

Analysis of the Application of Biometric Technology on Employee Performance in Public Broadcasting Institutions of Republic Television

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Abstract

This study aims to analyze the implementation of fingerprint-based biometric technology in supporting employee performance at the Public Broadcasting Institution Television of the Republic of Indonesia (LPP TVRI) Central Jakarta, focusing on work discipline, work productivity, and work motivation, as well as identifying the technical, behavioral, and policy-related obstacles encountered during its implementation. This study employed a descriptive qualitative approach. Data were collected through observation, interviews, and documentation, and analyzed using data reduction, data presentation, and conclusion drawing techniques. The findings indicate that the implementation of fingerprint-based biometric technology has positively contributed to improving employee work discipline, supporting work productivity through more effective attendance administration, and enhancing employee motivation to comply with organizational regulations. The study also identified several obstacles, including unreadable fingerprints, network disruptions, employee mobility, and work schedule adjustments. Nevertheless, these obstacles can be addressed through the organization's verification mechanisms, enabling the biometric system to effectively support employee performance monitoring. Therefore, the implementation of biometric technology at LPP TVRI Central Jakarta has improved the effectiveness of attendance management and employee performance.

Keywords

Biometric Technology; Fingerprint; Employee Performance; Technology Acceptance Model (TAM); LPP TVRI



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INTRODUCTION

Digital transformation has encouraged various organizations, including government agencies and public institutions, to develop technology-based administrative systems to improve the effectiveness of organizational governance. One form of transformation can be seen in the use of a biometric technology-based attendance system in managing employee attendance. Biometric technology is an identification technology that uses individual biological characteristics to carry out the process of verifying the user's identity. One form of biometric technology that is

widely used in organizations is the *fingerprint system*. The application of biometric systems in organizations is not only related to administrative attendance recording, but also related to how employees interpret the use of technology in daily work activities. Based on the results of the pre-research conducted at LPP TVRI Central Jakarta from May 19 to June 3, 2026 through field observation and preliminary interviews with several employees, it was found that a fingerprint-based attendance system has been used in the process of recording attendance in administrative units and broadcasting operational units.

In its implementation, several interesting operational conditions were found to be studied further. At certain times, there is a queue of employees when attending due to the high number of users accessing the device at the same time. In addition, technical obstacles were found in the form of fingerprint reading failures, fingerprint conditions that were not detected by the system, inconsistencies in the verification process, and delayed response of the device when used. LPP TVRI Central Jakarta was chosen as the research location because it has different characteristics of public broadcasting organizations compared to administrative agencies in general. Broadcasting activities that take place on an ongoing basis cause these organizations to have more complex attendance management needs. In addition to involving administrative employees, LPP TVRI Central Jakarta also involves operational employees such as production crews, field journalists, news editors, and studio technicians who have diverse work patterns. Research conducted by shows that the implementation of attendance (Isra UL Huda, 2022) (*fingerprint*) is able to increase the effectiveness of employee work discipline supervision through more accurate and systematic attendance recording. The findings are in line with Imilda's research, which explains that the use of the system (Muh Yani et al., 2026) (*fingerprint*) is not only related to work discipline, but also related to employee motivation and performance. Both studies show that biometric technology has a broader role than just an attendance recording tool. Furthermore, the study found that the effectiveness of the system (Rahmayu & Irmalasari, 2022) (*fingerprint*) in improving work discipline will be more optimal if supported by consistent organizational supervision. Meanwhile, he emphasized that the implementation (Ayu Rahmawati & Nur Fitriana, 2024) (*fingerprint*) is able to help reduce the level of employee delay, but its success is still influenced by employee compliance with applicable organizational rules. Thus, although all studies show that technology (*fingerprint*) contributes to the improvement of work discipline, each study has a different emphasis, namely on the aspects of data accuracy, work motivation, organizational

supervision, and employee compliance and this study uses a *Technology Acceptance Model* (TAM) and qualitative approach.

