# Improving Information Technology Service Management Effectiveness through ITIL Implementation at SMPN 7 IT Manggelewa

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### Article Info

**Abstract:** Information Technology (IT) services are essential in enhancing the efficiency of administrative and learning processes in schools. However, many public junior high schools still manage IT services manually, without clear documentation or standard operating procedures, which leads to delayed responses, system unreliability, and low user satisfaction. This study aims to improve the effectiveness of IT service management at SMPN 7 IT Manggelewa through the implementation of a simplified model based on the ITIL (Information Technology Infrastructure Library) Service Operation framework. Employing a qualitative descriptive approach with an evaluative and model development orientation, data were collected through observations, interviews, document analysis, and questionnaires involving school stakeholders. The findings reveal major gaps between current practices and ITIL standards across five key processes: Incident Management, Request Fulfillment, Access Management, Problem Management, and Event Management. As a result, a contextualized ITIL-based model was developed, including SOPs, service request forms, access control procedures, a root-cause analysis template, and manual monitoring tools. The model was validated through a focus group discussion and revised for school-level applicability. This study concludes that the application of a school-adapted ITIL model improves service responsiveness, documentation practices, and stakeholder accountability in managing IT services.

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## INTRODUCTION

Information Technology (IT) services have become indispensable in supporting academic and administrative operations in junior high schools (Sari et al., 2024; Surandi & Sejati, 2024). The integration of digital attendance systems, online grading platforms, and e-learning tools has significantly transformed the educational landscape, promoting faster communication, transparent administration, and more efficient management processes within schools (Ismailova, 2021; Nasution et al., 2025; Yusuf et al., 2022). However, the effectiveness of IT services largely depends on how well these services are managed. Professional and standardized IT service management practices are still limited in many Indonesian schools, especially those located in rural or underdeveloped areas.

SMPN 7 IT Manggelewa, located in Dompu, West Nusa Tenggara, is one of the few public junior high schools in the region that integrates technology into daily learning and administrative activities. The school is equipped with a modest local network connecting the teachers' office, administrative units, and computer laboratories. It utilizes several information systems such as e-learning platforms, digital attendance records, and web-based academic reporting tools. However, these systems are operated independently without centralized service management. Preliminary observations reveal several issues: the absence of written standard operating procedures (SOPs), undocumented handling of IT incidents, lack of structured user access control, and reliance on informal communication channels (such as messaging apps) for technical support. These weaknesses often cause delays in issue resolution, inconsistent data handling, and lower user satisfaction, which is consistent with findings from Malik et al. (2024) and Saryoko et al. (2024).

Given these challenges, implementing a structured IT service management framework is essential to enhance reliability, responsiveness, and accountability in school-based IT operations. The Information Technology Infrastructure Library (ITIL) framework offers a globally recognized set of best practices for managing IT services efficiently. Within its Service Operation domain, ITIL emphasizes five key processes—Incident Management, Request Fulfillment, Access Management, Problem Management, and Event Management—that help ensure consistent service quality and user-centered performance (Tjonadi et al., 2023). Applying these processes, even in a simplified form, can provide schools with clear workflows for reporting, resolving, and monitoring IT services.

Despite ITIL's proven success in corporate and higher education settings, its implementation in junior high schools remains limited and underexplored. Previous studies have mostly focused on institutions with robust infrastructure and specialized IT personnel (Adiktia & Cholil, 2022; Dzemydienė et al., 2023). Public schools, particularly those in rural contexts, often lack the resources and governance systems necessary for adopting full-scale IT service management frameworks. This research therefore seeks to bridge that gap by adapting ITIL principles to a school context, creating a simplified and contextually relevant model that fits the realities of limited infrastructure and human resources.

This study aims to evaluate the current IT service management practices at SMPN 7 IT Manggelewa, identify the gaps between existing practices and ITIL Service Operation standards, and design a practical ITIL-based model suited for school implementation. The research integrates participatory design principles, involving school leaders, IT staff, teachers, and students to ensure that the resulting model is both applicable and sustainable.

The study addresses the following research questions:
1. What is the current state of IT service management at SMPN 7 IT Manggelewa?
2. What are the gaps between current practices and ITIL Service Operation standards?
3. How can a simplified and contextualized ITIL Service Operation model be designed and validated to improve IT service effectiveness in the school?

By developing a contextualized ITIL framework for junior high schools, this study contributes both practically and academically. Practically, it provides a structured model that schools can adopt to improve service responsiveness and data management. Academically, it introduces one of the first empirical applications of ITIL at the basic education level in Indonesia, thereby expanding the discourse on IT service management beyond the corporate and tertiary education domains.

**METHOD**

This study employed a qualitative descriptive approach with an evaluative orientation and model development goals. The research aimed to investigate the existing IT service management practices at SMPN 7 IT Manggelewa and formulate a simplified ITIL-based model adapted to the school context. The descriptive aspect captured the real conditions of IT operations in the school, while the evaluative component identified service management gaps compared to the ITIL Service Operation framework. The ultimate goal was to design a contextualized model integrating ITIL processes in a format that is practical, user-friendly, and sustainable for junior high schools.

