



Design of a Web-Based IT Service System Using ITIL at Dunggala Village

Syam Nur Muflih Renyaan¹, Nikmawati Behned², Rayhan Rega Chandra Mohamad³, Rijalul Farsyah Amiruddin⁴, Lanto Ningrayati Amali^{5*}, Sri Nilawaty Lahay⁶, Muhammad Rifai Katili⁷

^{1,2,3,4,5,6,7}Department of Informatics Engineering, Information Systems Study Program, Faculty of Engineering, Universitas Negeri Gorontalo

renyaanmufli@gmail.com¹, nkmawatibhnd@gmail.com², hanega6@gmail.com³, rijalulfarsyah525@gmail.com⁴, ningrayati_amali@ung.ac.id^{5*}, nilawatylahay@ung.ac.id⁶, mrifaikatili@ung.ac.id⁷

Abstract

This community service activity was conducted because the administrative service process at the Dunggala Village Office is still carried out manually, often causing delays and inefficient data management. This demonstrates the importance of implementing a technology-based system to improve the quality of public services at the village level. The method used is a qualitative approach through observation, interviews, and documentation. The system was designed using the Waterfall model and applying ITSM concepts with the ITIL framework. The results show that the web-based SIPEDES system (Sistem Informasi dan Pelayanan Administrasi Desa) can accelerate the service process, make it easier for the community to access services through the citizen complaint feature and online letter service, and assist village officials in managing data in a more structured manner. Based on evaluation using the System Usability Scale (SUS) method with 7 respondents, the system received ratings in the good to very good category.

Keywords: *Community Service; Information Systems; ITIL; Public Service; Village*

1. Introduction

Digital transformation in the village government sector has become one of the increasingly urgent strategic agendas in today's information technology era. The Indonesian Government through Law Number 6 of 2014 on Villages encourages village governments to improve the quality of public services in an effective, efficient, and transparent manner. The use of information technology is no longer merely an option, but a fundamental necessity for village governments to respond to the ever-growing dynamics of community needs.

This ideal condition contrasts sharply with the reality at the Dunggala Village Office, Bone Bolango Regency. Based on the results of observations and interviews, all administrative service processes are still carried out manually without an integrated information system. Community members must come directly to the village office for every service request, archive management has not been systematically documented, and the absence of a digital queue system causes backlogs that reduce the work efficiency of village staff and the quality of services received by the community.

Various previous community service activities have demonstrated the positive impact of developing web-based public service information systems on the efficiency of government administration [4][5]. However, these studies generally focus only on technical aspects without integrating a standardized IT service management framework. The application of the Information Technology Infrastructure Library (ITIL) in the context of small-scale village governance remains very limited [6][7]. Based on these conditions, this community service activity aims to design and hand over a web-based village administrative service system to the Dunggala Village Office, applying an ITIL-based IT service management approach as the system management framework.

2. Method

2.1 Data collection

This community service activity uses a descriptive qualitative approach with a case study on public administrative services at the Dunggala Village Office. Data collection was carried out through three methods: (1) direct observation of the service flow and operational constraints; (2) interviews with village staff regarding procedures and system needs; and (3) documentation in the form of administrative archives as the basis for needs analysis.

2.2 System development

System development uses the Waterfall model, chosen for its systematic and structured stages. The stages include: (1) Requirements Analysis, identifying system needs based on the results of observations and interviews; (2) System Design, covering the system flow, database structure, and interface; and (3) Implementation, in the form of a system prototype as an illustration of the proposed system.

