

Streamlining Cross-Departmental IT Service Management Support with KUDOS (Keystream, User Centric, Delivery Optimization and Support)

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Abstract: *This study explores the implementation of a centralized IT Service Management (ITSM) system, referenced as KUDOS (Keystream, User Centric, Delivery Optimization, and Support) is being pursued to eliminate inefficiencies in the traditional IT request processes. The design of the KUDOS system aims to streamline operations, promote transparency, and enhance service delivery. Using the agile methodology, planning, design, implementation, and evaluation stages were carried out. It was found that the system has improved significantly in terms of responsiveness, accountability, and user satisfaction, with an average System Usability Scale (SUS) score of 79.05. For the KUDOS system, an excellent example of digital transformation modernizing government services for operational efficiency is presented.*

Keywords: Cross-Departmental IT Service Management, Ticketing Management, Web Based Support System

1. INTRODUCTION

Information Technology Service Management (ITSM) plays a critical role in making better business processes and improving the delivery of services to customers. In public organizations, IT systems and services intertwine across various departments, helping everything run smoothly and efficiently [1], [2]. This deep integration means that technology is not just supporting the business, but also driving it forward [3]. By connecting different parts of the organization, ITSM helps organizations stay competitive, innovate, and adapt to changing markets ensuring the whole organization achieves its goals and delivers value to customers, and better align their IT resources with current and future client needs [4]. This improved alignment means ITSM can more effectively support business operations and enhance overall performance, ensuring that technology truly serves the organization's goals and adapts to evolving demands.

IT support systems have to be much more structured and responsive because of the higher demand for services, which the limited resources must try to meet [3]. Moreover, IT services at the Butuan City Hall were managed manually, thus resulting in inefficiencies, long times for the resolution of requests, and a lack of visibility. The KUDOS system was conceived and developed as an integrated ITSM for digitizing and centralizing the management of service requests so that it can provide efficient support to 33 departments within the city government.

KUDOS Service Management System presents a complete method of addressing IT service management barriers. By integrating the most important principles of user-centricity, streamlined delivery, continuous optimization, and strong support, the system changes traditional administrative processes. It sets clear processes for things such as events, requests and ways of dealing with changes, making it more organized and effective by teams. The delivery process of IT services to organizational clients can be described as the coordinated

management of service operations [5]. The management of IT service delivery to internal clients involves handling service requests while addressing incidents through managing changes and solving issues [6]. ITSM starts with managing information technology (IT) services as its central basis. Businesses recognized IT systems complexity as the main reason they needed to focus on system management around the early 1990s. Everyone soon came to the conclusion that we needed to handle IT in a more all-encompassing manner. At that point, ITSM became relevant [7]. The User Centric design prefers user experience, focuses on distribution time and effective service provisions. Optimization goals continuous system is improved and technical assistance on the guarantee of support.

The traditional method used by Butuan City [8] Hall to address Information Technology incident issues in all their departments is time-consuming and inconvenient for both clients and department officers. Clients are to be in person to report incidents, which leads to significant delays. To resolve this, Butuan City Hall needs a system that offers a more convenient and efficient approach for client transactions, reduces hassle, and improves information system services. To solve this problem, proponents have proposed the development of a service management system through ticketing [9]. The purpose of this system is to address problems in all departments, to maintain the process of saving time, and ensure that the problems are handled properly. Also, Rane and Mary (2020) utilized the same approach. Furthermore, this study is align with the Sustainable Development Goal (SDG)'s 9 – Industry, Innovation and Infrastructure and SDG's 17 – Partnership for the Goals.

2. LITERATURE REVIEW

Past research highlights the growing importance of ITSM tools such as Information Technology Infrastructure Library (ITIL) and Agile frameworks in enhancing operational workflows. ITIL remains a gold standard in IT service structuring, guiding organizations through service lifecycle management from incident

identification to resolution [10]. The Agile model, on the other hand provides the necessary flexibility and iterative development suitable for dynamic organizational needs [11]. KUDOS builds on these principles by integrating real-time tracking, role-based workflows, and a unified dashboard that aligns with sustainable development goals.



