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Digitalization of School Activity Management: Integration of Proposal Submission, Budgeting, and Reporting Processes

[1st]Sena Kurniawan 1*, [2nd]Sekar Fauzia Larasati 2*, [3rd]Yuda Purnama Putra 3*,
Teknologi Rekayasa Perangkat Lunak[1] Politeknik Mardira Indonesia[1], Teknologi Rekayasa Multimedia[2] Politeknik Mardira Indonesia[2],
Teknologi Rekayasa Perangkat Lunak[3] Politeknik Mardira Indonesia[3]
Email : emailforsena@gmail.com, Sekar.fauzia17@gmail.com, Yudaestilo@gmail.com

ABSTRACT

The administration of high school student activities still relies on conventional paper-based systems and separate spreadsheets, leading to bureaucratic inefficiencies, risks of document loss, and financial reporting discrepancies. This study aims to design and implement an integrated web-based school activity management information system at SMAN 1 Talaga. The development method uses the Prototyping model, including requirement gathering, quick design, evaluation, and implementation. Functionality and acceptance testing were conducted using Black Box Testing and User Acceptance Testing (UAT). The results indicate the system successfully digitized the flow of proposal submission, budget approval, and accountability reports (LPJ). Bureaucratic time was reduced by up to 70%, paper usage was eliminated (paperless), and budget limits were automatically synchronized with LPJ realizations. The UAT result reached a feasibility rate of 92.17%. This digital transformation significantly increases the efficiency, accountability, and transparency of activity administration management, while minimizing the potential for human error in the school environment.

Keywords: Accountability Report; Educational Administration; Governance Digitalization; Information System; Prototyping

ABSTRAK

Tata kelola administrasi kegiatan sekolah menengah saat ini masih banyak bergantung pada sistem konvensional berbasis kertas dan spreadsheet terpisah, yang menyebabkan inefisiensi birokrasi, tingginya risiko kehilangan dokumen, dan ketidaksesuaian pelaporan keuangan. Penelitian ini bertujuan merancang dan mengimplementasikan sistem informasi tata kelola kegiatan sekolah terintegrasi berbasis web di SMAN 1 Talaga. Metode pengembangan sistem menggunakan model Prototyping yang mencakup pengumpulan kebutuhan, perancangan cepat, evaluasi, hingga implementasi. Pengujian fungsionalitas dan penerimaan pengguna dilakukan melalui instrumen Black Box Testing dan User Acceptance Testing (UAT). Hasil implementasi menunjukkan bahwa sistem berhasil mendigitalisasi alur pengajuan proposal, persetujuan anggaran, hingga Laporan Pertanggungjawaban (LPJ). Terjadi pemangkasan waktu birokrasi hingga 70%, eliminasi penggunaan kertas secara menyeluruh (paperless), dan sinkronisasi otomatis antara pagu anggaran dengan realisasi LPJ. Uji UAT mencapai tingkat kelayakan agregat sebesar 92,17%. Transformasi digital ini secara signifikan meningkatkan efisiensi, akuntabilitas, dan transparansi tata kelola administrasi kegiatan, serta meminimalisasi potensi human error di lingkungan sekolah.

Kata Kunci: Administrasi Pendidikan; Digitalisasi Tata Kelola; Laporan Pertanggungjawaban; Prototyping; Sistem Informasi

INTRODUCTION

Senior high school education encompasses a variety of student activities that cultivate interests, talents, and character development beyond academic pursuits. Effective management of these activities necessitates robust administrative governance, covering planning, implementation, evaluation, and accountability. This perspective aligns with (Nurhazizah & Purnamasari, 2024), who underscore that sound governance is essential for the effective operation of an organization. Generally, the deployment of Management Information Systems (MIS) in educational institutions aims not only to address operational requirements but also to enhance transparency and accountability in data management (Rahman & Prabowo, 2025). However, in practice, activity governance systems at the senior high school level often face limitations due to bureaucratic and administrative inefficiencies.

The primary concern remains the significant reliance on traditional paper-based systems or decentralized spreadsheet methodologies in student administration. Numerous senior high schools continue to employ manual procedures, which result in inefficiencies, data inaccuracies, accessibility issues, and an elevated risk of losing or damaging physical documents (Santoso et al., 2021). Owing to this fragmented administrative framework, educational and administrative staff are frequently overburdened

with increasing and uneven workloads merely to manage document approval and storage (Fajriani & Mus, 2025). Such circumstances directly impede school management's decision-making and obstruct the seamless execution of student programs.

