AJPDIS GLOBAL RESEARCH NETWORK

AMERICAN Journal of Public Diplomacy and International Studies
Volume 4, Issue 2, 2026 ISSN (E):2993-2157

The Effectiveness of The Sipp Program (Employee Attendance Information System) at The Hulu Sungai Utara Regency Health Office

Muhammad Ikhwan. Irza Setiawan
Public Administration Study Program, Amuntai College of Administrative Sciences, Indonesia
Email: Muh.ikhwan25@gmail.com, irzasetiawanybm@gmail.com

Abstract: An attendance system is a data collection method used to record the presence of employees within an organization, company, or institution. It functions as a tool to manage employee attendance records and serves as a vital instrument for monitoring performance and productivity. This system utilizes the Waterfall method, which consists of five stages: post-analysis, system design, system implementation, system testing, and system maintenance. The system is capable of recording arrival and departure times, calculating total working hours, displaying absenteeism reports, and ensuring the security of employee data. It is expected to enhance the discipline and efficiency of the staff at the Hulu Sungai Utara Regency Health Office.
The implementation results indicate that the system can automatically record clock-in and clock-out times, calculate working hours, generate real-time attendance reports, and minimize data manipulation. It is anticipated that this system will improve discipline and accountability, as well as support management in monitoring employee performance effectively and efficiently. This study aims to evaluate the implementation of the Employee Attendance Information System (SIPP) at the Hulu Sungai Utara (HSU) Regency Health Office in improving work discipline and attendance data accuracy. Using a descriptive qualitative method, this research examines the effectiveness of this technology-based system compared to manual systems. The results show that SIPP significantly increases employee discipline, although technical obstacles regarding data synchronization during peak hours are still encountered.

Keywords: Employee Attendance Information System, SIPP Application, Work Discipline, Digital Attendance System, Public Sector Human Resource Management, Government Digital Transformation, Civil Servant Performance Monitoring, Attendance Data Accuracy

Introduction

An Employee Attendance Information System (SIPP) is a digital application or system designed to record attendance, departures, permits, and leaves automatically and integrally. It replaces manual methods to enhance efficiency, data accuracy, and discipline, while facilitating the calculation of salaries and benefits. These systems often utilize technologies such as fingerprints, face recognition, or GPS, and are typically integrated with larger personnel management systems like SIMPEG or HRIS [1], [2], [3], [4], [5].

The primary legal framework governing employee attendance systems in Indonesia, specifically for State Civil Apparatus (ASN), is derived from several regulations rather than a single law. These include:

a. Law Number 20 of 2023 regarding State Civil Apparatus (formerly Law No. 5 of 2014): This law serves as the foundation for comprehensive ASN management, including disciplinary enforcement and the digitalization of personnel management.
b. Government Regulation Number 94 of 2021 regarding Civil Servant (PNS) Discipline: This regulation outlines the obligations, prohibitions, and types of disciplinary sanctions for PNS. Absenteeism or violations of working hours recorded in the electronic system are

subject to sanctions under this regulation.

c. Presidential Regulation Number 21 of 2023 regarding Working Days and Hours of Government Agencies and State Civil Apparatus: This regulation establishes the standard working days and hours for ASN at both central and regional levels, serving as a benchmark for the attendance system.

The primary functions of the SIPP program include:

a. Attendance Recording: Accurately logging employee clock-in and clock-out times.
b. Data Management: Processing attendance data into recapitulation reports, calculating working hours, and identifying absenteeism.
c. Integration: Connecting with HRIS/SIMPEG systems for comprehensive personnel data management.
d. Reporting: Generating daily, weekly, monthly, and annual reports for evaluation and payroll purposes.
e. Leave/Permit Requests: Allowing employees to apply for leave or permits online using biometric verification (fingerprint or face recognition) and GPS to verify location.

The implementation of SIPP offers significant benefits, such as facilitating the monitoring of employee discipline, reducing administrative errors and processing time compared to manual systems, and providing transparency by allowing employees to view their attendance history and allowance calculations. Furthermore, it protects attendance data from unauthorized manipulation.

Attendance systems are a crucial aspect of human resource management in any organization, serving as a measure of employee discipline and productivity. Many agencies, including the Hulu Sungai Utara Regency Health Office, have historically relied on manual attendance methods, such as paper-based logs or reports via WhatsApp groups. These conventional methods are vulnerable to various weaknesses, including potential data manipulation, the risk of losing physical documents, time-consuming recapitulation processes, and general data inaccuracy.