Fig. 1 Incident response workflow [12]

Gillis (2018) demonstrates that the incident management cycle typically initiates with detection and documentation of the incident. The processes of categorization and prioritization are often conducted simultaneously, allowing organizations to efficiently determine both the nature of the issue and its relative importance for resource allocation.

Based on the exploration and checking out various studies in the ITSM field. The proponents have discovered numerous pieces of information that may be useful in better comprehending this topic. Some of the studies explored were notably well executed and provided valuable insights. It appears that there is useful information available to enhance understanding of IT service management. The study discusses how integrative implementation of traditional frameworks like ITIL aligns with DevOps practices, moving towards more modern, iterative IT service management methods. Such an approach centers on collaboration improvement, automation, and work in progress in order to align better with the rapid delivery of digital services [13].

3. ITIL V3 USING BUSINESS PROCESS MODELING NOTATION (BPMN)

The Information Technology Infrastructure Library (ITIL V3) introduced in 2007 serves as a collection of best practices for IT service management (ITSM) which is known as the 2007 Edition. The 2007 Edition expands previous versions with an extensive approach to connect IT services directly to business needs and maintain perpetual enhancement

Business models serve as efficiency tools which enhance operations and tasks within public and private organizations. The organizational approach known as business process improvement produces greater productivity results for companies. Research by [14] demonstrates how business process modeling enhances IT incident management in Peru's public sector through improvements at SUNARP, a government agency. Through the use of ITIL V3 best practices, BPMN process notation and reassignment and subprocess arguments the proposed model is predicted to deliver multiple operational enhancements to SUNARP. Organizations utilize the enhanced incident management process model to sort incidents based on several distinct

criteria. The emergency impact matrix helps to correctly document and classify incidents. Help desk personnel who know the proposal framework built upon ITIL best practices will deliver improved service quality while resolving user requirements alongside their relationship along with expectations [14].

4. METHODOLOGY & SCSOPE

The system was developed using the Agile model, focusing on adaptability, collaboration, and continuous delivery. Data was gathered through interviews and collaboration with the City Information and Communications Technology Office (CICTO). Requirements were collected and categorized into functional (e.g., request tracking, ticket assignment, feedback system) and non-functional (e.g., usability, security, performance) components. Tools used included ReactJS, NodeJS, PostgreSQL, and third-party services like Auth0 for authentication.

A key part of the system's structure includes:

- A ticketing system for real-time request monitoring
- Dashboard for different user roles (client, section head, division head, IT staff)
- Automated reassignment and escalation processes
- A feedback system for service quality evaluation

According to [15], the ITSM methodology and the frameworks are widely used to supervise the distribution of information services related to technology by professionals. Important financial investments have been made by global organizations in the implementation of ITSM methodologies and frameworks. This study emphasizes how ITSM methodologies and frameworks are accepted as important tools for managing IT services effectively in a modern business environment. Businesses in a variety of industries understand how important it is to implement standard operating procedures in order to speed up the provision and maintenance of IT services. Using ITSM techniques can cost a little when it comes to money, time and resources. However, companies are considering these investments needed to improve their overall performance, reduce the shutdown and offer better quality IT services.

This research focuses specifically on improving IT support efficiency across the 33 departmental offices operating within City Government of Butuan administrative structure. Improvements in IT service management will be accomplished through automation and centralization of processes with the application of the KUDOS system which is built with HTML, CSS, React.js, Bootstrap on the frontend and Laravel on the backend. The primary users of the system are employees of City Government, which include administrative users, division heads, IT support staff, and other staff who participate in the IT service management.

Testing included alpha and beta phases with 60 participants from both the public and private sectors. Evaluation was done using the System Usability Scale (SUS).

4.1 System Overview

The KUDOS system significantly transformed the ITSM process at Butuan City Hall. Key features include secure login, automated ticket generation, dynamic dashboards, and real-time notifications. Users can now view the progress of their requests without physically visiting the IT department, saving time and resources.

