Louie  
**Review Related Literature**

**E-Barangay: A Framework for a Web-Based System for Local Communities and Its Usability (2022)**

Despite the importance of community-level e-governance, prior e-government frameworks focused on the municipal or national levels. The implementation of appropriate community-based e-governance cannot be ascertained because of the absence of a community-level e-government framework. To address this gap, this mixed-method study devised a framework for community-based online services software called the e-barangay framework. A web-based system was developed based on this framework. The usability of the system was also evaluated. Thematic analysis on the transcript of interviews with three local officials showed that filing complaints, requesting documents, sending suggestions, and posting announcements were the core elements of the e-barangay framework. Both the objective and subjective measures of usability showed favorable results. Spearman Rank correlation confirmed that the design-related factors were related to the frequency of use of the e-barangay. It is concluded that the software satisfied the needs of the stakeholders. Theoretical and practical implications are discussed.

**Docu-Go: The Development and Assessment of a Web- Based Barangay Document Requesting System (20223)**

A barangay plays a vital role in the development and progress of a country, requiring careful attention and improvement. In order to address the need for advancements in barangay processes, this study focused on designing, developing, and assessing a web-based barangay document requesting system called Docu-Go. The researchers employed a developmental research design, involving IT experts and residents from a barangay in Cabanatuan City, Nueva Ecija, Philippines. The researchers utilized a modified waterfall model for the system's development. To evaluate the technical features and quality of the system, an adapted survey questionnaire based on ISO 25010 was administered. The evaluation results indicated that both aspects were generally deemed acceptable by the two types of respondents. However, various recommendations were proposed to further enhance the system's functionality and user experience.

**BALANGAY: A Web-Based Document Request and Incident Reporting System with Decision Support for Barangay Program Development (2023)**

E-Government systems have brought significant changes on the way public services are easily being delivered nowadays. This motivates the researchers to contribute to this innovation by developing a system named “BALANGAY” which makes barangay services more accessible to the constituents. This is anchored with the objectives of the study which is mainly to build a centralized database for barangays and design modules with the purpose of streamlining barangay processes. Part of it is to generate an incident heatmap that will assist barangay officials in creating better programs and project developments. The study is a combination of qualitative and quantitative type of research which is reflected on the use of interview and survey questionnaires. An iterative waterfall methodology was also adopted as a guide in the development process. Meanwhile, the ISO 9126 Software Quality Model was used in the system evaluation wherein each response is measured using the 5-point Likert scale and respondents were selected using purposive sampling. The result shows that out of sixteen (16) barangay constituents and sixteen (16) IT experts who participated, most of them were very satisfied with the system with a weighted mean of 4.45 and a verbal interpretation of “Very Satisfied”.

**Evaluating e-Governance through e-Government: Practices and Challenges of Assessing the Digitalisation of Public Governmental Services (2022)**

Digitalisation and adaptation of governance to the digital age arguably transform the relationship between agents (i.e., public institutions) and clients (i.e., citizens) in policy-making. E-governance is the most widely used term for the result of this digital transformation in view of the changing nature of politics. This special issue zooms into digitalised public services by discussing practices and challenges in their provision, usage and evaluation. In doing so, it highlights interaction of e-governance (relationship among citizens, government, public and private actors notably in the context of digitalisation and innovation) and e-government (public services enabled by ICT). Contributions to the special issue identify challenges and pitfalls in implementing and evaluating e-governance by analysing different policy areas and geographical regions. The findings of the contributions suggest that factors of e-governance performance that potentially serve as evaluation criteria tend to be (overly) sensitive to context, i.e. policy area, systemic constellations, institutional settings, and administrative traditions in question. Consequently, attempts to evaluate e-governance, at least based on the empirical insight demonstrated in this special issue, remain limited to specific tools, instruments and contexts through which e-governance is operationalised and delivered (e.g., websites, projects and policy initiatives).

**Enhancing the Barangay Information System by Integrating Geolocation Technology and Tagalog Chatbot using NLP Algorithm for Efficient Community Engagement and Service**

**(2024)**

This research aims to address the need for improved efficiency and accessibility of a local government constitution which is the barangay services in the Philippines through the integration of an English-Tagalog Chatbot using NLP Algorithm into a Progressive Web-Application based Barangay Information System and Geolocation Technology which detects the location of the affected residents and nearest evacuation centers. The specific objectives include developing an information system for efficient resident data management, training an AI chatbot to handle both English and Tagalog inquiries, and integrating geolocation technology for disaster risk reduction monitoring. The study's significance lies in enhancing the service provided by barangays, which are often the most accessible government agencies to the public. The system benefits the public by increasing transparency and providing convenient access to services, barangay officials by streamlining transactions and reducing their workload and future researchers by laying the groundwork for further technological advancements in governance. The overall acceptance of the system based on user's feedback falls within the satisfactory category, which indicates its potential to improve barangay operations. The Barangay Information System, as demonstrated in this study, efficiently manages resident information, streamlines the delivery of certificates, enhances user experience, and ultimately contributes to more effective and efficient community service delivery.

