

The Impact of Work Process Digitalization and Green HRM on Resource Efficiency at the South Labuhanbatu Bawaslu Secretariat

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Abstract

This study aims to analyze the impact of work process digitalization and the implementation of Green Human Resource Management (HRM) on resource efficiency at the Bawaslu Secretariat in South Labuhanbatu Regency. As an election supervisory agency, Bawaslu faces challenges in efficiency, accountability, and speed of service, previously dominated by a paper-based administration system. This manual practice causes significant resource waste, both financially and environmentally. To address this, a digital transformation was carried out by developing an integrated administration management application that replaces physical documents with digital ones. This digitalization aims to cut lengthy bureaucracy and improve operational efficiency. The implementation of Green HRM at Bawaslu in South Labuhanbatu Regency is expected to reduce resource waste through the use of environmentally friendly and efficient technology. This study uses a literature review approach to identify and synthesize relevant previous research findings. The results show that the implementation of work process digitalization and Green HRM at Bawaslu in South Labuhanbatu Regency has had a positive impact on resource efficiency, by reducing paper, ink, and energy consumption, as well as increasing the accuracy and speed of administrative processes. In addition, the developed application also supports real-time data-based decision-making and increases transparency in election supervision

Keywords: *Digitalization, Green HRM, Efficiency*

INTRODUCTION

A relevant macro approach to understanding the digital transformation of documents is the diffusion of innovations, which explains how, why, and how quickly new technologies are adopted in a social system. Factors such as innovation attributes, communication channels, time, and recipient characteristics determine the rate of adoption. Rogers (2003) complements this. The socio-technical systems (STS) perspective emphasizes that the success of digitalization depends not only on technology but also on social relations, organizational structures, work processes, and staff adaptive capabilities; in other words, technical design must be aligned with job needs and organizational culture. Technology acceptance models such as TAM and the integrated UTAUT framework provide operational constructs such as perceived usefulness, perceived ease of use, social influence, and facilitating conditions—which explain individual intentions and behaviors in accepting electronic document management systems. Venkatesh et al. (2003) argue that the combination of Diffusion + STS + TAM/UTAUT provides a conceptual foundation for analyzing organizational, interpersonal, and individual variables that influence digitalization adoption at Bawaslu. For example, we can examine the extent to which perceived system usefulness and organizational readiness moderate the effect of exposure to innovation on actual use. This framework also helps design interventions (training, process redesign, incentives) that are contextual and evidence-based. With this multi-theoretical approach, research can test hypotheses about adoption pathways (e.g., readiness → intention → use → performance) and identify structural barriers that may not be apparent in a single-level analysis.

At the applied level, the focus shifts to concrete standards, policies, and implementation practices: the International Records Management Principles and Requirements (ISO 15489) provides guidelines for document creation, capture, classification, metadata, retention, and disposition—critical aspects for electronic documents to meet the criteria for evidence,

auditability, and sustainability. In the broader realm of digital government, e-government surveys and guidelines emphasize interoperability, data security, public access, and governance as prerequisites for document digitization to improve public oversight and accountability. Practically, applied theory requires the design of local metadata policies, document lifecycle management procedures, secure storage architectures, and audit and backup mechanisms that comply with national regulations. Furthermore, a focus on change management and strengthening human resource capacity is needed to realize the benefits of technology. The combination of applied theory and models at the grand/middle level allows for the formulation of specific research and policy recommendations: for example, testing intervention packages (technology + SOPs + training + metadata policies) on outcomes such as digital evidence integrity, administrative efficiency, and public trust, including within the Regency Election Supervisory Agency (Bawaslu). The South Labuhanbatu Election Supervisory Agency (Bawaslu) faces demands to improve efficiency, accountability, and speed of service. However, work processes at the South Labuhanbatu Regency Bawaslu Secretariat are dominated by manual and paper-based systems, which lead to various inefficiencies and waste of resources. All incoming and outgoing mail processes, leadership dispositions, and administrative reporting related to supervision (such as report preparation and official travel accountability letters) must be done by printing physical files. This practice results in high resource consumption. The need for new paper (HVS) and ink/toner cartridges for printing and duplicating documents is very high, creating a significant volume of paper waste. Dependence on printers, which operate for long hours, increases electricity consumption. Staff must physically move (mobility) to send/retrieve files, request signatures/approval from leaders, and archive documents in rooms that require air conditioning to maintain archive quality, which also increases the electricity burden.

This conventional practice results in dual inefficiencies: inefficiencies in work processes (lengthy bureaucracy, slow approvals) and inefficiencies in resource use (financial and environmental waste). To address these dual challenges, the proposed solution is the digitalization of work processes through the development and implementation of integrated administrative management applications. Digital transformation through the adoption of information and communication technology (ICT) is key to achieving this goal.