4.2 Functional Highlights

- Admin Dashboard: Allows user, category, and division management.
- Division and Section Heads: Can approve and assign tickets respectively.
- Technical Staff: View and update tickets, submit reports.
- Clients: Submit and track requests, and provide feedback

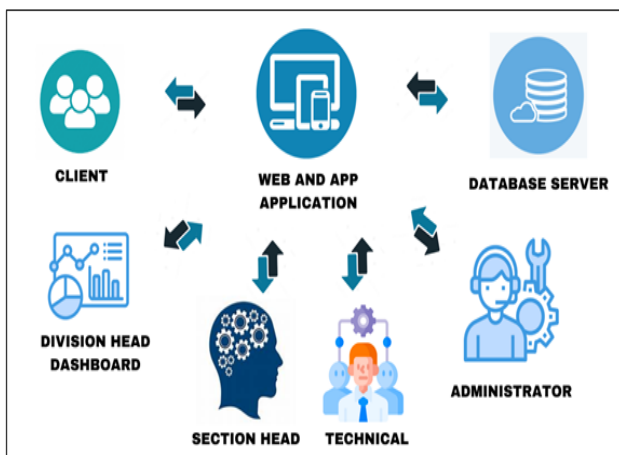


Fig. 2 Process of the ITSM (KUDOS) System

Demonstrates the application's processes. It explains the connection with clients, division head, section head, technical and admin. The client will use the system to submit a ticket if there's an issue inside their respective divisions. For the client to be able to use the system, clients need an internet connection and submit a ticket through a self-service portal, detailing the issue they are facing.

4.3 Planning

In this project, the proponents outline the techniques and strategies for obtaining and analyzing requirements for the project "Streamlining CrossDepartmental IT Service Management Support with KUDOS. The planning phase of this project relies on knowing the needs and expectations of various departments. During the planning phase of implementing an ITSM system at City Hall Butuan, the proponents conducted one-on-one and group interviews in the City Hall Butuan with HR departments, IT personnel, and clients to understand their needs and pain points. Through these interviews, the proponents identified the need for IT Department processes to handle employee onboarding and offboarding requests. To gather all the information and insights for the planning phase, the team collaborated with IT departments of the office to have permission directly from the head of IT for transparency and cooperation.

4.4 Analysis & Design

The researchers conducted series of tasks to evaluate the existing IT service management landscape, the following tasks included:

- Engaging with technical staff, department heads, and end clients, to gather insights and to learn about their IT service experiences, challenges, and expectations.
- The evaluation assessment of current IT service management workflows and procedures transforms existing delivery methods into clear understanding of service potential for development.
- Identifying gaps between current practices and industry best practices to determine which areas require improvement or changes are necessary.
- Evaluating current IT infrastructure, tools, and systems to identify strengths, weaknesses, and potential for improvement

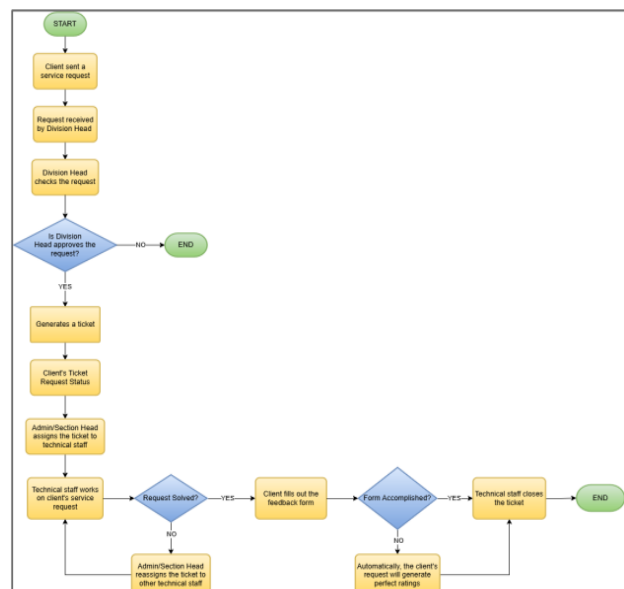


Fig. 3 Process Flow

The diagram illustrates seven main processes and three database tables in the system. All users, including the admin, must log in to start. The admin manages user registration, which will be stored in the user database, which will require the division head's approval. The process flow diagram illustrates the IT incident management workflow in resolving client-reported issues effectively. The process will start when a client reports a problem, which gets officially logged as an incident ticket. This ticket is then handed over to a technical staff who acknowledges it and starts working on the issue. After a successful resolution, clients need to complete a feedback form before technical staff closes the ticket. The issue gets progressively reviewed by another technician when it fails to resolve through the first level of support. This back-and-forth continues until a solution is found, making sure there's accountability and efficiency throughout the process. This well-structured process improves responsibility and openness in IT support services, which eventually results in more satisfied customers and reliable service.