The study was conducted at SMPN 7 IT Manggelewa, a technology-integrated public junior high school located in Dompu Regency, West Nusa Tenggara, Indonesia. The school was selected because it represents a growing number of rural schools undergoing early-stage digital transformation while lacking standardized IT service procedures. Four stakeholder groups were involved to ensure diverse perspectives: (1) the school principal as a policy decision-maker; (2) IT operators or technical staff as service implementers; (3) teachers as frequent IT service users; and (4) students as service beneficiaries. A total of 80 respondents participated, consisting of 20 teachers and 60 students, complemented by qualitative insights from three key informants (the principal and two IT staff). This triangulation of participant categories enabled comprehensive data collection and analysis.

Multiple data collection techniques were employed to ensure depth and validity through triangulation:

1. Direct observations of IT service processes such as service requests, incident handling, and system access setup;
2. In-depth interviews with key stakeholders (principal, IT staff, and selected teachers);
3. Document analysis of service logs, SOPs, and user access records; and
4. Questionnaires distributed to teachers and students to measure user experience and satisfaction.

The instruments were developed based on the five ITIL Service Operation processes (Incident Management, Request Fulfillment, Access Management, Problem Management, and Event Management) and consisted of structured observation checklists, interview guides, document analysis rubrics, and Likert-scale satisfaction surveys.



Fig. 1. Service Operation

Data were analyzed using the Miles and Huberman interactive model, which includes: (1) data reduction to focus on relevant patterns; (2) data display through narrative and tabular representations; and (3) conclusion drawing and verification through repeated comparison. Additionally, gap analysis was used to compare actual practices with ITIL standards to identify key discrepancies and priority areas for improvement. Descriptive statistics were employed for the quantitative questionnaire data (e.g., satisfaction percentages), while qualitative data from interviews and observations were coded manually using NVivo-assisted thematic grouping to identify recurring issues and improvement needs. The model development followed three major phases:

1. Exploratory Mapping: identifying the real conditions and existing service workflows at the school;

2. Gap Identification: analyzing discrepancies between current practices and the five ITIL Service Operation processes;
3. Model Construction and Validation: designing a simplified ITIL Service Operation model consisting of draft SOPs, service request forms, user access management procedures, and workflow diagrams tailored to school capacity.

The initial model was validated through Focus Group Discussions (FGDs) involving the principal, IT operator, and three teacher representatives. Feedback from participants emphasized the need for simpler language, more visual workflows, and online accessibility. Consequently, several post-validation improvements were made, including:
1. Integration of Google Forms for online service requests,
2. Iinclusion of print-based logbooks as a manual backup system, and
3. Refinement of terminology to make it understandable to non-technical users.

To ensure credibility and dependability, both source triangulation (comparing data from different participants) and method triangulation (cross-verifying results from observations, interviews, document analysis, and questionnaires) were applied. This approach strengthened the reliability of findings and ensured that the resulting ITIL-based model accurately represented the realities and needs of the school environment.

## RESULTS AND DISCUSSIONS

### Current State of IT Service Management

The analysis of existing IT service management practices at SMPN 7 IT Manggelewa revealed a lack of standardized procedures and documentation across all key operational areas. Observations and interviews indicated that most IT-related incidents were handled **informally** through verbal or instant messaging communication, without any record of issue type, response time, or resolution status. User access management was also performed collectively, with shared accounts for teachers and staff, which compromised data security and accountability.

Document analysis confirmed the absence of Standard Operating Procedures (SOPs), service request forms, and user access records. The school's IT operator primarily relied on personal initiative to resolve issues on a case-by-case basis, leading to inconsistencies and delays. These findings align with studies by Malik et al. (2024) and Saryoko et al. (2024), which emphasize that many Indonesian schools still depend on ad hoc service practices rather than institutionalized IT governance.

To capture user perceptions, questionnaires were distributed to 20 teachers and 60 students. The results show relatively high satisfaction in ease of use (75% of students and 70% of teachers) and service speed, but lower satisfaction in system reliability (58%) and access security (55%). This disparity highlights that while users appreciate accessibility, they remain vulnerable to data risks and inconsistent service performance — a challenge also noted by Yusuf et al. (2022) and Orhani et al. (2024).

### Gap Analysis Between Current Practices and ITIL Standards

A gap analysis was conducted by comparing existing school practices with the five core ITIL Service Operation processes: Incident Management, Request Fulfillment, Access Management, Problem Management, and Event Management. The analysis revealed that none of these processes were formally implemented. Specifically:
1. Incident Management lacked any documentation or classification system.
2. Request Fulfillment was performed manually and verbally without SOPs or service request templates.
3. Access Management was performed without individual authorization or deactivation procedures.
4. Problem Management was not applied, resulting in recurring technical disruptions.
5. Event Management tools or monitoring systems were absent, making it difficult to track service reliability.