2.3 ITIL approach

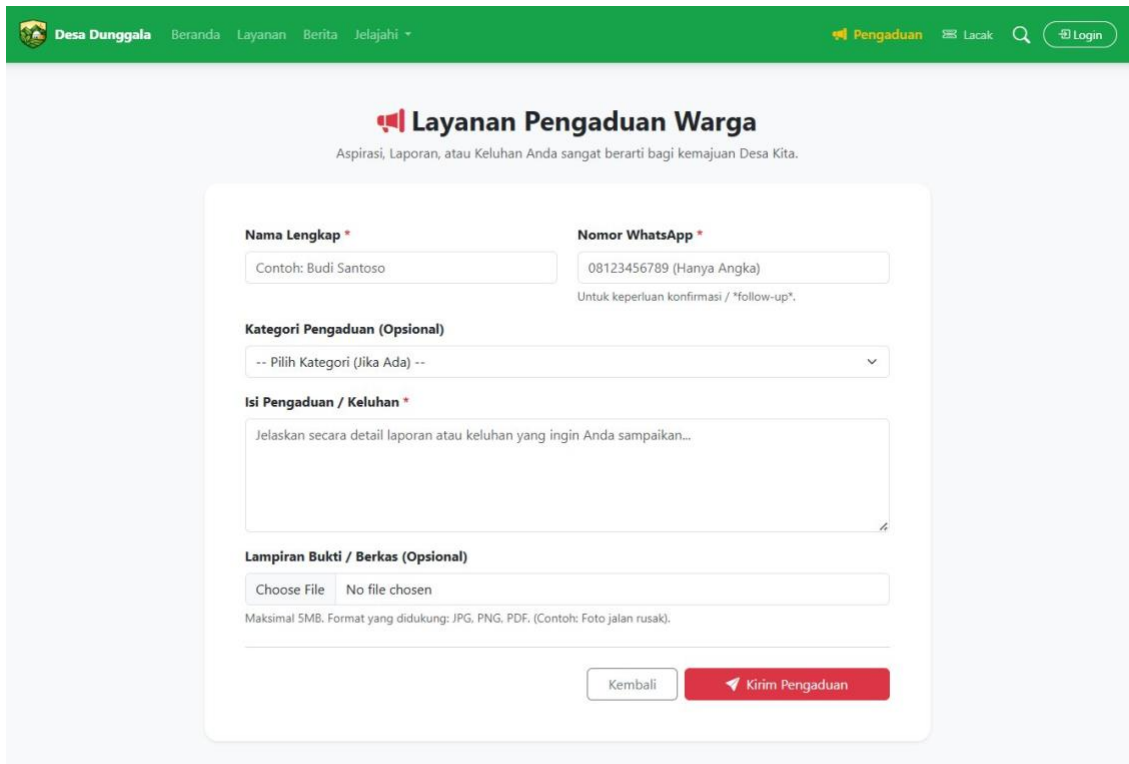
The ITIL (Information Technology Infrastructure Library) framework is used as a reference in analyzing and designing information technology services [1][2]. This approach is applied through five service lifecycle stages: Service Strategy, Service Design, Service Transition, Service Operation, and Continual Service Improvement, to ensure that the services developed are quality-oriented and responsive to user needs.

3. Results and discussion

The result of this community service activity is the web-based SIFEDES system (Village Administration Information and Service System), which was designed and handed over to the Dunggala Village Office. The system was developed to address the problems of manual services, namely slow processes, unstructured archive management, and limited service access for the community. SIFEDES adopts the e-Government concept to improve the efficiency, transparency, and quality of public services [3]. The system can be accessed by three groups of users: residents as service applicants, village operators as service managers, and the village head as supervisor.

3.1 Citizen complaint service

The citizen complaint feature allows community members to submit aspirations, complaints, or reports digitally through the village portal without having to come directly to the office. On the complaint page, residents fill out a form that includes their full name, WhatsApp number for follow-up confirmation, complaint category, detailed complaint content, and supporting attachments in the form of photos or documents. The display of the citizen complaint service page is shown in Fig. 1.



