:</b>	<b>Number</b>
• Office of the Municipal Mayor	28
• Office of the Municipal Administrator	3
• Office of the Municipal Civil Registrar	5
• Municipal Planning and Development Council	4
• Municipal Engineering Office	17
• National Disaster Risk Reduction and Management Council Office	6
• Office of the Municipal Agriculture	8
• Office of The Municipal Assessor	5
• Municipal Accounting Office	6
• Municipal Budget Office	4
• Office of the Municipal Treasury	10
• Municipal Health Office	29
• Sangguniang Bayan	22
• Department of Social Welfare and Development	5

**B.2.1 Municipal Profile Information**

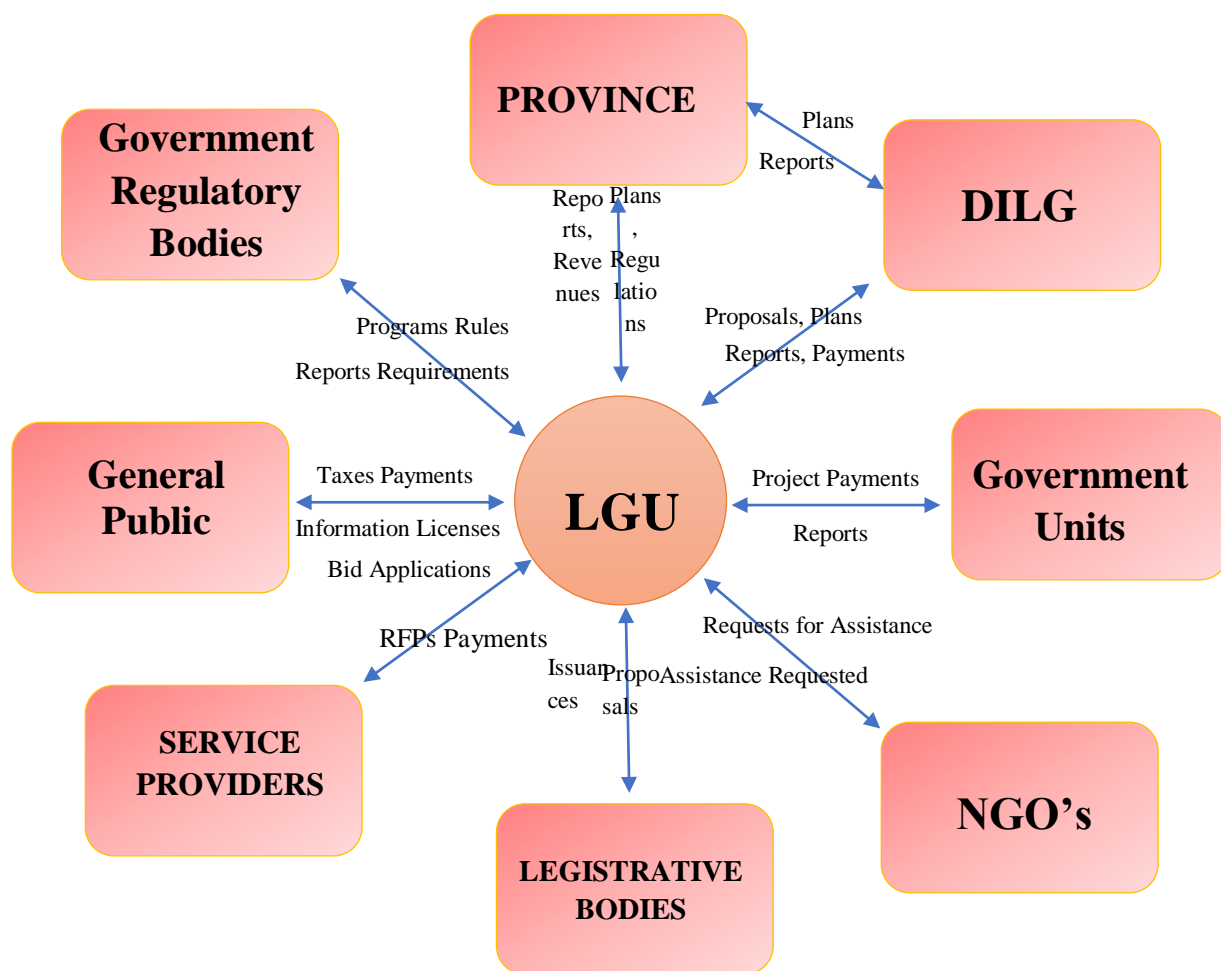
Total Land Area	515.02 km <sup>2</sup> (198.85 sq. mi)
Number of Barangays	11
Congressional Districts	2 <sup>nd</sup> District
Population	11,968





**PART I: ORGANIZATIONAL PROFILE**

**C. DEPARTMENT/AGENCY AND ITS ENVIRONMENT (FUNCTIONAL INTERFACE CHART)**



## PART I: ORGANIZATIONAL PROFILE

### D. PRESENT ICT SITUATION (STRATEGIC CHALLENGES)

ICT plays an important part in the development and economic growth of a Local Government Unit. Nueva Era, Offices use a system to manage all paperwork. Each division has own system. To improve surveillance, the municipality has installed CCTV cameras in key areas of the municipality's offices.

At present, all offices/divisions in the municipality are equipped with computer units, these computer units are mainly used for document processing using word application.

The municipality has implemented the following information systems for faster services to its clienteles:

1. *Philippines Civil Registry Information System (PhilCRIS)*. This system allows encoding of sensitive information from civil registry documents, storing of essential data, query and retrieval of encoded records, printing and issuance of approved copies of encoded civil registry documents, generation of transmittal archives, and data management.
2. *Real Property Tax Information System (RPTS)*. RPTS is a computerized system that supports the Assessor's office in estimating real estate taxes due. It includes features for land appraisal depending on market value as well as changes for inflation. This system is linked to the Treasurer's office's RPTS module for billing and collection activities.

On the other hand, Internet connectivity in terms of Mobile Data connection is unstable due to the geographical location of the municipality. The municipality is connected to PLDT FIBER, and all offices are connected to the local area network.

The level of computer skills proficiency of personnel of the different department, majority of them in all applications and skills have a basic level of proficiency. This implies that trainings should be conducted to upgrade their proficiency.