This mirrors findings by Dzemydienė et al. (2023) and Zulkarnain et al. (2024), who found similar deficiencies in public-sector IT implementations lacking structured frameworks. The gap analysis thus provided a clear foundation for designing a contextualized ITIL-based model for the school.

### Model Design and Validation

Based on the identified gaps, the research team developed a simplified ITIL Service Operation model tailored for school-level implementation. The model introduced several core components:

1. Standard Operating Procedures (SOPs) for IT incident handling and service requests,
2. Service Request and Access Forms (both digital and printed),
3. User Access Management Policy defining user roles, permissions, and deactivation rules,
4. Problem Analysis Template using root-cause tracing, and
5. Manual and digital monitoring tools for tracking event logs and performance reports.
6. This model was then validated through a Focus Group Discussion (FGD) involving the principal, IT staff, and teachers. Feedback from participants was highly constructive, emphasizing three primary aspects:
   a. The need for simpler and more intuitive terminology,
   b. The importance of online accessibility to accommodate teachers' mobility, and
   c. The inclusion of manual backup documentation to ensure continuity during power or internet outages.

Post-validation improvements included:

1. Integration of Google Forms for online service requests and incident reporting,
2. Addition of print-based logbooks as manual backups,
3. Simplification of language in SOPs and templates,
4. Visual enhancement of process flowcharts for user clarity.

After revision, the model was re-evaluated internally and found to be more user-friendly and practical for the school's resource constraints.

### Implementation Challenges and Practical Implications

While the model offers a structured approach to IT service management, its implementation faces several practical challenges. First, **human resource limitations**, the school's IT unit consists of only two technical staff with limited training in IT governance. This restricts the frequency of documentation and incident monitoring. Second, **infrastructure constraints**, such as unstable internet connectivity and limited computer availability, hinder consistent application of online procedures. Third, there is a **cultural barrier** related to teachers' familiarity with formal IT documentation; many still prefer direct verbal communication over digital reporting systems.

To address these issues, the study recommends gradual capacity-building through **school-based workshops**, role assignment for IT focal persons, and collaboration with district-level IT coordinators. These steps would ensure the model's sustainability and foster a shared sense of accountability among staff.

### Transferability and Broader Impacts

The contextualized ITIL-based model developed in this study demonstrates strong transferability potential to other public schools with similar levels of digital readiness. Its modular structure allows for incremental adoption — schools can begin with one or two processes (e.g., Incident Management and Request Fulfillment) before expanding to full ITIL integration.

Moreover, the model can serve as a prototype for policy-level adaptation by local education authorities aiming to standardize IT service management in schools. By incorporating participatory validation and localized workflows, it balances global ITIL standards with practical feasibility in resource-limited environments. This aligns with recommendations from Permatasari et al. (2024) and Dande et al. (2024), who argue that simplified ITSM frameworks can significantly enhance operational efficiency and accountability in educational institutions undergoing digital transformation.

### Summary of Findings

The integration of ITIL principles at SMPN 7 IT Manggelewa has proven feasible when adapted to the local school context. The participatory design and validation process led to the creation of a model that improves:
1. **Responsiveness** in addressing IT-related incidents,
2. **Documentation practices** through SOPs and reporting tools,
3. **Accountability among** users and IT operators, and
4. **Sustainability** through flexible online–offline workflows.

This study thus provides an applied contribution to IT service management in education by demonstrating how ITIL's global best practices can be scaled down and localized for basic education settings with limited resources.


## CONCLUSIONS

This study demonstrates that IT service management at SMPN 7 IT Manggelewa remains unstructured and has not yet aligned with professional standards such as the ITIL framework. None of the core processes within ITIL Service Operation—including Incident Management, Request Fulfillment, Access Management, Problem Management, and Event Management—have been systematically implemented. Observations, interviews, document reviews, and questionnaire findings reveal that these weaknesses result in delayed responses to service disruptions, unsecured system access, and low levels of user satisfaction. Through an evaluative and participatory approach, the study successfully developed a simplified ITIL-based model tailored to the school context. This model includes standard operating procedures (SOPs), service request forms, and procedural workflows that are accessible to school stakeholders and was positively validated through focus group discussions (FGDs).

This model offers practical contributions as an applied solution to improve the effectiveness of IT service management in schools while also contributing theoretically to the development of ITIL applications in basic education. Therefore, it is recommended that other schools—particularly those in regions with emerging digital infrastructures—begin to adopt similar models in a phased and adaptive manner. Furthermore, local education authorities are encouraged to support the adoption of IT service standards through training programs, policy formulation, and capacity-building initiatives. Future research may extend the application of this model to other educational levels and evaluate its impact on service quality and the effectiveness of digitally supported learning processes.


## ACKNOWLEDGMENTS

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