The screenshot displays the 'Layanan Pengaduan Warga' (Citizen Complaint Service) page on a public portal. The page has a green header with navigation links: 'Desa Dunggala', 'Beranda', 'Layanan', 'Berita', and 'Jelajahi'. On the right side of the header, there are links for 'Pengaduan', 'Lacak', a search icon, and a 'Login' button. The main content area features a white form with a red header and a subtitle: 'Aspirasi, Laporan, atau Keluhan Anda sangat berarti bagi kemajuan Desa Kita.' The form contains several fields: 'Nama Lengkap *' with a text input field containing 'Contoh: Budi Santoso'; 'Nomor WhatsApp *' with a text input field containing '08123456789 (Hanya Angka)' and a note 'Untuk keperluan konfirmasi / *follow-up*'; 'Kategori Pengaduan (Opsional)' with a dropdown menu showing '-- Pilih Kategori (Jika Ada) --'; 'Isi Pengaduan / Keluhan *' with a large text area containing the placeholder 'Jelaskan secara detail laporan atau keluhan yang ingin Anda sampaikan...'; and 'Lampiran Bukti / Berkas (Opsional)' with a file upload button 'Choose File' and the text 'No file chosen'. Below the file upload section, there is a note: 'Maksimal 5MB. Format yang didukung: JPG, PNG, PDF. (Contoh: Foto jalan rusak)'. At the bottom of the form, there are two buttons: 'Kembali' and 'Kirim Pengaduan'.

Fig. 1: Citizen complaint service page (public portal)

After a complaint is submitted, the system automatically issues a unique ticket ID that residents can use to monitor the handling status. Village operators receive notifications of incoming complaints, process follow-ups, and update the status through the admin panel (Fig. 2), while the village head can monitor all complaints through the dashboard. This mechanism implements the Incident Management process within the Service Operation domain of the ITIL framework, namely providing an official and structured channel for the community to report service issues in a documented manner [8].

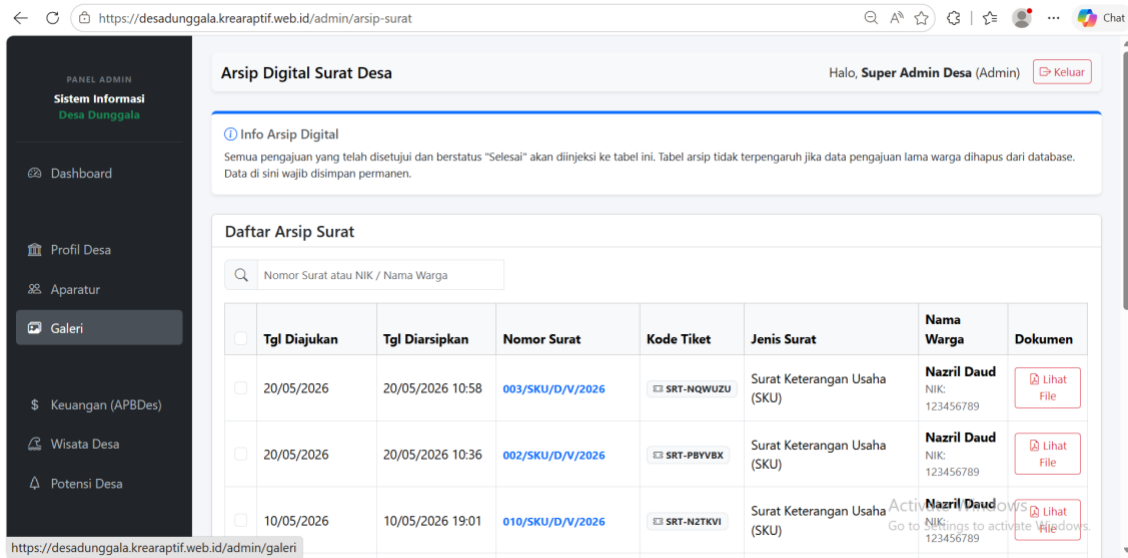


Fig. 2: Complaint management panel (admin view)

3.2 Online letter service

The online letter service facilitates the online submission of administrative requests through a structured workflow. Residents log in using their National Identity Number (NIK) and PIN, then select the type of letter from the available service list and fill in the digital request form (Fig. 3). The village operator verifies incoming requests; if the data is valid, the operator approves it and the system automatically generates a document in PDF format that can be downloaded directly by the resident.