METHODS

The research on the implementation of the digital presence system was operated using a qualitative approach with a descriptive design. The location of the information collection is centered on Jalan Gerbang Pemuda Number 8, Gelora Village, Tanah Abang District, Central Jakarta City, Special Capital Region of Jakarta 10270. The construction of data to build a comprehensive descriptive narrative is divided into two main sources, namely primary data and secondary data. Primary data mining was collected directly from the location through observation techniques of presence activities, the implementation of in-depth interviews with key informants, and the collection of authentic documentation files. Instead, secondary data is absorbed as an academic reinforcement derived from literature books, scientific journals. In qualitative research, the sample is understood as a research informant who is selected based on certain considerations in accordance with the research objectives. The informant selection technique in this study uses purposive sampling, which is a technique for determining informants that is carried out deliberately based on knowledge. The informants in this study consist of employees who directly use the biometric system, employees of the personnel department who manage the attendance system, and employees from various work units who have experience in the use of biometric technology. Employee work performance within the broadcasting institution. Here's the Research Design in this study:

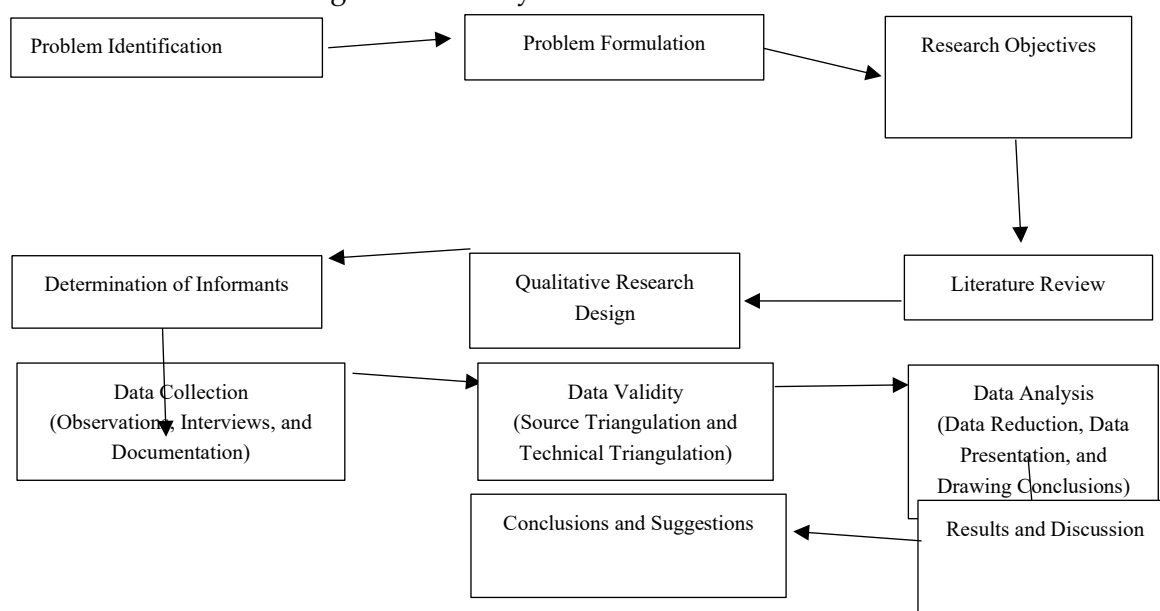


Figure 1. Research Design

Schematically, the visualization of the data sorting process in this qualitative research is presented in Table 1:

Table 1. Primary Data Sources

Yes	Data Source	Data	Condensation	Condensation/Observation
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		Process	Focus Results
1	In-Depth Interviews	Transcribing interview results, coding, and grouping data based on research themes	Application of biometric technology, ease of use of the system, constraints of use, discipline of attendance, and work motivation of employees
2	Observations	Selecting and summarizing field records obtained during observation at work and after-hours	Timeliness of attendance, use of biometric systems, work activities after attendance, and obstacles that occur during the attendance process
3	Documentation	Selecting documents relevant to the research focus and grouping information that supports the results of interviews and observations	Employee monthly attendance reports, documents related to employee performance, interview transcripts, and other supporting documents
4	Data Triangulation	Compare interviews, observations, and documentation to ensure the suitability of information	Validity of data regarding the application of biometric technology to employee performance within LPP TVRI