**PART I: ORGANIZATIONAL PROFILE**

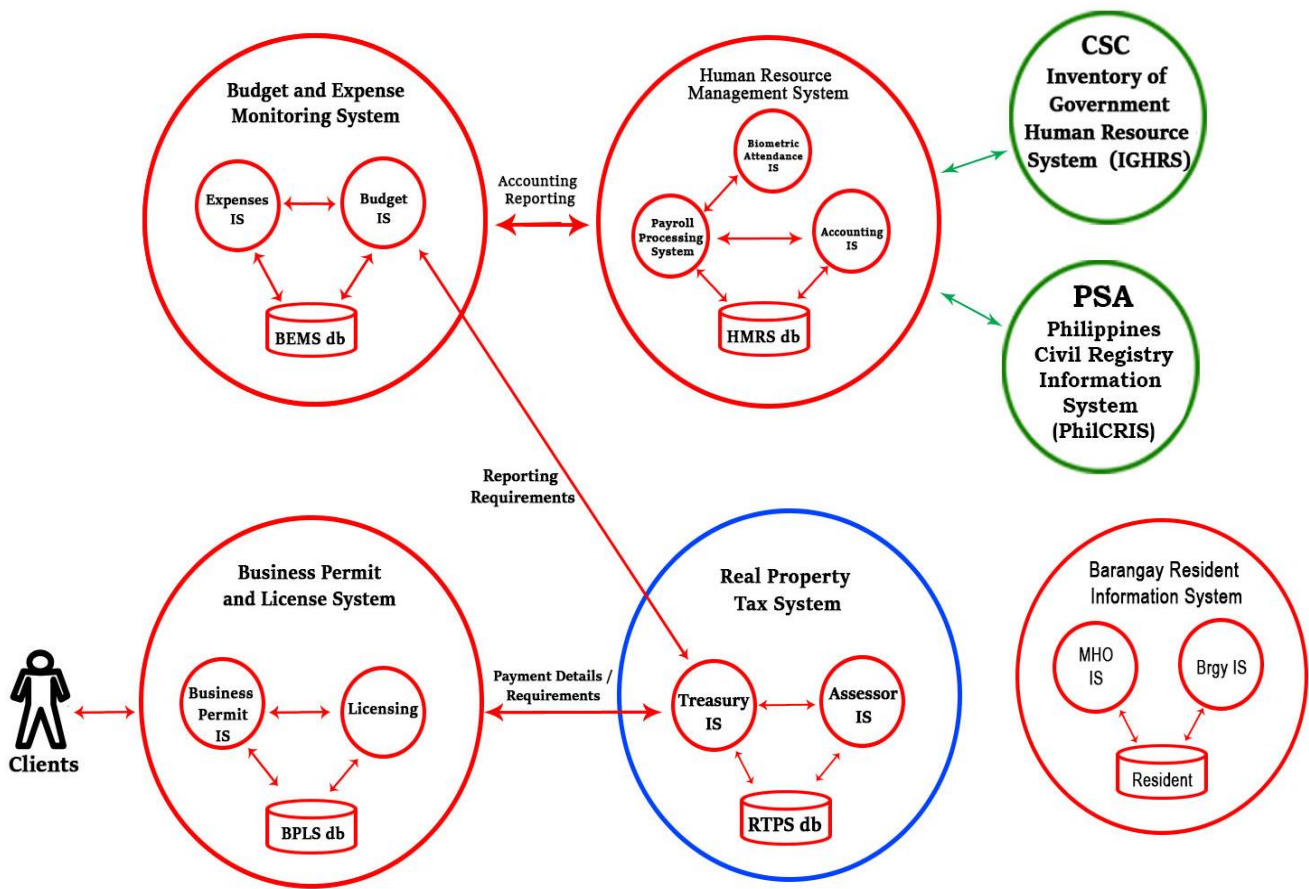
**E. STRATEGIC CONCERNS FOR ICT USE.**

MAJOR FINAL OUTPUT	CRITICAL MANAGEMENT/ OPERATING/ BUSINESS SYSTEM	PROBLEMS	INTENDED USE OF ICT
Residence Information	<ul style="list-style-type: none"> <li>- Individual Information                             <ul style="list-style-type: none"> <li>- Personal Information</li> <li>- Basic health Information</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Slow documentation of the information process</li> <li>- No updated listing of the Residence information</li> <li>- Long queue on information records</li> <li>- Inaccessibility of residence Information listing</li> </ul>	Barangay Resident Information System <ul style="list-style-type: none"> <li>- Online Access of the Residence Information by means of QR code</li> <li>- boost government services</li> <li>- streamline transactions</li> </ul>
Municipality social media	<ul style="list-style-type: none"> <li>- clear description of the organization</li> <li>- find contact information</li> <li>- Fresh, quality content</li> <li>-</li> </ul>	<ul style="list-style-type: none"> <li>- Data meant for the general public and constituents is difficult to obtain.</li> <li>- It is difficult to exchange information between citizens and local government officials.</li> <li>- difficult conducts its business with the public in a more effective and timely manner</li> </ul>	Municipality Website <ul style="list-style-type: none"> <li>- Web-based content management system.</li> <li>- Online forms and contact information.</li> <li>- Calendars and events</li> <li>- Department pages and contact information.</li> <li>- Board and committee pages.</li> <li>- Legal notices and ordinances</li> </ul> Community information
Human Resource	<ul style="list-style-type: none"> <li>- store employee information</li> <li>- manage time,</li> <li>- assist in hiring processes,</li> <li>- handle finances and benefits information</li> </ul>	<ul style="list-style-type: none"> <li>- Delay in retrieval of Employee’s information</li> <li>- Time consuming in search a needed report/ information.</li> <li>- Workforce growth has not been kept up to date.</li> <li>- Difficulty tracing job</li> </ul>	Human Resource Management System <ul style="list-style-type: none"> <li>- Employee Information Management</li> <li>- Recruitment and Hiring</li> <li>- Benefits Management</li> <li>- Financial</li> </ul>

		benefits	Management like Payroll or Compensation Time and Attendance Management
Business Permit & Licensing	<ul style="list-style-type: none"> <li>- Payment of Mayor’s Permit business tax and fees for licenses</li> <li>- Mayor’s Permit registration requirements                             <ul style="list-style-type: none"> <li>- New</li> <li>- Renewal</li> <li>- Revocations</li> </ul> </li> <li>- Issuance of Business Permit</li> </ul>	<ul style="list-style-type: none"> <li>- Difficult to locate the file.</li> <li>- Filling-up of Application and Renewal Form takes a lot of time</li> <li>- Manual data banking and device storage are time-consuming activities.</li> <li>- Processing of Application and Checking of Requirements are done manually that leads to a slow transaction</li> </ul>	Business Permit and License System <ul style="list-style-type: none"> <li>- updates the LGU's business/mayor's permit and establishment master files</li> <li>- maintains data on business permit-related transactions which include:                             <ul style="list-style-type: none"> <li>- new applications</li> <li>- renewals of business permits,</li> <li>- closure of business establishments.</li> </ul> </li> </ul>
Payroll	<ul style="list-style-type: none"> <li>- Keep and update employee’s information</li> <li>- calculate the payroll each pay period</li> <li>- monitor leaves/absences and late/overtime of employees</li> </ul>	<ul style="list-style-type: none"> <li>- requires extra attention in order to make critical legislative updates.</li> <li>- resistant to major errors and consumes a significant amount of time</li> <li>- Employee data such as leaves, reimbursements, overtime submissions, and so on are usually manually entered or uploaded.</li> <li>- Excel spreadsheets with detailed require a great deal of supervision.</li> <li>- Keeping sensitive employee records on paper or in</li> </ul>	Payroll Processing System (PAYROLL) <ul style="list-style-type: none"> <li>- Improves Compliance</li> <li>- Calculates Deductions and Net Income</li> <li>- Prepares Tax Forms</li> <li>- Keeps Records Effortlessly</li> <li>- Eliminates Payroll Errors</li> <li>- generates the payroll of the LGU including remittance reports.</li> </ul>

		spreadsheets is not a safe way.	
Budget Preparation & Monitoring	<ul style="list-style-type: none"> <li>- budget preparation,</li> <li>- budget authorization,</li> <li>- budget execution and accountability.</li> <li>- analyze sources of funds</li> <li>- monitor all expenditures</li> </ul>	<ul style="list-style-type: none"> <li>- Slow data retrieval</li> <li>- Information is inaccurate</li> <li>- Don't have the right tools to can help create and analyze budget</li> </ul>	<p><b>Budget Preparation &amp; Monitoring System (BPMS)</b></p> <ul style="list-style-type: none"> <li>- Consolidating all budgets in an entity and generating information such as Estimated Cash Balance Statements</li> <li>- Maintains the agreed budget of each unit in a database</li> <li>- apprehending reports on budget deficits and variances between budgeted sums and real expenses.</li> </ul>

**PART II: INFORMATION SYSTEMS STRATEGY**



**Legend:**

Red symbols - for development, Blue symbols - for enhancement, Black symbols - operational & continuing, Green symbols - iGovPhil & other cross-agency ICT services.

Conceptual Framework for Information Systems (Diagram of IS interface)

**PART II: INFORMATION SYSTEMS STRATEGY****A. Detailed Description of Proposed Information Systems**

Name of Information System/Sub-System	Rank: 1 BARANGAY RESIDENT INFORMATION SYSTEM
Description	Barangay Resident Information System suitable for use by barangay workers who have access to barangay residents' profile details and also the basic health background for direct reporting. It provides better storage, quicker file recovery, ensures dependability and consistency, and allows for faster file monitoring.
Status	On-going
Development Strategy	In-House
Computing Scheme	Networked System
Users	Internal MSWD, MHO
	External Barangay Officials, Nueva Era Residence
System Owner	DILG



**PART II: INFORMATION SYSTEMS STRATEGY**

**B. Detailed Description of Proposed Information Systems**

Name of Information System/Sub-System		Rank: 2  MUNICIPALITY WEBSITE  <ul style="list-style-type: none"> <li>- Web-based content management system.</li> <li>- Online forms and contact information.</li> <li>- Calendars and events</li> <li>- Department pages and contact information.</li> <li>- Board and committee pages.</li> <li>- Legal notices and ordinances</li> <li>- Community information</li> </ul>
Description		A series of interconnected webpages, typically containing a homepage, that are prepared and maintained as a collection of municipal material.
Status		For Development
Development Strategy		Outsource
Computing Scheme		Networked System
Users	Internal	ICT Personnel
	External	Government Agencies and employees, Public
System Owner		Municipality of Nueva Era

**PART II: INFORMATION SYSTEMS STRATEGY****B. Detailed Description of Proposed Information Systems**

Name of Information System/Sub-System		Rank: 3  HUMAN RESOURCE MANAGEMENT SYSTEM (HRMS) - Personnel - Daily Time Record - Payroll - Human Resource - Employee - Officers - Property
Description		Improves the agency's workforce administration. Personnel records, land management, and a human resource growth plan are among the main types of information generated.
Status		For Development
Development Strategy		Outsource
Computing Scheme		Networked System
Users	Internal	HR, MCR
	External	Accounting, Mayor's Office
System Owner		Human Resource Office

**PART II: INFORMATION SYSTEMS STRATEGY****B. Detailed Description of Proposed Information Systems**

Name of Information System/Sub-System		Rank: 4  BIOMETRIC ATTENDANCE SYSTEM  - Accurate tracking - Access Control - Integration to HRMIS
Description		A technical method that uses a thumb mark to identify an employee for the purposes of systematic attendance.
Status		For Development
Development Strategy		In-House / Outsource
Computing Scheme		Networked System
Users	Internal	HR
	External	Accounting, Mayor's office
System Owner		HR Office

**PART II: INFORMATION SYSTEMS STRATEGY****B. Detailed Description of Proposed Information Systems**

Name of Information System/Sub-System		Rank: 5 PAYROLL PROCESSING SYSTEM
Description		Payroll processing system refers to the process of compensable employees at the end of a payroll period. The applications include algorithms that determine gross and net pay amounts based on input data such as hours worked and pay rates.
Status		For Development
Development Strategy		Outsource
Computing Scheme		Networked System
Users	Internal	Mayor's Office
	External	Employees
System Owner		HR Office

**PART II: INFORMATION SYSTEMS STRATEGY****B. Detailed Description of Proposed Information Systems**

Name of Information System/Sub-System		Rank: 6  BUSINESS PERMIT AND LICENSE SYSTEM (BPLS)  -Payment of Mayor's Permit business tax and fees for licenses -Mayor's Permit registration requirements -New -Renewal -Revocations -Issuance of Business Permit
Description		The Business Permit and License System creates and maintains the Local Government Unit's business/permit mayor's and establishment master files. It also collects and preserves details on business permit-related transactions such as new business permit approvals and renewals, as well as business establishment closures.
Status		Operational, for enhancement
Development Strategy		In-House / Outsource
Computing Scheme		Networked System
Users	Internal	Mayor's Office
	External	Tax payers, Commission on Audit
System Owner		Municipal Treasurer's Office

**PART II: INFORMATION SYSTEMS STRATEGY****B. Detailed Description of Proposed Information Systems**

Name of Information System/Sub-System		Rank: 7  BUDGET AND EXPENSE MONITORING SYSTEM (BEMS)  - Budget allocation and monitoring the expense - expenditure tracking. - manage the distributed workforce's cost
Description		It is a program that automates the process of budgeting, spending, and allocating funds for various projects inside a company. It is a budget spending tracking program that handles an organization's financial demands.
Status		For Development
Development Strategy		In-House / Outsource

Computing Scheme		Networked System
Users	Internal	Mayor's Office
	External	Commission on Audit
System Owner		Budget

**PART II: INFORMATION SYSTEMS STRATEGY****B. Databases Required**

Name of Database		Resident
General Contents/ Description		Database of Brgy resident with personal records <ul style="list-style-type: none"> <li>- First name</li> <li>- Last name</li> <li>- Middle name</li> <li>- Birthdate</li> <li>- Birth place</li> <li>- Age</li> <li>- Zone ID – foreign key</li> <li>- Total Household</li> <li>- Differently abled person</li> <li>- Related to head of family</li> <li>- Marital Status</li> <li>- Blood type</li> <li>- Civil Status</li> <li>- Occupation</li> <li>- Monthly Income</li> <li>- Household no</li> <li>- Length of stay</li> <li>- Religion</li> <li>- Nationality</li> <li>- Gender</li> <li>- Skills</li> <li>- Philhealth no</li> <li>- Highest Educational Attainment</li> <li>- House ownership status</li> <li>- Land ownership status</li> <li>- Dwelling type</li> <li>- Water usage</li> <li>- Lightning facilities</li> <li>- Sanitary toilet</li> <li>- Former address</li> <li>- Remarks</li> <li>- Image</li> <li>- Username</li> <li>- password</li> </ul>
Status		Build-up
Information Systems Served		Barangay Residence Information System
Data Archiving/ Storage media		Server
Users	Internal	Mayor
	External	MHO, Brgy.Chairman, Brgy. Secretary, Brgy. Residents