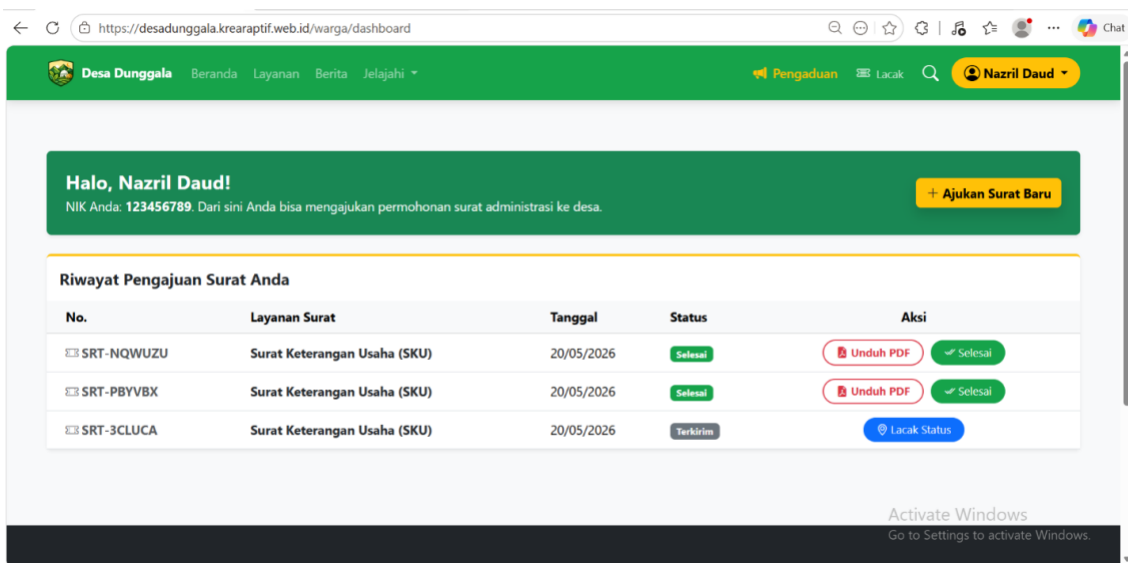


Fig. 3: Online letter application page (citizen portal)

Incoming requests are verified by the village operator through the admin panel (Fig. 4). Residents can independently monitor the status of their requests through the status tracking feature (Fig. 5) without needing to contact village staff, thereby increasing service transparency. This feature implements the Request Fulfillment process within the ITIL Service Operation domain, where each request is processed efficiently and transparently in accordance with the established service standards [9].

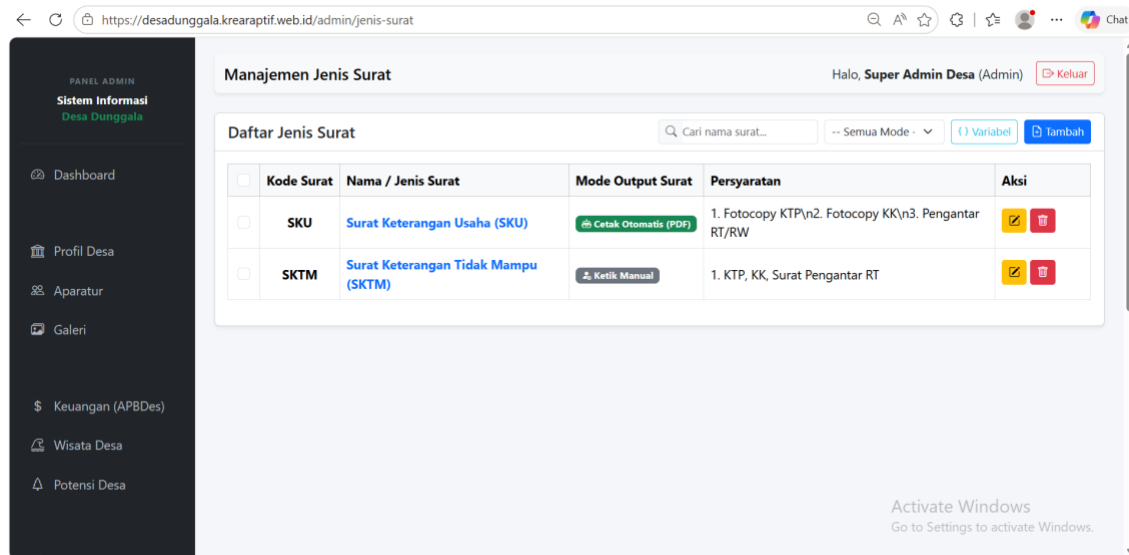


Fig. 4: Letter request verification panel (admin view)