**Barangay Constituents Information System (BCIS): Toward achieving organizational efficiency (2019)**

Information system is an indispensable tool to achieve organizational efficiency; whether in the industry, government or in any organized community like the barangay. This design research adopted the Waterfall Model grounded on need assessment. It utilized the Visual Basic 6 program in the development of the proposed Barangay Constituent Information System (BCIS). Document analysis and focus interviews with the head and secretary of the four selected barangays produced vital information for the system requirements. Each of the four barangay contributed to the modification of the system specifications and its functionalities. Elements of the system that were modularly written are as follows: census, residents profile record, barangay clearance, profile information record, business clearance, blotter, reports, barangay certifications, violations of barangay ordinances and health information status. Pilot tests of the Barangay Constituent Information System (BCIS) attest the functionality of the system and imply the organization’s enhanced ability to provide optimal service to the community. Still further upgrade is needed satisfying other future ordinance and technical web-based requirements.

**Request Oriented Cache Update for Age of Information Minimization in Industrial Control Systems (2023)**

In industrial control system, applications perform time-critical operations based on the observations of multiple processes. We consider a request-based scenario, where a cache-enabled BS stores the most recent status observed by energy harvesting (EH) sensors, and delivers the cached status to applications upon request. Due to the time-varying nature of processes, cached status may be outdated which affects the accuracy of operations. Frequent cache update improves the status freshness but leads to high energy consumption of EH sensors. Furthermore, the cache updates among EH sensors are coupling due to the fact that the freshness on the application side is simultaneously determined by multiple status. Age of Information (AoI) is employed to measure the freshness of status. We adopt the maximum AoI among the responded status as age of response (AoR). A long-term average AoR minimization problem is formulated, subject to the number of wireless channels and the energy causal constraint of each EH sensor. The problem is challenging due to the random arrivals of request and energy harvesting as well as the random association between requests and sensors. By introducing AoR reduction as the reward of each schedule, the problem is decomposed into a per-slot reward maximization problem, and then transformed into a knapsack problem. Then, an online correlated cache update algorithm is proposed. Numerical experiments illustrate that our solution outperforms the traditional greedy policy and achieves up to 16% performance gains.

**PERCEPTIONS OF THE RESIDENTS OF BARANGAY PALILI ON THE COMMUNITY AND EXTENSION SERVICE DEVELOPMENT PLAN OF COLEGIO DE SAN JUAN DE LETRAN - BATAAN**

**(2023)**

One of the visions of Colegio de San Juan de Letran-Bataan towards the year 2022 is to empower community service through advocating care for the creation and quality of life. This paper aims to know the perception of Barangay Palili residents on the community development plan of the Colegio with the said barangay since 2019. The researchers used a quantitative method approach where survey research was utilized. The survey was able to identify 687 possible household head respondents taken from the 2021 master list from the said barangay. Only 53 out of 687 household heads were able to qualify for the following parts of the survey as they answered 'yes' to all of the first parts-focusing on questions about their awareness of the Colegio and the partnership between the two entities. Regarding the Understanding of the Barangay Palili residents with the Community Service Development Plan of the Colegio, the focus on Christian values and not just the activities of the Colegio garnered the most "Agree" answer with 40 out 53 surveyed respondents, or 75.47%. On the attitude of the Barangay Palili residents regarding the community development plan of the Colegio, the survey showed a consistent set of answers from the respondents in general with answers ranging from 50-53 responses, with one part where only 29 out of 53 surveyed respondents answered that the Colegio taught them "how to fish" and not just "receive a fish". This also can be attributed to the impact of the pandemic since livelihood training had been stopped by the Colegio for the safety of the Barangay Palili residents and its personnel. The residents of barangay Palili hope to continue the partnership and programs being implemented by the Colegio and their barangay, as the last part of the survey states.

**Barangay Profiling System with Analytics (2021)**

This study aimed to develop a Barangay Profiling System with Analytics for Barangay Pallua Sur Tuguegarao City. It aimed to provide systematic profiling system which can the authorized users easily manage resident’s profile, generate statistical reports, and the provision of updating the records. The researchers utilized qualitative approach using descriptive research design and systems development in collecting, analyzing the data and the design and development of the system. The researchers concludes that the developed system automates the profiling of all residents in the barangay. It stores data electronically thus, records are more organized, and also it provides an access of the information needed by the barangay. Reports needed with statical analysis can be easily generated.

**Design and Development of Barangay Health Information System using Google Maps (2023)**

The study aimed to design and develop a Barangay Health Information System that integrates Google Maps as a key component. It utilizes rapid application development methodology and object-oriented analysis and design. The system was implemented using Laravel Framework, to create a robust and efficient BHIS. By integrating Google Maps, the BHIS can efficiently geolocate and map health facilities, patient populations, and other relevant data points. This spatial visualization offers a comprehensive view of healthcare dynamics within the barangay, enabling evidence-based decision-making and resource allocation. The evaluation conducted on the app concluded that it is highly effective in terms of usability, relevance, functionality, maintainability, and portability, receiving an overall average rating of 4.52, which is very satisfactory. This underscore the system's potential to significantly enhance health information management and healthcare services delivery at the barangay level, fostering improved health outcomes for the community.

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