Owner	DILG
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**PART II: INFORMATION SYSTEMS STRATEGY**

## C. Databases Required

Name of Database		HRMS
General Contents/ Description		Database of Nueva Era Personnel records, land management, and a human resource growth plan are among the main types of information generated.
Status		For Development / Out-Sourcing
Information Systems Served		Human Resource Management System
Data Archiving/ Storage media		Server
Users	Internal	HRMO
	External	Accounting, Assessor, DILG
Owner		HRMO

Name of Database		DTR
General Contents/ Description		Database that records of Nueva Era employees as an input into the payroll scheme for salary and other remuneration calculations
Status		For Development / Out-Sourcing
Information Systems Served		Biometric Attendance System Human Resource Management System
Data Archiving/ Storage media		Server
Users	Internal	Accounting
	External	Nueva Era Municipality Employee
Owner		HR Office

**PART II: INFORMATION SYSTEMS STRATEGY****C. Databases Required**

Name of Database		Payroll
General Contents/ Description		
Status		For Development
Information Systems Served		Networked System
Data Archiving/ Storage media		Server
Users	Internal	Mayor
	External	Employee
Owner		HR Office

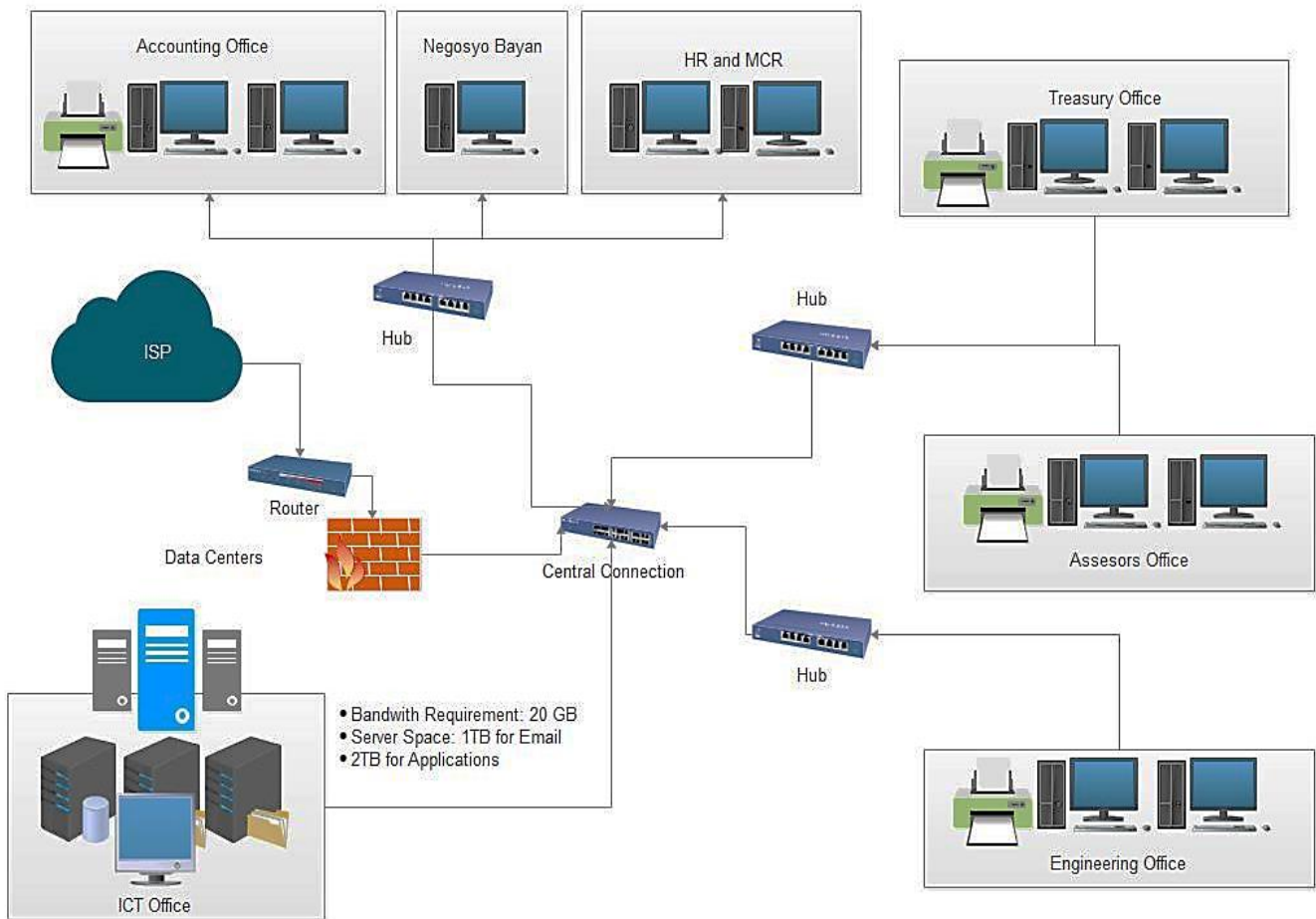
Name of Database		BPLS
General Contents/ Description		Database that collects and preserves details on business permit-related transactions such as new business permit approvals and renewals, as well as business establishment closures.
Status		For Development
Information Systems Served		Biometric Attendance System
Data Archiving/ Storage media		Server
Users	Internal	Mayor's Office
	External	Tax payers, COA
Owner		Mayor's Office

**PART II: INFORMATION SYSTEMS STRATEGY****B. Databases Required**

Name of Database		BEMS
General Contents/ Description		Database system's operation is the accounting of all actual assets and associated records on the land such as ownership, assessed value, and other relevant details.
Status		out-Sourcing
Information Systems Served		Budget and Expense Monitoring System
Data Archiving/ Storage media		Server
Users	Internal	Mayor, Accounting Office
	External	Tax payers, COA
Owner		Municipal Treasure's Office

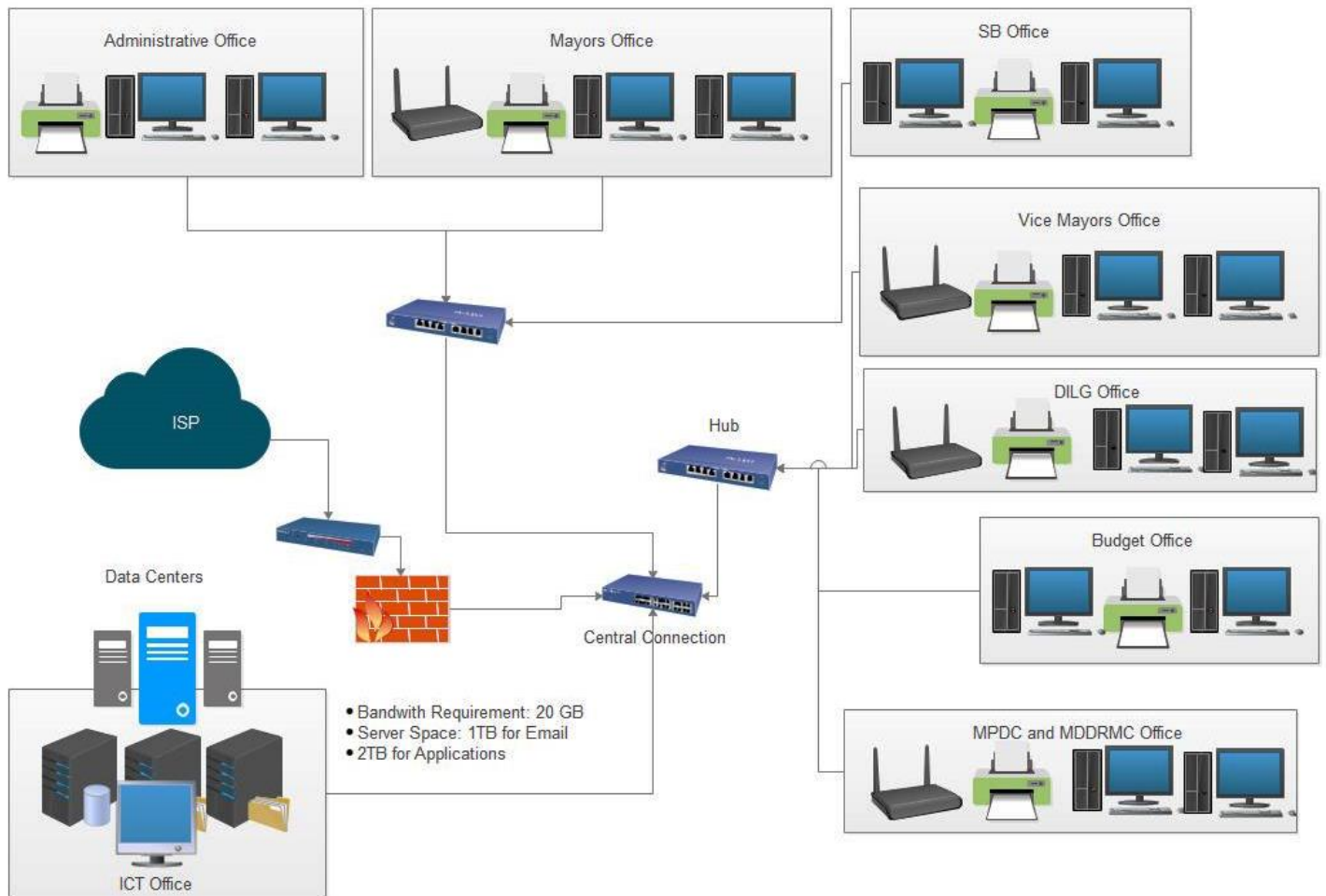
## PART II: INFORMATION SYSTEMS STRATEGY