In response to these challenges, the utilization of information technology is essential to transition toward a more efficient and accurate system. The development of web-based or mobile-based computerized attendance information systems provides a solution to overcome manual system limitations, ensuring that attendance data is recorded in real-time and facilitating easier monitoring by management or Human Resources departments [6], [7], [8].

The following is a narrative of the common phenomena and issues encountered in the field:

Geographical Constraints and Network Accessibility

Hulu Sungai Utara Regency is characterized by extensive wetland areas (lebak). This directly impacts the stability of internet signals, particularly for employees stationed at remote Community Health Centers (Puskesmas) or mobile health units.

a. Phenomenon: Employees frequently experience failures when submitting their attendance at clock-in or clock-out times due to signal "blank spots" or adverse weather conditions that disrupt provider signals.
b. Impact: A discrepancy occurs between physical presence and digital records. Employees who are already at their workplace may not be recorded in the system, risking a deduction in their Performance Allowance (TPP) [9], [10], [11], [12].

The "Last-Minute Attendance" Phenomenon (Server Overload)

At the regency level, SIPP is typically centralized on servers managed by the Office of Communication and Information (Diskominfo) or the Personnel Agency (BKPSDM). At the Health Office, the sheer number of employees—including healthcare workers (Nakes)—creates significant system load.

a. Issue: A massive surge of simultaneous access occurs precisely at 07:30 AM and 04:00 PM WITA.
b. Situation: The application frequently experiences lag or "force closes" as it is unable to handle thousands of concurrent data requests. This phenomenon creates panic among employees who fear being marked late solely due to system constraints [13].

Coordinate Discrepancies (Fake GPS vs. Accuracy)

SIPP generally employs a Geofencing feature (GPS-based boundary restrictions). However, accuracy issues are frequently encountered in the field.

a. Phenomenon: Several coordinate points for health centers or agency offices may not be mapped with precision on digital maps. This forces employees to search for a "magic spot" in the corner of a room or even step outside the building just to achieve an "In-Range" status.
b. Integrity Issue: Conversely, there is a challenge regarding the use of third-party applications (Fake GPS) by certain individuals to clock in from home. This indicates that digital monitoring systems still require periodic physical validation.

Digital Literacy Adaptation among Senior Healthcare Workers

The Health Office has a wide employee age demographic. For senior healthcare workers who are more accustomed to direct patient care, using the SIPP application is often perceived as a complicated administrative burden.

Symptom: There are frequent occurrences of "proxy attendance" (where the system allows) or requests for assistance from younger colleagues to operate the application. This suggests that the information system is not yet fully user-friendly for all age groups.

Literature Review

The following is a summary of five previous studies regarding the effectiveness of employee attendance information systems:

1. Huda [14]
   a. Title: The Effectiveness of the Employee Attendance Information System (SIPP) Application in Improving the Discipline of Civil Servant Teachers (Case Study at SDN Pulau Tambak).
   b. Results: Overall, the application has proven successful in disciplining teacher performance. The implementation indicator was rated effective as teachers followed the attendance procedures correctly. However, the objective achievement indicator was considered less effective due to persistent technical issues, such as network disruptions (errors).
2. Muhammad Aria R. Semba [15]
   a. Title: The Effectiveness of E-Presensi in Improving Civil Servant Discipline at the Regional Secretariat of Bima Regency.
   b. Results: The implementation of e-presensi was rated as well-executed and had a significant impact on increasing employee discipline. The system is far more effective and efficient than the previously used manual paper system and assists employees with time management.
3. Kesuma, D. J. [16]
   a. Title: The Effectiveness of the Online Attendance Program in Implementing Civil Servant Work Discipline at the Population and Civil Registration Office of Pekanbaru City.
   b. Results: The online attendance program was considered quite effective, though challenges were found in the adaptation aspect. Approximately 23% of employees experienced difficulties adapting during the initial implementation due to a lack of technological understanding. Additionally, loopholes for cheating, such as "proxy attendance" between colleagues, were still identified.
4. **Adzany Jagat Raya [16]**
   a. Title: The Effectiveness of Improving Civil Servant Discipline Using Online Attendance Applications at BKPSDM Padang City.
   b. Results: The systematic use of online attendance applications improved the accuracy of attendance data. The success of this system is highly supported by its integration with allowance payments (TPP), which motivates employees to arrive on time to avoid income deductions.
5. Pratiwi et al [14]
   a. Title: Development of Web and Android-Based Employee Attendance Monitoring Application (Case Study: Department of Manpower and Transmigration of East Kalimantan Province).
   b. Results: Through beta testing, this system achieved an effectiveness score of 89.60%. This Android-based system successfully simplified the monitoring process and accelerated the recapitulation of attendance reports that were previously handled manually, making

personnel administration more transparent.

c. To explain the theoretical basis of the research at the Hulu Sungai Utara (HSU) Regency Health Office, it is essential to distinguish between Effectiveness Theory (to measure the success of objectives) and Application/System Theory (to measure technical quality and user acceptance).