Digitalization of work processes, such as replacing physical documents with digital ones and system-based administrative management, directly cuts through lengthy and time-consuming bureaucratic chains. With a digital system, processing of supervisory data, correspondence, and reports can be done in real time and accessible anytime and anywhere, which is crucial for a highly mobile organization like Bawaslu. From the perspective of Bawaslu's authority as an election supervisory institution, if this issue is not immediately resolved, it will impact: first, the rapid compilation of supervisory results will be difficult and the potential for errors will increase. Second, data-based decision-making will be slow. Third, it will make it difficult for leaders to monitor and evaluate supervisory results. The mobile and intensive nature of Bawaslu's duties makes the Official Travel (Perjadin) component the largest and most important budget allocation. A fast and accurate accountability system is essential.

The suboptimal work processes at Bawaslu South Labuhanbatu Regency indicate that the governance of supervisory and financial data is far from optimal. Effective governance should prioritize ease of access, data integration, and environmental friendliness, aligned with Civil Servant Management, which embodies the values of Service-Oriented and Adaptive. This requires innovation relevant to Bawaslu's duties and functions as the leading institution in overseeing the election process, namely the digitalization of work processes.

To support a system that meets organizational goals, the implementation of an environmentally friendly system is necessary. Green Human Resource Management (HRM) encompasses policies and practices aimed at creating an environmentally friendly workforce, including through green

recruitment and environmental training (Renwick et al. 2013). This concept positions human resources as the primary driver in efforts to maintain environmental sustainability and organizational efficiency. Therefore, the role of HR becomes increasingly crucial in creating a balance between productivity and ecological responsibility (Aditya, 2024)

RESEARCH METHODS

This study uses a literature review approach to analyze human resource management (HRM) practices and resource savings at the South Labuhanbatu Regency Election Supervisory Agency (Bawaslu) office. The literature review was chosen because it aims to systematically identify, evaluate, and synthesize previous research results to provide a comprehensive overview of the topic under study.

1. **Data Sources.** The data sources for this study were obtained from scientific articles published in reputable national and international journals, academic books, and research reports. The primary databases used include Scopus, Google Scholar, DOAJ, and ScienceDirect, as well as several national repositories such as Neliti and Garuda (Garba Rujukan Digital).
2. **Inclusion and Exclusion Criteria.** To ensure the relevance of the literature, the inclusion criteria used included:
 - a) Articles published between 2006 and 2025, with a particular focus on the most recent research (2020 and 2025).
 - b) Articles discussing the topic of digitalization of work processes as an implementation of Green HRM at the Bawaslu Secretariat in South Labuhanbatu Regency and its impact on resource savings.
 - c) Articles with full text that can be reviewed in full.
 - d) Exclusion criteria include:
 - e) Opinion articles or commentaries that are not based on empirical data or theoretical studies.
 - f) Articles discussing digitalization of work processes as an implementation of Green HRM.
3. **Literature Search Process.** The search process was conducted using the following keywords: "digitalization," "green HRM," "savings," "resources," "transformational Bawaslu bureaucracy." The initial search results yielded several articles, which were then selected according to the inclusion and exclusion criteria.
4. **Data Analysis.** The analysis was conducted using the content analysis method, identifying the main themes of each relevant article. The selected literature was then categorized into several dimensions, such as:
 - a) Application Practices a. Bawaslu Finance and b. Supervisory House
 - b) psychological factors of Bawaslu (Elections Supervisory Agency) employees in South Labuhanbatu Regency (motivation, commitment, self-efficacy),
 - c) leadership style (especially Commissioner leadership), and
 - d) outcomes in the form of resource savings.
5. The analysis results were then synthesized to identify patterns, research gaps, and theoretical and practical implications for the Bawaslu (Elections Supervisory Agency) Office in South Labuhanbatu Regency. **Study Validity.** To enhance the validity of the results, this study

compared literature from various sources, examined the consistency of findings across studies, and related them to the context of administration and digitalization in Indonesia

RESULT AND DISCUSSION

1. Bawaslu Finances

The process of fulfilling data requests from the North Sumatra Provincial Election Supervisory Agency (Bawaslu) regarding the SPJ for Grant Fund Transactions (Perjadin) at the request of external parties presents a challenge for the South Labuhanbatu Regency BAWASLU Secretariat. The challenges include the massive amount of data, the lack of precedents, and the limited number of personnel, impacting the speed of completion of the SPJ Perjadin recapitulation. The recapitulation of grant fund transaction data from June 2024 to March 2025, which is the primary objective of data fulfillment, not only contains a summary of transaction data, but also includes small transaction data components that are part of the data fulfillment presentation. These include ticket numbers, hotel numbers, assignment letter numbers, and hotel or ticket booking codes, which are integral parts of the recapitulation.