### A. NETWORK LAYOUT: FIRST FLOOR



## PART II: INFORMATION SYSTEMS STRATEGY

### B. NETWORK LAYOUT: SECOND FLOOR



**PART III. DETAILED DESCRIPTION OF ICT PROJECTS****A. INTERNAL ICT PROJECTS**

1. Name/Title	Rank 1  BARANGAY RESIDENT INFORMATION SYSTEM
2. Objectives	<ul style="list-style-type: none"><li>- To identify Nueva Era residents in an electronic and efficient way</li><li>- To enhance the quality of services</li><li>- To enhance the retrieval of residents' records, especially in the case of an emergency</li></ul>
3. Duration	2-3 months
4. Deliverables	<ul style="list-style-type: none"><li>- Interface with mobile app via QR code scanner</li></ul>

**PART III. DETAILED DESCRIPTION OF ICT PROJECTS****A. INTERNAL ICT PROJECTS**

1. Name/Title	Rank 2  MUNICIPALITY WEBSITE
2. Objectives	<ul style="list-style-type: none"> <li>- To inform the information needs of the constituents.</li> <li>- To communicate with their citizens.</li> <li>- To provide a huge opportunity for better communication between towns and increased community resilience.</li> <li>- To increase residents' chances to engage in and be updated of municipal government.</li> <li>- To showcase the communities.</li> </ul>
3. Duration	2-3 months
4. Deliverables	<ul style="list-style-type: none"> <li>- Project Plan</li> <li>- Design Wireframes</li> <li>- visual diagrams of the municipal website</li> <li>- website design mock up</li> </ul>

**PART III. DETAILED DESCRIPTION OF ICT PROJECTS****A. INTERNAL ICT PROJECTS**

1. Name/Title	Rank 3 HUMAN RESOURCE MANAGEMENT SYSTEM (HRMS)
2. Objectives	<ul style="list-style-type: none"> <li>- To manage the data of the municipality</li> <li>- To create an easy reporting</li> <li>- To improve human relations in the organization</li> <li>- To give full-service payroll solution</li> <li>- To track employee development</li> <li>- To deliver the ability to run operational reports</li> <li>- To track HR information</li> </ul>
3. Duration	4 to 6 months
4. Deliverables	<ul style="list-style-type: none"> <li>- Employee management information</li> <li>- Employee services and engagement</li> <li>- Policy settings and adherence</li> <li>- Statutory compliance</li> <li>- Payroll processing and salary reimbursing</li> <li>- Leave and attendance Management</li> <li>- Recruitment, Training and Manpower Planning</li> </ul>



**PART III. DETAILED DESCRIPTION OF ICT PROJECTS****A. INTERNAL ICT PROJECTS**

1. Name/Title	Rank 4  BIOMETRIC ATTENDANCE SYSTEM
2. Objectives	<ul style="list-style-type: none"><li>- To reduce the amount of paperwork the payroll department</li><li>- To prevents time theft</li><li>- To improve employee accountability</li><li>- To increase accuracy of payroll</li></ul>
3. Duration	1 to 2 months
4. Deliverables	<ul style="list-style-type: none"><li>- Reduce work redundancy.</li><li>- Accurate attendance tracking</li><li>- Access Control</li><li>- Integration to Payroll Management</li></ul>

**PART III. DETAILED DESCRIPTION OF ICT PROJECTS****A. INTERNAL ICT PROJECTS**

1. Name/Title	Rank 5  PAYROLL PROCESSING SYSTEM
2. Objectives	<ul style="list-style-type: none"> <li>- To improves compliance</li> <li>- To calculates deductions and net income</li> <li>- To prepares tax forms</li> <li>- To keeps records effortlessly</li> <li>- To eliminates payroll errors</li> <li>- To generates the payroll of the LGU including remittance reports.</li> </ul>
3. Duration	2 to 3 months
4. Deliverables	<ul style="list-style-type: none"> <li>- accurately records work hours</li> <li>- accurate reporting and paying of payroll taxes</li> <li>- maintain precise and accurate records</li> <li>- minimizing the regulatory aspects</li> <li>- Payroll reconciliation is simple and fast.</li> <li>- simplifying the entire scheduling, record-keeping, and payment process</li> </ul>

**PART III. DETAILED DESCRIPTION OF ICT PROJECTS****A. INTERNAL ICT PROJECTS**

1. Name/Title	Rank 6  BUSINESS PERMIT AND LICENSE SYSTEM (BPLS)
2. Objectives	<ul style="list-style-type: none"> <li>- To automates application and generation of Mayor's Permit and other permits, computation of taxes and fees, billing, payment, and collection liquidation processes</li> <li>- To manage billings and payments across many tax years while keeping transaction and payment records.</li> <li>- To update the municipal business/mayor's permit</li> <li>- To keep track the data on business permit-related transactions</li> </ul>
3. Duration	4 to 6 months
4. Deliverables	<ul style="list-style-type: none"> <li>- Enables faster, convenient, and quality services to businesses</li> <li>- Increase tax base and collectibles</li> <li>- Identifies collectibles and delinquencies</li> <li>- Enhanced Records Integrity</li> <li>- New/Renewal, Issuance, Revocations and Closure of business establishments</li> </ul>

**PART III. DETAILED DESCRIPTION OF ICT PROJECTS****A. INTERNAL ICT PROJECTS**

1. Name/Title	Rank 7  BUDGET AND EXPENSE MONITORING SYSTEM (BEMS)
2. Objectives	<ul style="list-style-type: none"> <li>- To consolidate the budgets of all units in an organization</li> <li>- To produces reports such as Projected Cash Flow Statements.</li> <li>- To maintains the agreed budget of each unit in a database,</li> <li>- To capture reports on budget deficits and variances between budgeted sums and real expenses</li> </ul>
3. Duration	4 to 6 months
4. Deliverables	<ul style="list-style-type: none"> <li>- The system keeps a large amount of time in budgetary tasks such as allocation and expenditure.</li> <li>- It enables the development of customized reports based on the needs of consumers.</li> <li>- Transactions are processed faster and more accurately.</li> </ul>

**PART III. DETAILED DESCRIPTION OF ICT PROJECTS**  
**B. CROSS-AGENCY PROJECTS**

Not Applicable

1. Name/Title	
2. Objectives	
3. Duration	
4. Deliverables	
1. Lead Agency	
2. Implementing Agencies	

**PART III. DETAILED DESCRIPTION OF ICT PROJECTS**  
**C. PERFORMANCE MEASUREMENT FRAMEWORK**

Hierarchy of targeted result <sub>1</sub>	Objectively verifiable indicators (OVI) <sub>2</sub>	Baseline Data <sub>3</sub>	Target <sub>3</sub>	Data Collection methods <sub>4</sub>	Responsibility to collect data <sub>6</sub>
Barangay Resident Information System					
<b>Intermediate outcome</b> of ICT project.  Enhanced the retrieval of the resident health and personal information	Percentage of organize file cabinet	50%	100% faster retrieval on needed information	Feedback Reports	Municipal Civil Registrar MHO
<b>Immediate outcome</b> of ICT project  Improve the retrieval of resident Information	Percentage of Accuracy	50%	95% Faster	Feedback Reports	Municipal Civil Registrar MHO
<b>Output</b>  Barangay Resident ID System using QR code	Percentage of availability	50%	At least 98% availability	Feedback Reports	Municipal Civil Registrar MHO

**PART III. DETAILED DESCRIPTION OF ICT PROJECTS**  
**C. PERFORMANCE MEASUREMENT FRAMEWORK**

Hierarchy of targeted result <sub>1</sub>	Objectively verifiable indicators (OVI) <sub>2</sub>	Baseline Data <sub>3</sub>	Target <sub>3</sub>	Data Collection methods <sub>4</sub>	Responsibility to collect data <sub>6</sub>
Municipality Website					
<b>Intermediate outcome</b> of ICT project. Enhanced the information dissemination	Percentage of municipality information broadcasting	50%	100% Increased information dissemination	Feedback Reports	Administrator
<b>Immediate outcome</b> of ICT project Improve the service for the constituent	Percentage of Accuracy	50%	- 95% faster information needs of the constituents.	Feedback Reports	Administrator
<b>Output</b> Municipality Website	Percentage of availability	50%	At least 98% availability of information	Feedback Reports	Administrator

**PART III. DETAILED DESCRIPTION OF ICT PROJECTS**  
**A. PERFORMANCE MEASUREMENT FRAMEWORK**

Hierarchy of targeted result <sup>1</sup>	Objectively verifiable indicators (OVI) <sup>2</sup>	Baseline Data <sup>3</sup>	Target <sup>3</sup>	Data Collection methods <sup>4</sup>	Responsibility to collect data <sup>6</sup>
Human Resource Management System					
<b>Intermediate outcome</b> of ICT project. - Enhanced staff records, increased efficiency in assisting in recruiting procedures	Percentage of file cabinets that are organized	50%	95% quicker retrieval of employee records and qualifications through the recruiting process	Feedback Reports	Administration MHO
<b>Immediate outcome</b> of ICT project - Improved staff records, increased efficiency in assisting in recruiting procedures	Percentage of Accuracy	50%	95% Faster	Feedback Reports	Administration MHO
<b>Output</b> Human Resource Management System	Percentage of availability	50%	At least 98% availability	Feedback Reports	Administration MHO



**PART IV. RESOURCE REQUIREMENTS****A. DEPLOYMENT OF ICT EQUIPMENT AND SERVICES**

ITEM <sub>1</sub> (Allotment Class / Object of Expenditures)	NAME OF OFFICE / ORGANIZATIONAL UNITS	PROPOSED NUMBER OF UNITS		
		2022	2022	2023
1. Office Productivity				
A. Capital Outlay				
ICT Machinery and Equipment				
· Desktop	All Offices	20	10	10
· Laptop	All Offices	15	5	5
· Network Equipment	All Offices	15	5	5
Printing Equipment				
· Printers	All Offices	15	5	5
· Photocopier	ICT Office	1		
	Mayor's Office	1		
B. MOOE				
· Training Expenses		1	1	1

**PART IV. RESOURCE REQUIREMENTS****A. DEPLOYMENT OF ICT EQUIPMENT AND SERVICES**

ITEM <sub>1</sub> (Allotment Class / Object of Expenditures)	NAME OF OFFICE / ORGANIZATIONAL UNITS	PROPOSED NUMBER OF UNITS		
		2022	2022	2023
ICT Project 1 – Residence Computerized Information System				
A. Capital Outlay				
ICT Machinery and Equipment				
·Laptop	All Barangays and ABC Office	12		
·Network Equipment	All Barangays and ABC Office	12		