The data validity techniques used after data collection is completed can be presented in table 2:

Table 2. Research Data Validity Techniques

Yes	Data Validity Techniques	How to Apply	Purpose
1	Triangulation Source	Compare information from HR/HRD, administrative employees, as well as operational and broadcasting employees	Ensure consistency of information from multiple data sources
2	Triangulation Technique	Compare interviews, observations, and documentation	Ensure the suitability of data obtained through different techniques
3	Time Triangulation	Conducting observations at different times during the study	See data consistency based on observation time
4	Member Check	Re-examining the results of interviews with informants	Ensure the accuracy and suitability of the

			information provided by the informant
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FINDINGS AND DISCUSSION

The following are the results of observation and observation of direct research results at the Public Broadcasting Institute of Television of the Republic of Indonesia (LPP TVRI) Central Jakarta from May 19 to June 3, 2026. Observations were made in three time periods, namely before working hours start, during working hours, and during employee home, including the use of biometric systems, work discipline, work productivity, work motivation, and obstacles that arise during the implementation of the system.

Table 3. Field Observation Results

Yes	Observation Focus	Observation Results
1	Use of biometric systems	All employees are present using a machine (<i>fingerprint</i>) before starting work activities.
2	Work discipline	The majority of employees attended according to the work schedule and went directly to the work unit after making their presence.
3	Work productivity	Employees carry out work according to their respective duties after attending without significant obstacles.
4	Work motivation	Employees follow the procedure for use (<i>fingerprint</i>) as part of their personnel administration obligations.
5	Technical constraints	During peak hours, there are queues and several failures to read fingerprints so that employees have to re-scan.
6	Attendance monitoring	Attendance data is recorded automatically and used by the HR department to monitor employee attendance.

The following is a visual of the draft of the last month's attendance data processing produced periodically by the personnel unit presented in Table 4:

Table 4. Employee Attendance Data Recapitulation Result Sheet

No	NIK	Nama Karyawan	Januari	Februari	Maret	April	Mei	+
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96	...	...	...	...	...	...	...	...
97	...	...	...	...	...	...	...	...
98	...	...	...	...	...	...	...	...
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OFFICER	100%
350	100%
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Based on the results of the study, the application of biometric technology based on (*fingerprint*) provide real benefits in improving employee work discipline through more accurate, transparent, and integrated attendance recording. These findings suggest the presence of *perceived usefulness* (perception of benefits) as described in *Technology Acceptance Model (TAM)*, That is, employees feel that the use of the fingerprint system helps increase the effectiveness of attendance supervision and supports compliance with working hours. Thus, the biometric system not only functions as an attendance recorder, but also provides benefits for organizations in improving employee work discipline.

CONCLUSION

The application of fingerprint-based biometric technology at LPP TVRI Central Jakarta has made a positive contribution to supporting employee performance. From the aspect of work discipline, the system (*fingerprint*) is able to increase employee compliance with working hours through more accurate, transparent, and integrated attendance recording so that it facilitates the monitoring process by the Human Resources (HR) department. From the aspect of work productivity, the use of *fingerprints* supports smooth personnel administration, accelerates the process of recapitulation of attendance data, and helps coordinate work between employees. However, for employees who have high mobility, such as reporters and field journalists, it is still necessary to adjust the attendance mechanism so as not to hinder the implementation of tasks in the field. Meanwhile, from the aspect of work motivation, the implementation of the biometric system encourages employees to be more responsible for attendance, increase awareness in complying with organizational regulations, and build a more disciplined work culture.

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