More specifically, this bureaucratic issue is keenly felt in the workflows for submitting activity proposals, requesting budgets, and submitting the Accountability Report (*Laporan Pertanggungjawaban*/LPJ). The complex process requires tiered physical approvals, which can take several days. Additionally, the absence of a document-status tracking system often hampers activity organizers' ability to monitor the progress of their proposals. Moreover, the lack of integration between the budget recorded in the initial proposal and the budget documented in the LPJ realization report often results in discrepancies in the recapitulation of financial data. Indeed, effective financial management is essential for objectively and systematically accounting for the utilization of school funds.

Facing these operational challenges, digital transformation in the governance of educational institutions has become an urgent priority that cannot be delayed if excellent service is to be achieved. The implementation of integrated digital systems has been shown to reduce the manual workload of administrative staff and significantly improve the efficiency and transparency of educational management (Haleem et al., 2022). Digitalisation is not merely the transfer of documents into electronic formats, but rather the building of an interconnected information ecosystem. The effective use of administrative information systems can also reduce dependence on paper, accelerate the document archiving cycle, and enhance the accountability of budget publication in real time (Rukmana et al., 2025). The absence of a system that bridges activity proposals and final reporting creates a gap in efficiency that must be addressed immediately through an information technology approach.

Therefore, this research aims to design and implement an integrated web-based information system for school activity governance. The proposed system is designed to accommodate and automate three crucial workflows: activity proposal submission, budget management and approval, and accountability reporting (LPJ). Through digitalisation in this area, it is hoped that school administrators can reduce bureaucratic red tape, facilitate accurate monitoring of budget absorption, and minimise the risk of fund discrepancies. The results of this research are expected to provide a practical contribution in the form of an adaptive, transparent, and easily adopted digital student administration governance prototype model for various senior high schools in Indonesia.

METHODOLOGY

This research constitutes an applied study aimed at developing software solutions to address administrative management issues, with a case study conducted at SMAN 1 Talaga. Data collection methods included observation, interviews, and literature review. Observation was conducted directly on the bureaucratic procedures involved in proposal submission, budget disbursement, and the submission of the student activity report (LPJ), which are still carried out using traditional methods. Semi-structured interviews were carried out with school management to identify specific needs. A detailed description of the instruments and objectives for each data collection method is provided in Table 1.

Table 1
Rincian Metode Pengumpulan Data

Metode	Sasaran/Subjek	Tujuan Pengumpulan Data
Observation	The administrative bureaucracy flows at SMAN 1 Talaga	Identify the point of inefficiency within the manual process from proposal submission to the submission of the accountability report.
Interview	Student Affairs Coordinator, School Treasurer, Administrative Staff	Digging into system requirement specifications from the stakeholders' perspective and field technical constraints.
Literature Review	Scientific Journal and Literature (SIM Education)	Strengthen the theoretical foundation regarding the digitalization of governance and software engineering methods.

In designing and building this integrated information system, the method used is the System Development Life Cycle (SDLC) with the Prototyping model. (Pressman, 2014). The selection of the prototype model is based on the need for intensive interaction between developers and end-users (the school) to ensure that the system built truly represents the specific workflow in the field. The development cycle flow with the Prototyping model applied in this research is illustrated in Figure 1.

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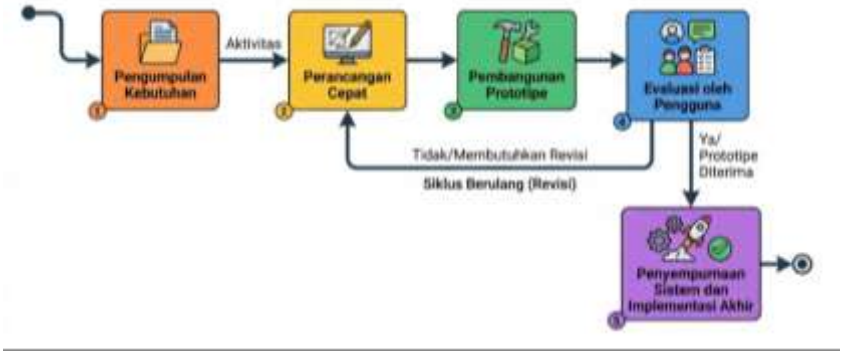

Figure 1.
Diagram Alir Metode Pengembangan Sistem Model Prototyping

The stages in this method begin with requirements gathering, proceed to quick design, and culminate in the development of an initial prototype. Once the prototype has been evaluated by users and meets all the school activity management criteria, the process continues to final coding and web-based system implementation. To ensure the system's reliability and operational feasibility before full deployment, software testing is conducted through Black-Box Testing and User Acceptance Testing (UAT). Black Box Testing focuses on testing the system's core functionality without examining the internal code structure.
Meanwhile, the UAT testing phase will involve stakeholders at SMAN 1 Talaga directly (teachers, staff, and student representatives) to evaluate the usability and user satisfaction with the interface as well as the smoothness of interactions with the developed digital system.