·Server	ICT Office	1		
Printing Equipment				
·Printers	All Barangays and ABC Office	12		
B.MOOE				
·Web Hosting		1		
·Development Cost		1		
·Training Expenses		1		
·Communication Allowance		1		

**PART IV. RESOURCE REQUIREMENTS****A. DEPLOYMENT OF ICT EQUIPMENT AND SERVICES**

I T E M <sub>1</sub> (Allotment Class / Object of Expenditures)	NAME OF OFFICE / ORGANIZATIONAL UNITS	PROPOSED NUMBER OF UNITS		
		2022	2023	2024
ICT Project 2 – Municipal Website				
A.Capital Outlay				
ICT Machinery and Equipment				
·Laptop	ICT Office	1		
B.MOOE				
·Web Hosting		1		
·Development Cost		1		
·Training Expenses		1		

**PART IV. RESOURCE REQUIREMENTS****A. DEPLOYMENT OF ICT EQUIPMENT AND SERVICES**

ITEM <sub>1</sub> (Allotment Class / Object of Expenditures)	NAME OF OFFICE / ORGANIZATIONAL UNITS	PROPOSED NUMBER OF UNITS		
		2022	2023	2024
ICT Project 3 – HRMS				
A.Capital Outlay				
ICT Machinery and Equipment				
·Laptop	HR Office		1	
·Server	ICT Office		1	
Printing Equipment				
·Printer	HR Office		1	
B.MOOE				
·Development Cost			1	
·Training Expenses			1	

**PART IV. RESOURCE REQUIREMENTS****A. DEPLOYMENT OF ICT EQUIPMENT AND SERVICES**

ITEM <sub>1</sub> (Allotment Class / Object of Expenditures)	NAME OF OFFICE / ORGANIZATIONAL UNITS	PROPOSED NUMBER OF UNITS		
		2022	2023	2024
ICT Project 4 – Biometric Attendance System				
A.Capital Outlay				
ICT Machinery and Equipment				
·Desktop	HR Office		1	
·Fingerprint Scanner	HR Office		1	
Printing Equipment				
·Printer	HR Office		1	
B.MOOE				
·Development Cost			1	

**PART IV. RESOURCE REQUIREMENTS****A. DEPLOYMENT OF ICT EQUIPMENT AND SERVICES**

ITEM <sub>1</sub> (Allotment Class / Object of Expenditures)	NAME OF OFFICE / ORGANIZATIONAL UNITS	PROPOSED NUMBER OF UNITS		
		2022	2023	2024
ICT Project 5 – Payroll System				
A.Capital Outlay				
ICT Machinery and Equipment				
·Desktop	Accounting Office		1	
Printing Equipment				
·Printer	Accounting Office		1	
B.MOOE				
·Development Cost			1	

**PART IV. RESOURCE REQUIREMENTS****A. DEPLOYMENT OF ICT EQUIPMENT AND SERVICES**

ITEM <sub>1</sub> (Allotment Class / Object of Expenditures)	NAME OF OFFICE / ORGANIZATIONAL UNITS	PROPOSED NUMBER OF UNITS		
		2022	2023	2024
ICT Project 6 – Business Processing and Licensing System				
A.Capital Outlay				
ICT Machinery and Equipment				
·Desktop	Treasury		2	
·Server	ICT Office		1	
Printing Equipment				
·Printer	Treasury		2	
B.MOOE				
·Development Cost			1	

**PART IV. RESOURCE REQUIREMENTS****A. DEPLOYMENT OF ICT EQUIPMENT AND SERVICES**

ITEM <sub>1</sub> (Allotment Class / Object of Expenditures)	NAME OF OFFICE / ORGANIZATIONAL UNITS	PROPOSED NUMBER OF UNITS		
		2022	2023	2024
ICT Project 7 – Budget Expense Monitoring System				
A.Capital Outlay				
ICT Machinery and Equipment				
·Desktop	Budget			2
Printing Equipment				
·Printer	Budget			2
B.MOOE				
·Development Cost				1

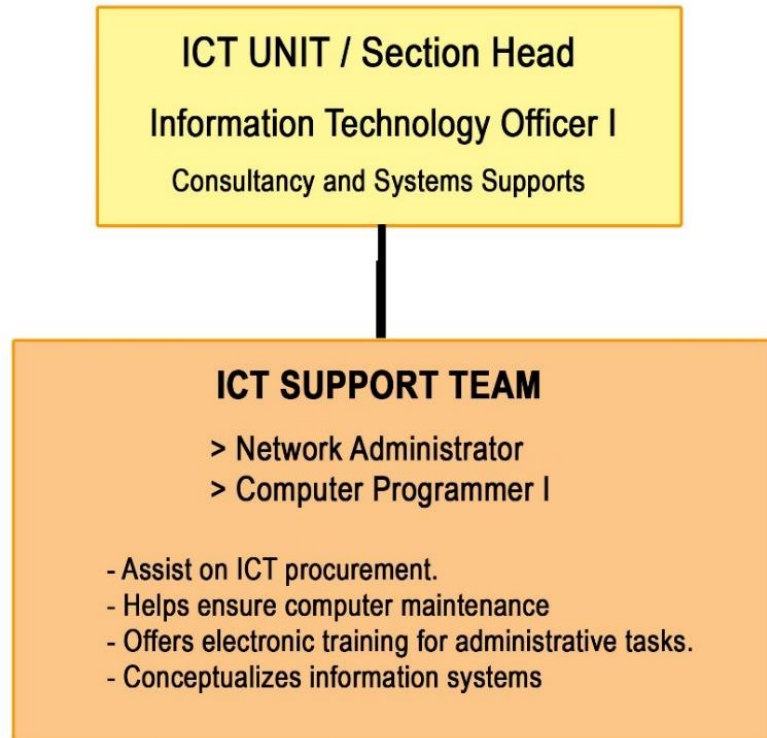


## **B. ICT ORGANIZATIONAL STRUCTURE**

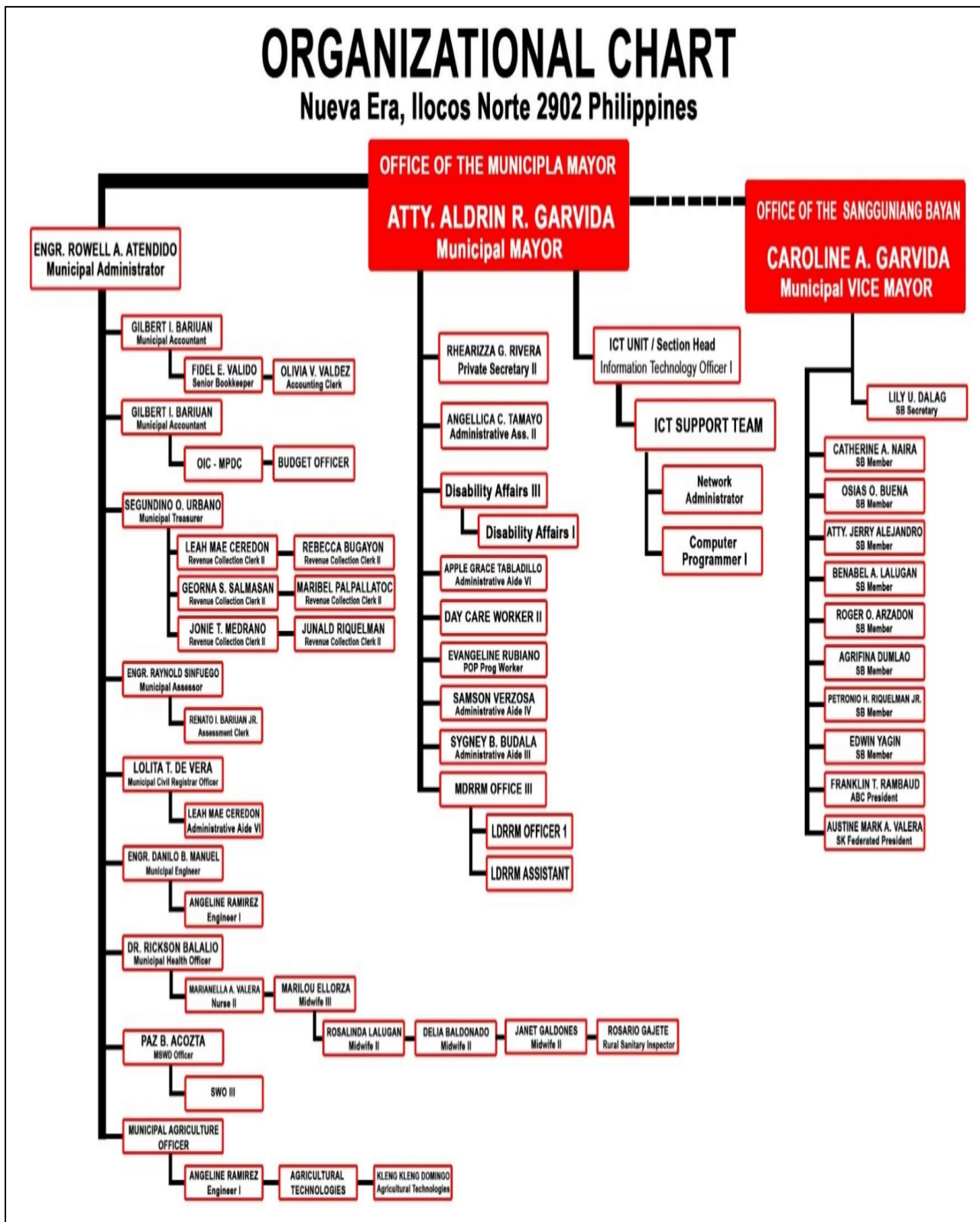
### **B.1 EXISTING ICT ORGANIZATIONAL STRUCTURE**

No existing ICT organizational structure

### **B.2 PROPOSED ICT ORGANIZATIONAL STRUCTURE**



B.3 PLACEMENT OF THE PROPOSED ICT ORGANIZATIONAL STRUCTURE IN THE AGENCY ORGANIZATIONAL CHART



**PART V. DEVELOPMENT AND INVESTMENT PROGRAM****A. ICT PROJECTS IMPLEMENTATION SCHEDULE**

Name of ICT Project	Year 1	Year 2	Year 3
Office Productivity			
ICT Project 1 – Barangay Resident Information System			
ICT Project 2 – Municipal Website			
ICT Project 3 – HRMS			
ICT Project 4 – Biometric System			
ICT Project 5 – Payroll System			
ICT Project 6 – Business Processing and Licensing System			
ICT Project 7 – Budget Expense Monitoring System			