The following is the detailed theoretical description:

1. Program Effectiveness Theory

Program effectiveness is a measurement of the extent to which a policy or activity achieves its predetermined targets. In the context of SIPP at the HSU Health Office, the most relevant framework is Budiani's Theory (2007):

a. Target Accuracy: The extent to which the application is utilized by all employees, ranging from office staff to healthcare workers in remote Health Centers (Puskesmas) within the HSU region.
b. Program Socialization: The process of disseminating information regarding SIPP regulations (GPS radius, clock-in/out times) to ensure they are understood by all personnel.
c. Program Objectives: The degree to which SIPP successfully improves work discipline and reduces instances of fraudulent attendance.
d. Program Monitoring: The existence of oversight regarding attendance data by leadership as a basis for decision-making or administrative sanctions.

Application & Information Systems Theory

As SIPP is a technological product, its success is measured using theories focused on human-computer interaction.

A. Information Systems Success Model (DeLone & McLean):

This model is highly suitable for government agencies as it measures system effectiveness comprehensively through:

a. System Quality: Measuring the technical performance of the application, such as loading speed, server stability, and ease of navigation for Health Office employees.
b. Information Quality: The accuracy of generated attendance reports, specifically whether GPS data is precise or prone to shifting.
c. User Satisfaction: The extent to which employees feel assisted by the application compared to the previous manual system.

B. Technology Acceptance Model (TAM) – Fred Davis: This theory focuses on why employees accept a new application based on two key variables:

1. Perceived Usefulness: Employees believe that SIPP will enhance performance and simplify administrative matters (such as Performance Allowance/TPP).
2. Perceived Ease of Use: Employees feel the application is easy to learn and not confusing for daily use.
3. Implementation Theory (George C. Edward III)

Given that SIPP is a local government program in HSU, organizational environmental factors are highly influential:

a. Communication: The clarity of instructions provided by the Health Office leadership to subordinates.
b. Resources: The availability of internet networks in the HSU region (particularly wetland areas) and the availability of employee smartphones.
c. Disposition: The commitment of officials to strictly implement SIPP data as the basis for allowance deductions.
d. Bureaucratic Structure: The existence of Standard Operating Procedures (SOP) that regulate what employees must do if the application encounters errors or network issues.

Work Discipline Theory

The ultimate output of SIPP's effectiveness is discipline. According to Hasibuan (2014), employee discipline indicators include:

a. Attendance Frequency: The total number of attendances recorded systematically.
b. Punctuality: Compliance with designated clock-in and clock-out times.

c. Regulatory Compliance: Performing attendance marking in accordance with the predetermined Geofencing coordinate points.

Research Synthesis

In this study, the effectiveness of SIPP at the HSU Health Office is achieved if the application is technically sound (DeLone & McLean), easy for employees to use (TAM), and supported by strong leadership policies (Edward III), thereby resulting in a behavioral change in the form of improved Discipline (Hasibuan).

Methodology

This study employs a qualitative method, with data collection techniques consisting of interviews with personnel management officers, observation of the data extraction processes, and a documentary study of attendance reports.

Results and Discussion

Operational Mechanism

The SIPP at the HSU Health Office integrates hardware (fingerprint/face recognition) with a web-based application. Attendance data serves as the primary basis for calculating the Additional Employee Income (TPP), thereby increasing payroll accuracy. Currently, the implementation of the employee attendance information system at the Hulu Sungai Utara (HSU) Regency Health Office focuses on the use of the SIPP HSU application. The HSU Health Office employs 67 State Civil Apparatus (ASN) members, consisting of 49 Civil Servants (PNS) and 18 Government Employees with Work Agreements (PPPK).

This system is part of the digital transformation efforts by the HSU Regency Government, in accordance with Regent Regulation (Perbup) Number 19 of 2021 concerning the Implementation of Electronic-Based Government Systems (SPBE). The details of the implementation and usage mechanism are as follows:

1. SIPP HSU Application Profile

   Developed by the HSU Office of Communication, Information, and Encryption (Diskominfo), this application replaces or complements conventional fingerprint systems.

   a. Mobile-Based: Accessible via smartphones (Android/iOS) for all ASN and contract employees.
   b. Geolocation (GPS): Employees can only check in and out within a specified radius of office coordinates (such as the Health Office or local health centers/Puskesmas).
   c. SIKOn Integration: Connected to the Online Performance Information System (SIKOn) to synchronize attendance data with performance appraisals and TPP disbursements.