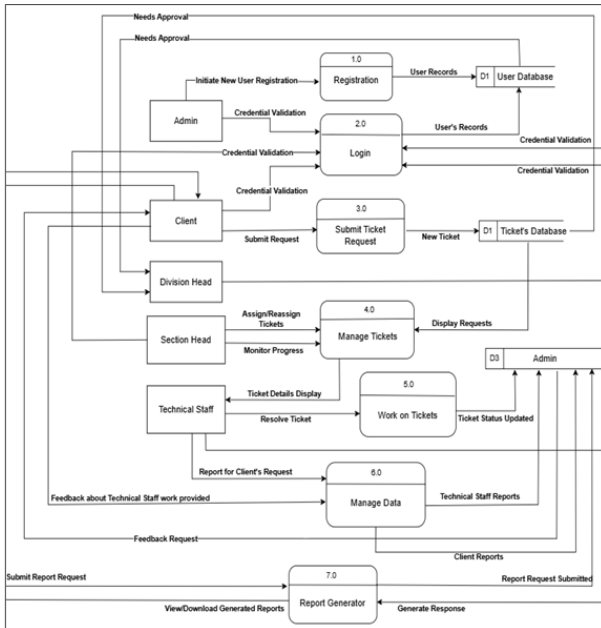


Fig. 4 Flowchart Diagram of Kudos

The flowchart diagram of the KUDOS system emphasizes the process for managing service requests in an organization. This begins when an employee presents a service request, which is reviewed by the division manager. If the request is rejected, the process ends. However, if approved, a service ticket is generated. The administrator or section head then provides a technical staff to handle the request. If the request remains unsolved, it can be allocated to another technical staff. When the request is resolved, the employee fills a response form. If the form is not filled in system automatically generates a perfect rank. When the response form is presented, the technical staff closes the ticket and marks the end of the service request process. This flowchart ensures an organized, transparent and responsive approach to service management, and contains reaction to continuous improvement.

Figure 5 shows the dashboard for the Section Head. It also shows the facility where the section head can assign and re-assign ticket its constituents. This is just part of the visual outputs of the system.

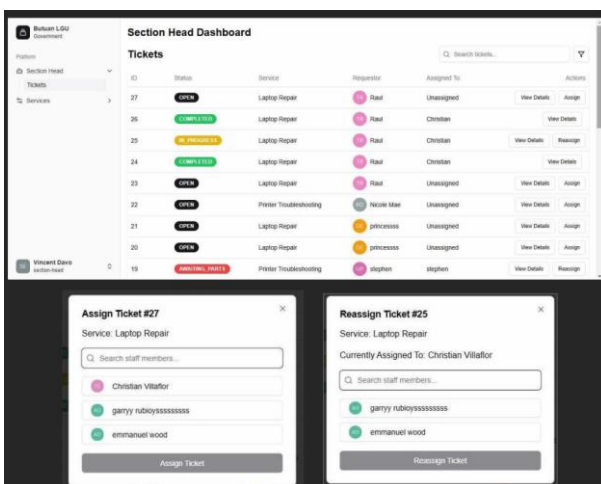


Fig. 5. Section Head Dashboard

4.5 Comparative Analysis

The study conducted a comparative analysis between traditional ITSM methods and the proposed system. The results (Table 4.1) revealed major advantages of KUDOS in areas like transparency, efficiency, scalability, and user satisfaction. Traditional manual processes led to delays, miscommunication, and limited oversight. In contrast, KUDOS automated these workflows, enabling accountability and measurable performance tracking.