## B. ESTIMATED DEVELOPMENT COST

ITEM (Allotment Class/Object of Expenditures)	2022		2023		2024	
	PHYSICAL TARGETS	COST	PHYSICAL TARGETS	COST	PHYSICAL TARGETS	COST
<b>A. ICT CAPITAL OUTLAY</b>						
A.1 Hardware Acquisition						
<input type="checkbox"/> Desktop	20	500,000.00	10	250,000.00	10	250,000.00
<input type="checkbox"/> Servers	2	162,240.00	0	-	0	-
<input type="checkbox"/> Laptops	28	980,000.00	5	175,000.00	5	175,000.00
<input type="checkbox"/> Printers	27	243,000.00	5	45,000.00	5	45,000.00
<input type="checkbox"/> UPS	2	9,500.00	0		0	
• Photocopier	18	720,000.00				
A.2.1 Network and Communication Equipment						
<input type="checkbox"/> 3-layer Switches	1	18,700.00	0	0	0	0
<input type="checkbox"/> 2-layer Switches	2	12,600.00	0	0	0	0
• RJ45 connectors	5 boxes	1,200.00	0	0	0	0
• Cat5 UTP cable	3 boxes	15,507.00				
• Firewall (Hardware)	1	18,875.00				
A.2.2 Software Acquisition						
<input type="checkbox"/> Operating Systems	20	299,980.00	5	74,995.00	5	74,995.00
<input type="checkbox"/> Microsoft Office Package	4	32,000.00	4	32,000.00	4	32,000.00
<input type="checkbox"/> Anti-Virus Software		1,500.00				1,500.00
<b>SUB-TOTAL</b>		<b>3,015,102.00</b>		<b>576,995.00</b>		<b>578,495.00</b>

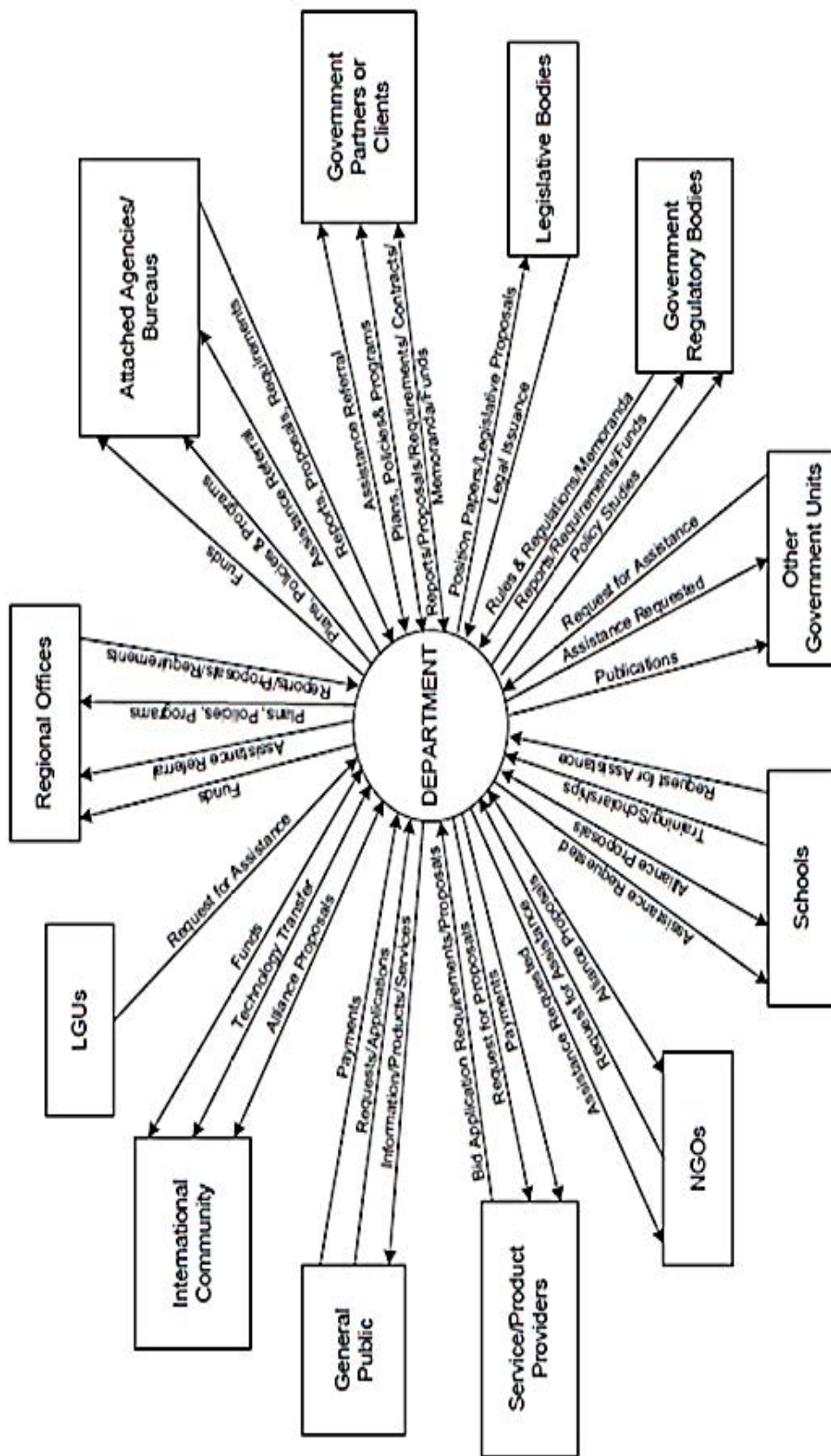
\*All rates are dependent on information obtained from the internet.

## C. ESTIMATED DEVELOPMENT COST

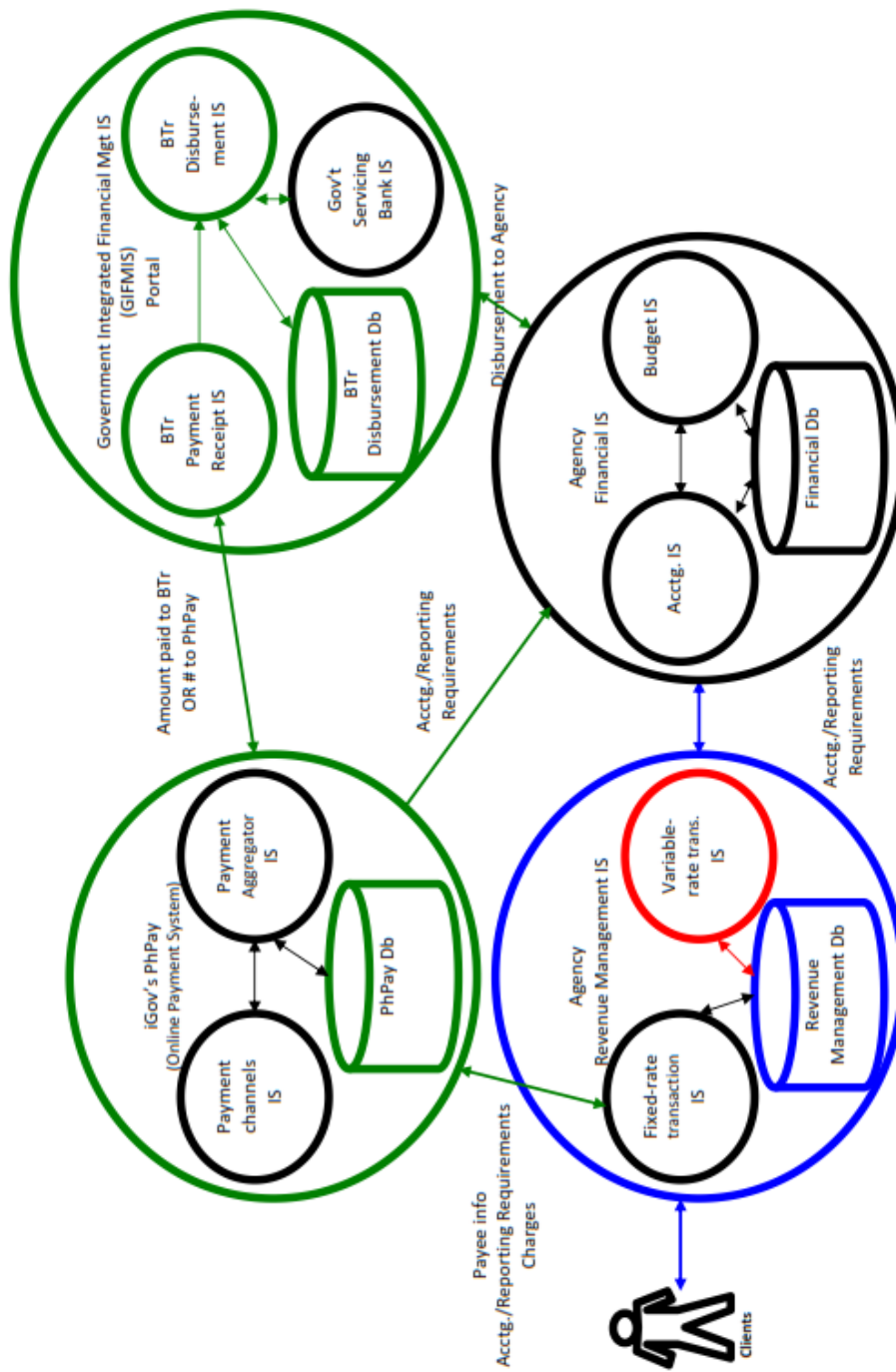
ITEM (Allotment Class/Object of Expenditures)	YEAR 1		YEAR 2		YEAR 3	
	PHYSICAL TARGETS	COST	PHYSICAL TARGETS	COST	PHYSICAL TARGETS	COST
<b>B. INTERNAL ICT PROJECTS</b>						
<ul style="list-style-type: none"> <li>• Municipality Website</li> <li>• e-BPLS</li> <li>• HRMS</li> <li>• Biometric Attendance System</li> <li>• Budget and Expense Monitoring System</li> <li>• Real Property Tax Assessment</li> </ul>		35,000.00		70,000.00		
		70,000.00		15,000.00		
						50,000.00
						70,000.00
<b>SUB-TOTAL</b>		<b>105,000.00</b>		<b>85,000.00</b>		<b>120,000.00</b>
<b>C. ICT SERVICES</b>						
<ul style="list-style-type: none"> <li>• Domain Registration, Site Hosting and SSL Certificate</li> </ul>		9,348.00		9,348.00		9,348.00
<ul style="list-style-type: none"> <li>• Maintenance and other operating expenses</li> </ul>		25,000.00		25,000.00		25,000.00
<b>SUB-TOTAL</b>		<b>34,348.00</b>		<b>34,348.00</b>		<b>34,348.00</b>
<b>D. PERSONAL SERVICES</b>						
<ul style="list-style-type: none"> <li>• *Salaries / Wages</li> </ul>						
<ul style="list-style-type: none"> <li>• IT Officer I</li> </ul>	1	561,492.00	1	561,492.00	1	561,492.00
<ul style="list-style-type: none"> <li>• Network Administrator</li> </ul>	1	384,600.00	1	384,600.00	1	384,600.00
<ul style="list-style-type: none"> <li>• Computer Programming II</li> </ul>	1	384,600.00	1	384,600.00	1	384,600.00
<ul style="list-style-type: none"> <li>• Training</li> </ul>		150,000.00		100,000.00		50,000.00
<b>SUB-TOTAL</b>		<b>1,480,692.00</b>		<b>1,430,692.00</b>		<b>1,380,692.00</b>
<b>TOTAL</b>		<b>4,635,142.00</b>		<b>2,127,035.00</b>		<b>2,113,535.00</b>