2. Usage Mechanism in the Health Office

   Specifically within the Health Office environment, the implementation includes:

   a. Centralized and Distributed Presence: Used at the main Health Office headquarters and all Technical Implementation Units (UPT), such as health centers throughout HSU.
   b. Biometric Features: Supports facial recognition or fingerprint login on smartphones to prevent "proxy attendance."
   c. Shift Management: Customized to accommodate shift-based working hours for medical personnel (nurses/doctors) operating in 24-hour health services.

3. Regulatory Aspects and Sanctions

   Implementation is governed by strict legal foundations and consequences:

   a. Legal Basis: In addition to Perbup No. 19/2021, it refers back to Perbup HSU No. 13 of 2018 regarding Guidelines for Fingerprint Attendance.
   b. Allowance Deductions: Unauthorized absences result in a direct deduction of the daily performance allowance (TPP), generally around 1% per day for unexplained absences.

4. Implementation Challenges

   Based on policy evaluations, several recurring challenges include:

   a. GPS Accuracy: Occasional coordinate issues in weak-signal areas, particularly for remote health centers.
   b. Socialization: The need for continuous reinforcement for senior employees regarding

updated application features.

c. Supervision: Requirement for direct supervisors to ensure the alignment between digital logs and physical presence in the field.

Analysis of SIPP Effectiveness

1. Achievement of Program Objectives

The SIPP program has generally achieved its primary goals: increasing order and employee discipline. The system records attendance more accurately and in real-time compared to manual systems, reducing data manipulation and increasing transparency. It also supports an integrated personnel database for continuous monitoring.

2. Program Implementation Efficiency

SIPP has proven efficient in saving time and effort within attendance administration. Automated recapitulation reduces the administrative workload of the personnel unit and accelerates monthly reporting. While initial technical glitches and network issues occurred, these were temporary and manageable through technical assistance.

3. Employee Compliance Levels

Compliance is relatively high, with the majority of employees following established procedures. The technology-driven system encourages discipline as data is difficult to manipulate. However, a small percentage of non-compliance remains regarding tardiness or unexplained absences, indicating that the system still requires consistent leadership enforcement.

4. Impact on Personnel Governance

The application has a positive impact on governance in HSU. Documented, accurate data provides an objective basis for discipline assessment, increasing accountability and supporting Good Governance principles. It also ensures fairness in distributing rewards and sanctions based on factual data.

5. General Evaluation of Program Effectiveness

Overall, the SIPP program in Hulu Sungai Utara is effective in improving discipline and administrative efficiency. Its success is driven by leadership policy support, technological infrastructure readiness, and employee commitment. Existing technical and behavioral hurdles do not significantly impede the achievement of the program's core objectives.

Conclusion

The implementation of SIPP at the Hulu Sungai Utara (HSU) Regency Health Office has been effective in transforming the work culture toward greater discipline. To further optimize the system, it is recommended to strengthen the network infrastructure and increase server capacity to accommodate high data traffic during peak hours. Additionally, improving internet connectivity is essential, particularly at Community Health Centers (Puskesmas) located in remote areas.

Suggestions

Based on the research findings, the author suggests that the Hulu Sungai Utara Regency Health Office strengthen field supervision to validate the alignment between digital attendance data and the actual physical presence of employees at their respective work units. Furthermore, there is a need for continuous socialization regarding the importance of SIPP, emphasizing that it is not merely a surveillance instrument but a vital component of digital work culture transformation in the Bureaucracy 4.0 era. Additionally, employees must be prepared to shift their work mindset from manual, slow, and convoluted traditional government processes toward a system that is fully digital, rapid, and efficient.

References

[1] "Fire Fighting: Some Common Issues Encountered by Inspectors," Oct. 1998, *Commonwealth Secretariat*. doi: 10.14217/9781848596597-6-en.

[2] A. M. Jothi, S. K. Satapathy, and S. Mishra, "A Comparative Analysis of Various Methods for Attendance Framework Based on Real-Time Face Recognition Technology," in *Proceedings of Data Analytics and Management*, Springer Nature Singapore, 2023, pp. 477–493. doi: 10.1007/978-981-19-7615-5_40.