Table 1. Comparative Analysis for IT Service Management

Aspect	Traditional Method	KUDOS System
Request Management	Manual, slow	Digital, instant
Transparency	Low	High, real-time
Approval Process	In-person	Online workflow
Accountability	Unclear	Role-based clarity
Performance Tracking	Lacking	Built-in analytics
Scalability	Limited	Flexible

The comparative analysis was carried out through a comprehensive evaluation of traditional service management methods versus the suggested KUDOS system. Through careful observation and data collection, the proponents identified large operating aspects including request, efficiency, transparency, accountability and performance tracking. This extensive evaluation revealed significant contradictions between two approaches. The basic boundaries of traditional methods, as mentioned by [3] include inefficiency, delay and poor tracking. The KUDOS system addresses these problems through automations, convincingly provide that digital transformation performance and bolt operations significantly improve operations[3]. Their research has highlighted the important role technology plays to increase organizational efficiency and responsibility in today's rapidly increasing environment.

4.6 Usability Assessment

In order to evaluate the appropriateness of integrated The KUDOS system delivered ITSM support through a series of surveys carried out in four divisions of the Butuan City Hall, with each division contributing to fifteen participants and thereby completing sixty people in this evaluation. The main intention behind such an undertaking was to gather comments and examine the relevance of the institution in establishing such a system. Within this very process, the proponents would like to draw attention to the needs of the users, identify some areas of potential improvement, and ensure that the system remained within the operational goal of the organization. The KUDOS system scored 79.05 on the System Usability Scale, putting it in the "Good" range for usability. Respondents appreciated the clear interface,

intuitive dashboards, and reduced need for manual reporting. The user group included IT personnel, administrative and executive staff, and IT consultants from both public and private sectors. Overall, participants expressed satisfaction with the system's ease of use, effectiveness, and value.

5. DISCUSSION

The implementation of the ITSM support with the KUDOS system in Butuan City Hall represents a significant technological progress in service management that effectively addresses inefficiencies in traditional manual processes. The usability study shows very positive results. By changing paper-based logging with a digital, centralized ticket system, the organization has improved the request management, enables realtime tracking, has increased accountability through role-based tasks and has increased more streamlined approval processes. The ability of the system to provide extensive performance measurements and analyzes represents a substantial leap in operational transparency and efficiency. By dealing with previous challenges such as delay responses and lack of performance insight, the KUDOS system demonstrates the transformation ability of strategic IT solutions in public organizations. The implementation determines a promising model for digital changes, which provides a more efficient, transparent and tight approach to Butuan City Hall for the management of organizational services.

6. SUMMARY

Butuan City Hall needed an integrated IT service management platform to be developed as a main purpose for this research, referred to as KUDOS (Keystream, User-Centric, Delivery Optimization, and Support) system. The platform was designed to optimize IT service distribution in 33 departments to include online reporting of IT incidents, facilitate service requests, provide near real-time updates on the status of service requests and to involve a response mechanism to support continuous service improvement

7. CONCLUSION AND RECOMMENDATIONS

This study presented the successful development and implementation of the KUDOS platform (Keystream, User-Centric, Delivery Optimization, and Support), a centralized IT service management system tailored to the needs of Butuan City Hall. The system was designed to optimize service delivery across 33 departments by integrating features such as online incident reporting, real-time status updates, centralized request management, and feedback mechanisms.

One of the system's key contributions is the feedback mechanism, which supports iterative improvements in service quality. Additionally, strict adherence to data security protocols enhances user trust and participation. Overall, the KUDOS platform demonstrated how digital solutions can transform public service delivery and administrative efficiency in local government contexts

Recommendations

To further enhance the platform's capabilities and ensure its long-term success, the following recommendations are proposed:

1. AI-Driven Request Classification

Integrate AI-powered tools to automatically classify service requests by urgency and category, enabling quicker triage and resolution.

2. 24/7 AI Chatbot Support

Implement a chatbot to handle basic technical queries and FAQs, reducing the workload on IT staff and providing round-the-clock support to users.

3. Analytical Dashboard

Deploy an advanced analytics dashboard for administrators to visualize service trends, departmental performance, and user engagement in real-time.

4. Enhanced Security Features

Strengthen security through robust encryption, multi factor authentication, and adherence to international data privacy standards to protect sensitive information.

5. Automated Onboarding Notification

Introduce an automated email notification system to guide new users through system access, including password setup and security practices.

These enhancements will solidify the KUDOS platform as a scalable and sustainable IT service management solution, further improving operational efficiency and transparency within City Government.

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