\*Salary Source: <https://www.dbm.gov.ph/wp-content/uploads/OPCCB/BC/BC-2018-4-vol-i.pdf>

**ANNEX A-1: SAMPLE DIAGRAM OF A DEPARTMENT/AGENCY AND ITS ENVIRONMENT**

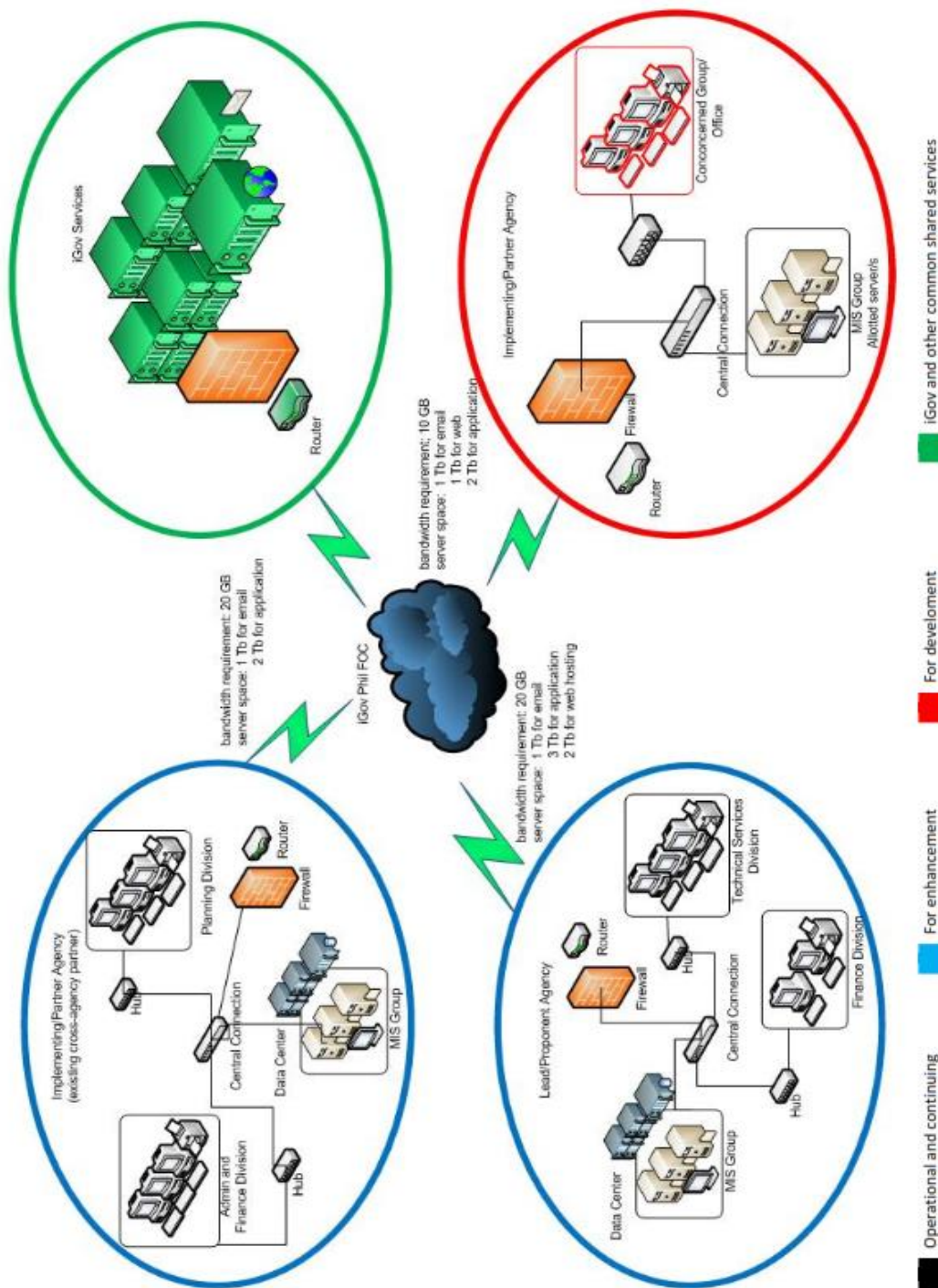


**ANNEX A-2: SAMPLE CONCEPTUAL FRAMEWORK OF INFORMATION SYSTEMS**



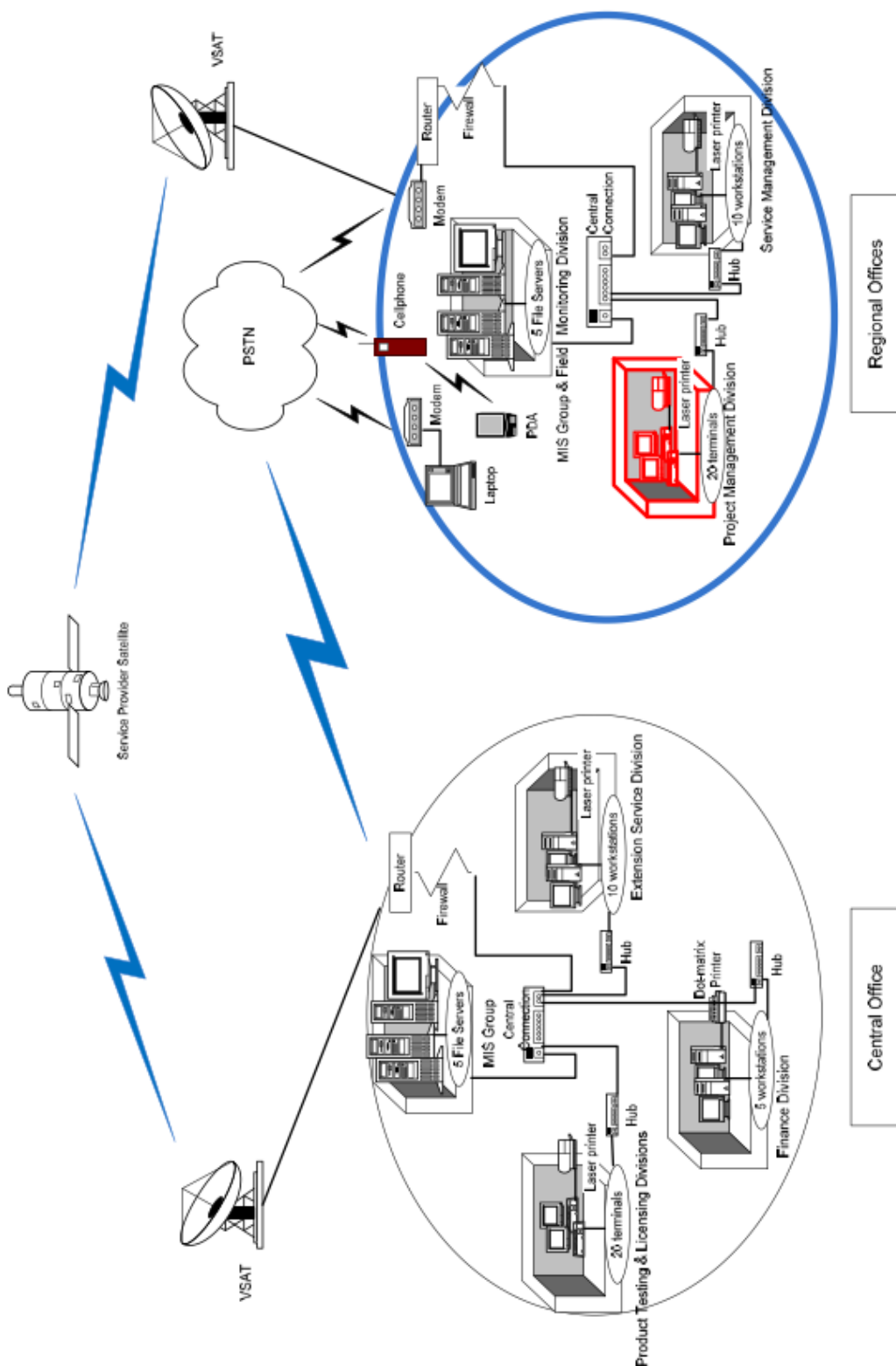
**Legend:**  
 Red symbols – for development, Blue symbols – for enhancement, Black symbols – operational & continuing, Green symbols - iGovPhil & other cross-agency ICT services.