[3] H. D.Joshi, "BIOMET: A Multimodal Biometric Authentication System for Person

Identification and Verification using Fingerprint and Face Recognition," *Int. J. Comput. Appl.*, vol. 51, no. 17, pp. 7–12, Aug. 2012, doi: 10.5120/8132-1736.

[4] V. Chvarkov and N. Gromova, "INTEGRATED HR-DATA SYSTEMS (HRIS) IN HRM: EVOLUTION OF DEVELOPMENT OF HRIS, CORE CONCEPTS, COMPETITIVE ADVANTAGES, AND CURRENT ISSUES OF MODERN DEVELOPMENT," *Management of the Personnel and Intellectual Resources in Russia*, vol. 13, no. 1, pp. 62–68, Feb. 2024, doi: 10.12737/2305-7807-2024-13-1-62-68.

[5] &NA;, "Monthly and daily risedronic acid comparable in osteoporosis," *Inpharma Weekly*, vol. NA;, no. 1541, p. 16, Jun. 2006, doi: 10.2165/00128413-200615410-00044.

[6] S. R. S, R. Kannnan Megalingam, and B. A. Devi, "RFID Based Attendance Marking System with Clock-in/Clock-out and Email Alert for Academic Record Keeping," in *2025 International Conference on Robotics and Mechatronics (ICRM)*, IEEE, Nov. 2025, pp. 1–6. doi: 10.1109/icrm66809.2025.11349011.

[7] G. Keppens, B. Spruyt, and J. Dockx, "Measuring School Absenteeism: Administrative Attendance Data Collected by Schools Differ From Self-Reports in Systematic Ways," *Front. Psychol.*, vol. 10, Dec. 2019, doi: 10.3389/fpsyg.2019.02623.

[8] R. Durkin, "Summer Industrial Projects Program (SiPP) Drives Engineering Technology Student Retention," in *2015 ASEE Annual Conference and Exposition Proceedings*, ASEE Conferences, pp. 26.1441.1-26.1441.8. doi: 10.18260/p.24778.

[9] W. Whitman, "Hours for the Soul," in *Specimen Days*, Oxford University Press, 2023. doi: 10.1093/owc/9780198861386.003.0153.

[10] A. B. Midhol, "The Principle Of Due Process In Disciplinary Sanctions For Civil Servants In Indonesia: Comparative Study Of Government Regulation Number 53 Of 2010 And Number 94 Of 2021," *Jurnal Administrasi Publik*, vol. 16, no. 1, Jun. 2025, doi: 10.62870/jap.v16i1.33197.

[11] D. N. Widowati, "LEGAL ARRANGEMENTS FOR THE ENFORCEMENT OF THE NEUTRALITY VIOLATION OF THE STATE CIVIL APPARATUS (ASN) IN SIMULTANEOUS REGIONAL HEAD ELECTIONS (CASE STUDY IN SRAGEN REGENCY)," *Journal Philosophy of Law*, vol. 3, no. 4, p. 79, Jul. 2022, doi: 10.56444/jpl.v3i4.3359.

[12] S. Rugtanom, J. Arunruerk, W. Yaemvachi, P. Sunantapot, and P. Srikram, "Web application and Mobile application based Student Attendance Management System for Facial Recognition Attendance," in *2024 23rd International Symposium on Communications and Information Technologies (ISCIT)*, IEEE, Sep. 2024, pp. 181–185. doi: 10.1109/iscit63075.2024.10793682.

[13] B. Sarnawa, "Legal Friction of State Civil Apparatus Neutrality in Indonesia," *Indonesian Comparative Law Review*, vol. 1, no. 1, 2018, doi: 10.18196/iclr.1105.

[14] P. et al., "Development of Web and Android Based Employee Attendance Monitoring Application (Case Study: Department of Manpower and Transmigration of East Kalimantan Province)," *Journal of Artificial Intelligence and Engineering Applications*, 2025, [Online]. Available: https://ioinformatic.org/index.php/JAIEA/article/view/738

[15] M. A. R. Semba, "The Effectiveness of E-Presensi in Improving Civil Servant Discipline at the Regional Secretariat of Bima Regency," 2023. [Online]. Available: http://eprints.ipdn.ac.id/15629/1/Muhammad%20Aria%20R.%20Semba%2030.1092.pdf

[16] D. J. Kesuma, "The Effectiveness of Online Attendance Programs in the Implementation of Civil Servant Work Discipline at the Population and Civil Registration Office of Pekanbaru City," 2024. [Online]. Available: https://repository.uin-suska.ac.id/77592/1/SKRIPSI%20GABUNGAN.pdf