In addition to the speed of data fulfillment (efficiency), another aspect that requires immediate evaluation and improvement is the accuracy of the travel implementer's compliance with the Input Cost Standard (SBM), which limits expenses incurred in official travel. The actual challenges faced in fulfilling this data include the difficulty of presenting the data on time by the South Labuhanbatu Election Supervisory Agency (Bawaslu) and the manual control of several components of official travel expenses, which poses a risk of misses and errors. The following describes the digitalization process undertaken by the South Labuhanbatu Regency Bawaslu.

Bawaslu Labuhanbatu Selatan Regency implements a microsite-based financial application to facilitate the implementation of official travel in submitting SPJ Official Travel, this can reduce human error in calculating costs so that budget control is better, reminders of cost limits that can be reported in the SPJ Perjadin, Supports the strengthening of structured, centralized, and easily verified data, so that internal and external audit processes become more efficient and accurate.

2. Surveillance House

In the context of implementing the Continuous Voter Data Update (PDPB) supervision, the supervision report is a vital element to ensure the validity and accuracy of voter data. Bawaslu, as the election supervisory body, has a strategic responsibility to ensure the data update process runs according to the principles of transparency, accountability, and participation. However, to date, Bawaslu Labuhanbatu Selatan does not have a form for reporting supervision results. The actual conditions at Bawaslu Labuhanbatu Selatan are: a. The lack of a Digital Reporting Facility (Google Form). The absence of a standard template or system (such as Google Form) results in inconsistent reports among supervisors. Data collection becomes difficult to collect quickly and in real time. The potential for input errors increases due to the lack of automatic validation. b. The Data Collection Process is Still Manual. Reports are collected through physical documents or via WhatsApp, thus requiring longer time for recapitulation.

- 1) Amidst technological advancements in digital services, the existence of a digital-based reporting dashboard is crucial. This is to support the effectiveness of data reporting, such as:
- 2) Ineligible voters: deceased, multiple voters, voters under 17 years of age, unmarried/unmarried, foreign nationals, members of the Indonesian National Armed Forces (TNI) or Indonesian National Police (POLRI), and voters whose political rights have been revoked by a court with permanent legal force.

- 3) Eligible voters: at least 17 years of age, not currently having their voting rights revoked, domiciled in South Labuhanbatu Regency, and not currently serving as a member of the TNI or Polri.
- 4) New voters: voters who are 17 years old, married/unmarried at the time of the PDPB (Vocational Elections Registration) even though they are under 17 years of age, voters whose status has changed from TNI or POLRI to civilian, and former convicts who have completed the additional sentence of revocation of political rights..

If this issue is not resolved immediately, it will have the following impacts:

- 1) Supervision data is not analyzed quickly.

This occurs because data is difficult to collect quickly and the potential for errors increases. Therefore, the presence of a digital platform will facilitate supervisors in reporting and analyzing supervision data.

- 2) Data-driven decision-making is slow.

The absence of a digital dashboard focused on the results of the Continuous Voter List Update supervision process results in ineffectiveness and efficiency during meetings and work monitoring.

In response to this situation, coordination was conducted with colleagues and the leadership of the Legal, Prevention, Public Participation, and Public Relations (HP2H) commissioners of the South Labuhanbatu Regency Election Supervisory Agency (Bawaslu) to create a supervisory center through a digital microsite platform integrated with Google Forms as a solution to the suboptimal reporting of Continuous Voter List Update (PDPB) supervision results at the South Labuhanbatu Bawaslu.

The digital platform supports supervision performance, improves the quality of supervision reports, serves as a database for supervision results, and facilitates monitoring and evaluation of supervision data at the South Labuhanbatu Bawaslu. Next, a digital platform was developed in the form of a microsite application, which serves as a digital channel that will be connected to several features that will be displayed according to the organization's needs. After the microsite application was completed, a socialization and training activity was held on the implementation of supervisory reports. This socialization discussed: 1) an introduction to microsite technology; 2) procedures for filling out Google Forms; 3) notification of data summaries that have been input by supervisors via Google Forms connected to spreadsheets; and 4) monitoring that can be carried out by leaders without being limited by location and time.

With a shared understanding, this application was implemented in the third-quarter random sampling monitoring report for the Continuous Voter Data Update (PDPB), conducted in 21 villages across South Labuhanbatu Regency. This digital platform innovation supports Green HRM, increasing organizational effectiveness and efficiency, and optimizing results.

CONCLUSION

The digitalization of work processes at the South Labuhanbatu Regency Election Supervisory Agency (Bawaslu) through the implementation of the Bawaslu Finance and Supervisory House microsite application has proven to be an effective and strategic solution in overcoming the double inefficiencies (work processes and resources) caused by the paper-based manual system.

- a) Optimizing work processes, the application implementation has significantly improved the efficiency, accuracy, and speed of Bawaslu's services, a key requirement of the election supervisory body.
- b) Bawaslu Financial Application: addresses the challenges of speed and accuracy in preparing Official Travel Expense Reports (Perjadin). This system automatically controls costs