ANNEX A-4.1: SAMPLE NETWORK LAYOUT SHOWING CROSS-AGENCY INTERFACE





ANNEX A-4.2 : SAMPLE NETWORK LAYOUT FOR AGENCY WITH REGIONAL OFFICES



**APPENDIX H**

**ANNEXA-5: EXISTING INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) INFRASTRUCTURE INVENTORY**

AGENCY NAME: \_\_\_\_\_  
 Respondent (IS Planner/CIO/MIS Head)<sup>1</sup>: \_\_\_\_\_  
 Position /Designation: \_\_\_\_\_  
 Division/Section/Unit: \_\_\_\_\_  
 Telephone/Fax Number: \_\_\_\_\_  
 Respondent’s Email Address: \_\_\_\_\_

**Objectives:**

- To identify the hardware, software, network and other ICT resources being used to manage information by National Government Agencies (NGAs), Government-owned and Controlled Corporations (GOCCs), State Colleges and Universities (SUCs), and Constitutional and Financial Autonomous Group (CFAG);
- To update existing benchmark and standards; and
- To provide input to the MITHI Steering Committee in determining the ICT budget requirements of the agency.

**1. HARDWARE/ OTHER ICT EQUIPMENT**

**Fill-out Instruction:**

Please count all existing computing devices and peripherals owned or leased by your office that are functioning including those acquired through projects. In case of multi-year contract for leased units, then just write the number of units under the appropriate year when the leased units were acquired. Do not include in succeeding years unless another batch was leased. **Reference year is last year.** Kindly replace “last year” and preceding years by the actual year number. For example, if last year is 2013, then write 2013 under the 1<sup>st</sup> column. For last 2 years, write 2012 and for last 3 years, write 2011.

**1.1 Number of Computing Devices and Peripherals by Type and by Year Acquired**

TYPES	TOTAL NUMBER OF FUNCTIONING UNITS BY YEAR ACQUIRED						
	<Last Year>		<Last 2 Years>		<Last 3 Years>		More than 3 years
	Owned	Leased	Owned	Leased	Owned	Leased	
Mainframe							
Servers							
Desktop PC							
Laptop / Notebook / Netbook PC							
Mobile Phone <sup>2</sup> (incl. smart phones)							
Tablet PC							
Multi-function printer (print, copy, etc.)							
Printer only							
Digital Camera (Include DSLR, if any)							
Wide-format Printer or Plotter							

External Hard Drive							
Generator Set							
Others, please specify (continue on a separate sheet if necessary)							

1.2 Number of Computing Devices and Peripherals by Usage

TYPES	Operations			General Administration and Support Services Support to Operations <sup>3</sup>	Projects (Not agency-funded)
	Employees	Training	Frontline Services <sup>4</sup>		
Servers					
Desktop PC					
Laptop / Notebook / Netbook PC					

1.3 Number of Servers by Capacity and by Location

TOTAL CAPACITY OF HDD	LOCATION	
	IN-HOUSE	CO-LOCATED
Above 4 TB		
2 TB to 4 TB		

2. SOFTWARE, APPLICATION SYSTEMS, INFORMATION SYSTEMS AND DATABASES

2.1 Operating Systems

2.1.1 OS for Stand-alone PCs (desktops and laptops)

OPERATING SYSTEM	Lifetime License? <sup>5</sup>	If not, write below the year of expiration
Older than Windows XP	<input type="checkbox"/>	
Windows XP	<input type="checkbox"/>	
Windows Vista	<input type="checkbox"/>	
Windows 7	<input type="checkbox"/>	
Windows 8 and up	<input type="checkbox"/>	
Linux	<input type="checkbox"/>	
Mac OS	<input type="checkbox"/>	
Mac OS X	<input type="checkbox"/>	
Others, please specify (continue on a separate sheet if necessary)	<input type="checkbox"/>	

**2.1.2 OS for Workstations (desktops and laptops)**

OPERATING SYSTEM	Lifetime License?	If not, write below the year of expiration
Older than Windows XP	<input type="checkbox"/>	
Windows NT	<input type="checkbox"/>	
Windows XP	<input type="checkbox"/>	
Windows Vista	<input type="checkbox"/>	
Windows 7	<input type="checkbox"/>	
Windows 8 and up	<input type="checkbox"/>	
Solaris	<input type="checkbox"/>	
Linux	<input type="checkbox"/>	
Mac OS	<input type="checkbox"/>	
Others, please specify (continue on a separate sheet if necessary)		

Older than MS Office 2003	<input type="checkbox"/>	
MS Office 2003	<input type="checkbox"/>	
MS Office XP	<input type="checkbox"/>	
MS Office 2007	<input type="checkbox"/>	
MS Office 2010	<input type="checkbox"/>	
MS Visio	<input type="checkbox"/>	
MS Project	<input type="checkbox"/>	
Open Project	<input type="checkbox"/>	

**2.3 Operational<sup>6</sup> Oversight / Administrative Systems** (please refer to the examples<sup>7</sup> below).

NAME OF SYSTEM (Please list down the name/s of your administrative system/s)	Own Intellectual Property, Y or N? <sup>8</sup>	DEVELOPMENT PLATFORM (ex. LAMP, .NET, Java)	WORKING ENVIRONMENT <sup>9</sup> (Use codes below)	MAINTENANCE COST	USE <sup>10</sup> (Pls. write codes only, refer below)
(Please continue on a separate sheet if necessary)					

**2.4 Operational<sup>11</sup> Strategic Information Systems** (please refer to the examples<sup>12</sup> below).

NAME OF SYSTEM (Please list down the name/s of your strategic system/s)	Own Intellectual Property, Y or N? <sup>13</sup>	DEVELOPMENT PLATFORM (ex. LAMP, .NET, Java)	WORKING ENVIRONMENT <sup>14</sup> (Use codes below)	MAINTENANCE COST	USE <sup>15</sup> (Pls. write codes only; refer below)
(Please continue on a separate sheet if					

**2.5 Databases** (please include only existing databases)

NAME OF DATABASE	Own Intellectual Property, Y or N?	BRIEF DESCRIPTION AND KEY FIELDS <sup>16</sup>	DATABASE MANAGEMENT SOFTWARE <sup>17</sup> USED	MAINTENANCE COST	USE (Pls. write codes only; refer below)
(Please continue on					

**3. NETWORK**

- 3.1 Does your agency have a Local Area Network (LAN)?  YES  NO
- 3.2 Does your agency have an Intranet?  YES  NO
- 3.3 If yes, does your agency have a Virtual Private Network (VPN)?  YES  NO
- 3.4 Does your agency have a Wide Area Network (WAN)?  YES  NO
- 3.5 Does your agency have a Private Automatic Branch Exchange (PABX or PBX)?  YES  NO
- 3.6 If yes, what is the PBX set up?  Private  Hosted  VoIP PBX or IP-PBX  Hosted IP
- 3.7 Is your agency connected to the Internet?  YES  NO
- 3.8 What is/are your agency's mode/s of access to the Internet? (Check all items that are applicable)
  - Dial-up  DSL  ISDN
  - Leased line  Mobile phone  Satellite
  - Wi-Fi  Others, please specify \_\_\_\_\_

- 3.9 What is (are) your Internet Service Provider(s)? \_\_\_\_\_
- 3.10 What is the combined internet bandwidth (voice and data)? \_\_\_\_\_
- 3.11 How many employees have access to the Internet in the office? \_\_\_\_\_
- 3.12 How many employees have their own official e-mail address? \_\_\_\_\_
- 3.13 Does your agency have a web site?  YES  NO
- 3.14 If YES, what is the URL of your agency's web site? http://\_\_\_\_\_

**4. SECURITY, DISASTER RECOVERY & BACK-UP**

- 4.1 Does your agency have a protection scheme for your ICT resources?  YES  NO
- 4.2 If YES, what is/are the measure/s being used by your office? (Check all applicable)
  - Security Policy / Guideline  Disaster Recovery Plan
  - Back-up power unit (e.g., UPS, Generator)  Digital signatures
  - Encryption  Off-site back-up
  - Hardware firewall  Physically restricted access to critical ICT equipment
  - Software firewall  Secure servers
  - Subscription to a security service (e.g. anti-virus software, intrusion alert)  Storage of back-up media in localities other than the operating environment
  - Regular ICT security training of employees  Others, please specify \_\_\_\_\_

**5. DATA ARCHIVING**

- 5.1 Does your agency have a data archiving system?  YES  NO
- 5.2 If yes, what type of data archiving system does your agency use?  
 Manual  Electronic  Both/Combination
- 5.3 If electronic data archiving is being utilized, what is the mode?  
 Conventional  Cloud
- 5.4 If conventional mode, what is the medium of storage of the archived data?  
 Optical disks (e.g. CD-Rom, DVD)  Hard Disk  
 Tape  External Hard Drive  
 Microfiche  Diskette  
 Others, please specify \_\_\_\_\_
- 5.5 What information is archived by your agency electronically? (Check all items that are applicable)  
 Publications (Annual Report, Statistical Report, etc.)  Letters, memorandum orders, communications, etc.  
 Audio-visual recordings  Unprocessed/Raw Data

**6. SPECIAL SOLUTIONS AND OTHER SERVICES**

SPECIAL SOLUTIONS PACKAGE	USE <sup>18</sup> (Pls. write codes only; refer below)	MAINTENANCE COST
Geographic Information System		
Automated Fingerprint Identification System		
Cloud computing		
CCTV System		
Others, please specify		

**7. DATA CENTER**

- 7.1 Does your agency have a data center?  YES  NO
- 7.2 If yes, how many sites? \_\_\_\_\_
- 7.3 Please check applicable maintenance set-up:  In-house  Outsourced
- 7.4 Does it have a back-up site?  YES  NO

**8. ICT PROJECTS**

**8.1 Details of Ongoing ICT Projects**

PROJECT NAME <sup>19</sup>	DESCRIPTION	PERIOD (in mm/dd/yyyy)		COST <sup>20</sup> (in pesos)	DEVELOPMENT STRATEGY <sup>21</sup> (Please write codes only; refer below)	STATUS <sup>22</sup> (Please write codes only; refer below)	USE <sup>23</sup> (Pls. write codes only; refer below)
		Start Date	End Date				

**8.2 Issues Encountered in the Implementation of ICT Projects**

- No budget or insufficient budget
- Delay in the release of projects funds
- Opposition or reluctance of stakeholders
- Lack of support by management
- Difficulty in recruiting and/or retaining qualified ICT personnel
- Low level of ICT skills among employees
- Unavailability of required bandwidth to support system/s
- Not used or seldom used by intended users and/or clients
- Problems in contract management for outsourced services
- Problems in procurement
- Others please specify \_\_\_\_\_