RESULT AND DISCUSSION

Based on the completed stages of the prototyping methodology, this research produces a Web-based School Activity Management Information System, which is fully implemented at SMAN 1 Talaga. This system is built using the Model-View-Controller (MVC) architecture, which separates business logic, data representation, and user interface, thereby ensuring scalability and data security for the institution. The implementation of this system successfully restructures the bureaucratic flow, previously centered on the movement of physical documents, into a digital ecosystem with clear role-based access control. These access rights are categorized into four main entities: Students or the Activity Committee as initiators; Supervising Teachers as verifiers of initial program feasibility; the Vice Principal for Student Affairs as a managerial verifier; and the School Treasurer as a budget verifier and monitor. The interface development focuses on minimalist, intuitive design principles to reduce the learning curve for users with varying levels of digital literacy.

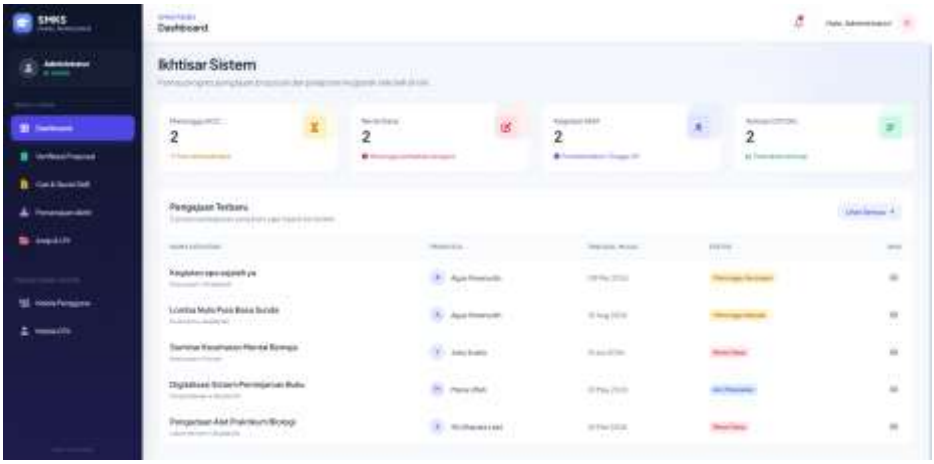

Figure 1.
Antarmuka Dasbor Utama Sistem Informasi Manajemen Kegiatan

The discussion of the first achievement focuses on the activity proposal submission module. In the previous manual system, student committees were required to print three copies of the physical proposal, then take turns obtaining signatures from each stakeholder. Initial observations showed that this process typically took three to seven full working days, not including the risk of documents getting lost or damaged. Through the newly developed system, this workflow has been fully digitized. Students simply fill out an online activity metadata form that includes the event name, date of implementation, and estimated total budget, then

upload the proposal document in PDF format into the system database. The most prominent innovation in this module is the implementation of a document-tracking system. The committee can view real-time visual indicators (progress bars) showing the current status of their proposal, whether it is still under review or revision, or has been approved.

This automation significantly reduces paper use in schools (paperless), aligning with the idea that digitizing administration can lower printing operational costs while also enabling environmentally friendly filing management.

Furthermore, the most substantial achievement of this system lies in resolving budget inefficiency issues through a multi-tiered approval module and accountability reporting (LPJ). During the pre-condition observation, a common problem is a discrepancy between the initially approved budget ceiling and the amount reported by the committee in the physical LPJ at the end of the activity. The school treasurer must manually reconcile this financial data using a separate spreadsheet, which is highly prone to human error. The designed information system successfully bridges this gap through automatic synchronization logic. When the Vice Principal and Treasurer approve a proposed activity, the system automatically locks the disbursement amount into a bound budget variable. After the activity is completed and the committee is required to upload the LPJ document, they must enter the actual expenditure details into the system form. The system's algorithm then performs cross-validation between the actual realization amount and the previously locked budget ceiling. If there is a surplus or deficit of funds, the system immediately calculates the remaining balance and displays the budget absorption percentage.

The integration of logic in this approval and accountability report module effectively transforms the administrative performance of SMAN 1 Talaga. To provide an empirical overview of the efficiency improvements resulting from implementing this system, the researcher developed a performance matrix comparing conventional and digital governance. The comparison of these operational parameters is described both quantitatively and qualitatively in Table 2.