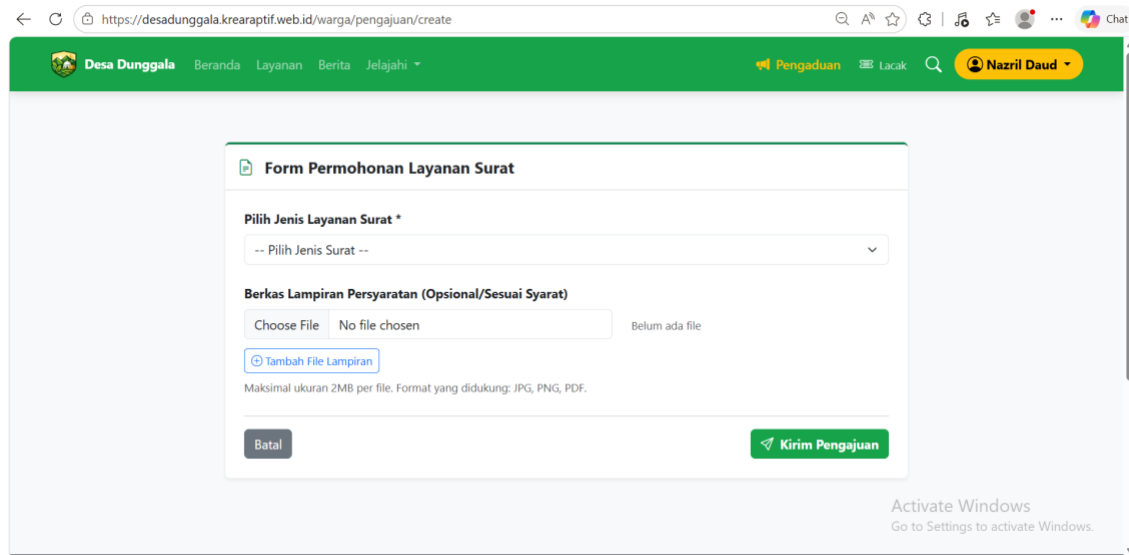


Fig. 5: Request status tracking page (citizen portal)

3.3 System evaluation

Evaluation of the handed-over system was conducted using the System Usability Scale (SUS) method, involving 7 respondents consisting of village staff and community representatives. The SUS instrument consists of 10 questions on a scale of 1–5, covering aspects of ease of use, clarity of display, and feature functionality. The evaluation results show that all aspects received average ratings in the good to very good category, indicating that the system is feasible and easy to operate in the daily administrative service activities of Dunggala Village. Overall, the SipeDES system functions not only as a service medium, but also as a means of structured, transparent, and integrated administrative data management. The implementation of the system is aligned with the principles of IT Service Management (ITSM), which emphasizes the provision of IT services that are valuable and user needs-oriented.

4. Conclusion

This community service activity has successfully designed and handed over the web-based SipeDES system to the Dunggala Village Office. The system has proven capable of improving the efficiency of administrative services compared to the manual system previously used. Community members can submit services such as letter issuance or complaints online without having to come directly to the village office. SUS evaluation of 7 respondents showed good acceptance with ratings in the good to very good category across all measured usability aspects. For future development, it is recommended to add stronger security features, develop a mobile application version, and conduct regular evaluations to ensure the system continues to meet user needs.

Acknowledgement

The community service team would like to express gratitude to Prof. Lanto Ningrayati Amali, Ph.D., Sri Nilawaty Lahay, S.Kom., M.Kom., and Muhammad Rifai Katili, Ph.D. for their guidance and direction throughout the activity process. Thanks are also extended to Group 1 and Group 2 of MLTI Class D for their support during the community service activity.

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