Table 2.
Comparison Matrix of Conventional Governance Performance vs. Digital Governance Performance

Parameter Kinerja	Sistem Konvensional (Sebelum)	Sistem Digital Terintegrasi (Sesudah)	Dampak Signifikansi
Proposal Approval Duration	Average 3 - 7 business days	Average 1 - 2 business days	Bureaucratic time has been reduced by up to 70%.
Paper Usage (Per Event)	Approximately 50-100 sheets (Draft, Revision, Final Report)	0 sheets (Fully Paperless)	Reduction of operational costs for office supplies procurement.
Document Tracking	No (manual ask the staff)	Real-time tracking via Dashboard	Reduce staff communication interruption load.
LPJ Budget Reconciliation	Manual using calculator/Excel	Automatically via synchronization algorithm	Elimination of human error and duplicate data.
Management Report Access	Must open the physical cabinet archive	The report can be downloaded in real-time	Management decision-making is faster.

The system's functionality was then empirically tested for feasibility using User Acceptance Testing (UAT). This testing is crucial for measuring users' sociological acceptance of the new technology in the school environment. The UAT involved 30 participatory respondents, including representatives from the Student Organization (OSIS), supervising teachers from extracurricular activities, administrative staff, and school management at SMAN 1 Talaga. The testing instrument was designed as a Likert-scale questionnaire (Strongly Agree, Agree, Neutral, Disagree) with four main assessment indicators that reflect the objectives of solving the problems outlined in the introductory chapter. The percentage feasibility tabulation results from the UAT testing are presented in Table 3.

Table 3.
Matriks Perbandingan Kinerja Tata Kelola Konvensional vs. Tata Kelola Digital

User Assessment Indicator	Strongly Agree	Agree	Hesitation	Disagree	Feasibility Percentage
Time efficiency in proposal bureaucracy	70%	25%	5%	0%	91.2%
Navigation ease and interface usability	65%	30%	5%	0%	90.0%
Transparency of tracking information & budget	80%	20%	0%	0%	95%
Reliability of LPJ data synchronization	75%	20%	5%	0%	92.5%

feature

Average System Acceptance Rate	-	-	-	-	92.17

A deep analysis of Table 4 reveals that the overall system acceptance rate among stakeholders is 92.17%, indicating that the system is classified as 'Highly Feasible' for large-scale operation. Breaking it down by indicator, the highest satisfaction is for transparency of information and budget tracking, with a feasibility score of 95.0%. The high appreciation for this indicator shows that digitalization has effectively eliminated the stigma of bureaucratic black-box processes, in which committee members previously felt they lacked visibility into the school fund disbursement process. On the other hand, the ease-of-navigation (usability) indicator received the lowest comparative score of 90.0%, although it is still considered very high. About 5% of respondents who expressed doubts about this metric are generally senior administrative staff still in the transition-adaptation phase from physical systems to digital interfaces. This serves as a practical evaluation note that the implementation of software in educational institutions must always be accompanied by periodic technical training support.

Theoretically, the findings in this study reinforce the paradigm proposed by Santoso et al. (2021), which states that optimizing Management Information Systems is directly proportional to improving educational data accountability. Automatic synchronization between proposals and accountability reports (LPJ) in this system demonstrates that technological interventions can eliminate anomalies in conventional record-keeping, as often highlighted by Rahman & Prabowo (2025). In practice, the implementation of this system is not merely about producing a software product but also entails business process reengineering at SMAN 1 Talaga. The workload of administrative teachers and staff, which was previously consumed by manually verifying physical documents, can now be redirected to evaluating the quality of student activities programs. Ultimately, this research affirms the argument (Haleem et al., 2022) that the role of technology in educational institutions is not merely to automate existing manual processes but to create a governance culture that is much more responsive, agile, measurable, and dignified in managing public budgets.

CONCLUSIONS AND SUGGESTIONS

Based on the design, implementation, and testing results, it can be concluded that the Web-Based School Activity Management Information System at SMAN 1 Talaga has successfully bridged and automated bureaucratic workflows, from proposal submission and budget approval to final reporting (LPJ). This digital transformation has proven capable of significantly reducing approval bureaucracy time by up to 70%, creating a paperless archiving system, and effectively eliminating discrepancies in financial records through automatic synchronization features between the allocated budget and actual expenditure. The user acceptance rate, based on feasibility testing that reached an aggregate score of 92.17%, confirms that the implementation of this system is highly feasible and relevant, and has a positive impact on strengthening transparency and accountability in managing student activities within the school environment.

Based on the practical evaluation results in the field, the recommended suggestion is a need for a mentoring program and for regular technical training on system usage. This training should specifically target educational staff or senior administrative personnel to accelerate the transition period from physical systems to digital interfaces. For future system development and research, it is advised that this governance feature be integrated with real-time cross-platform notification modules, such as utilizing the WhatsApp Application Programming Interface (API) gateway, to expedite approval coordination. Additionally, development can be expanded to include inventory management modules, creating a more holistic and centralized educational institution governance ecosystem.

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