

Assessment and Evaluation of the Implementation of a Vendor Management System (VMS) in Vendor Data Management Using the DeLone & McLean Method and Gap Analysis at PT PLN (Persero)

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Keywords:

Vendor Management System;
Single Source of Truth;
information system evaluation;
DeLone and McLean; vendor data
management PT PLN (Persero).

Abstract

The management of vendor data at PT PLN (Persero) before the implementation of the Vendor Management System (VMS) faced fundamental issues, including data duplication of up to 40% among 110,936 registered vendors, data fragmentation across various applications, such as Eproc and SAP, which were not integrated with one another, and repetitive registration and evaluation processes conducted separately within each unit. This research aims to analyze the implementation of VMS in vendor data management, evaluate the quality of the system and its services, and formulate improvement strategies to optimize VMS implementation. The research employs a qualitative approach with a case study design. Data were collected through in-depth interviews with eight key informants selected using purposive sampling, direct observation, and document reviews. The evaluation of the implementation was conducted using the DeLone and McLean Information Systems Success Model, which comprises six dimensions: system quality, information quality, service quality, system use, user satisfaction, and net benefits. The results indicate that VMS has been successfully implemented as a Single Source of Truth (SSoT), replacing the previous fragmented system. VMS demonstrates strong performance in terms of usability perceived by both internal and external users, while VMS Corner services are highly valued by vendors. The implementation of VMS has generated significant human resource efficiencies, including a reduction in personnel requirements from 48 employees distributed across various units to 14–16 centralized employees (a savings of 65–70%), the elimination of physical administrative costs, and improved data accuracy through a dual-verification mechanism.

INTRODUCTION

Data management is a crucial aspect of supporting the effectiveness of a company's operations. Structured and well-managed data can improve work efficiency, support more accurate decision-making, and strengthen organizational competitiveness (Indah & Irwan, 2025). Conversely, poor data quality can result in information duplication, inaccurate decision-making, increased operational costs, and decreased information reliability. Therefore, effective data management is a fundamental requirement for organizations, particularly in an increasingly complex and technology-driven business environment.

In the context of supply chains, accurate and integrated data management is essential to support planning, control, and decision-making processes. Technological advancements have encouraged organizations to undertake digital transformation by integrating technology into various business processes. Digital transformation does not merely focus on technology

adoption but also involves changes in organizational strategies, business processes, and governance mechanisms (Fadillah, 2025). Through digitalization, companies can enhance operational efficiency, transparency, and service quality for stakeholders.

As a national electricity provider, PT PLN (Persero) manages thousands of vendors that play an important role in supporting its operational and procurement activities for goods and services. Vendor management at PLN is supported by various applications, including Electronic Procurement (Eproc), SAP, Contractor Safety Management System (CSMS), SCM Marketplace (SMAR), Vendor Invoice Portal (VIP), Digital Bill System (SIDITA), Digiproc, and other supporting applications. Although these systems indicate a relatively high level of digital maturity, the existence of multiple applications has resulted in vendor data being distributed across different platforms, creating challenges such as data duplication, information inconsistencies, and repetitive vendor registration and data update processes.

Prior to the implementation of the Vendor Management System (VMS), vendor data management at PT PLN (Persero) remained fragmented across multiple applications and business units. This condition caused vendor verification and evaluation processes to be conducted repeatedly using different standards, thereby reducing operational efficiency and increasing the risk of data inconsistencies. Furthermore, the absence of a centralized data source resulted in significant vendor data duplication, which negatively affected information quality, increased administrative costs, and reduced the effectiveness of decision-making in procurement processes.

To address these challenges, PT PLN (Persero) developed and implemented a Vendor Management System (VMS) as part of its digital transformation initiative. VMS was designed as a Single Source of Truth (SSoT) that functions to integrate all vendor data into a centralized platform. Through VMS, the vendor registration process is performed only once, data can be accessed and utilized nationally by all business units, and supporting applications can obtain consistent and validated vendor information. The implementation of VMS is also supported by the Single Sign-On (SSO) concept, standardized verification procedures, and integration with various internal PLN applications to improve transparency, efficiency, and accountability in vendor management.

The novelty of this research lies in its integrated methodological approach, which combines the DeLone and McLean Information Systems Success Model with Gap Analysis to evaluate VMS implementation (Akbar & Fajar, 2024; Daliana et al., 2017; Herwati et al., 2023). Although previous studies have applied the DeLone and McLean model to evaluate various information systems and other research has examined vendor management systems from technical perspectives (Anugrah & Rana, 2026; Rani et al., 2026; Wang et al., 2024), limited studies have specifically integrated these frameworks to assess vendor management system implementation within the context of an Indonesian state-owned enterprise. This tripartite evaluation approach—assessing system quality, information quality, service quality, system usage, user satisfaction, and net benefits while identifying gaps between actual and expected conditions—provides a comprehensive assessment framework that contributes to and extends the existing body of literature (Olvionita et al., 2025; Pramudito et al., 2023; Subito et al., 2026; Susanty et al., 2025; Utama & Suwardi, 2026).

Given the strategic role of VMS as the foundation for integrated vendor data management, an evaluation is necessary to assess the effectiveness and success of its

implementation. This study applies the DeLone and McLean Information Systems Success Model to evaluate system quality, information quality, service quality, system utilization, user satisfaction, and the benefits generated by VMS. Furthermore, the Gap Analysis method is employed to identify discrepancies between current performance and expected conditions, enabling the formulation of improvement strategies to optimize VMS implementation in vendor data management at PT PLN (Persero).

RESEARCH METHOD

This study used a qualitative approach with a case study method Basri Bado, (2022) to examine the implementation of the Vendor Management System (VMS) in vendor data management at PT PLN (Persero). This approach was selected to capture the actual conditions related to system implementation, including processes, user experiences, and its impact on data quality, operational efficiency, and administrative costs. The research was conducted through several stages, including problem identification, informant selection, data collection, data analysis, and the formulation of conclusions and recommendations.

Data Source

The source of research data consists of primary data and secondary data. Primary data was obtained through interviews with parties directly involved in the management of VMS and vendor data at PT PLN (Persero). Meanwhile, secondary data is obtained from various supporting documents such as company policies, standard operating procedures (SOPs), system implementation reports, and other documents related to vendor and VMS management.

Determination of Informants

The determination of informants is carried out using the purposive sampling technique, which is to select informants who are considered to have knowledge and experience related to the implementation of VMS. The research informants consisted of the Vice President of Vendor Management, Vendor Search and Qualification Manager, Vendor Risk and Performance Management Manager, Vendor Discovery and Qualification Officer, Technology Information Officer, VMS Support Evaluator, as well as two VMS user vendor representatives.

Data Collection Techniques

Data collection was carried out through three techniques, namely observation, interviews, and documentation. Observation is used to directly observe the process of managing vendor data through VMS. In-depth interviews were conducted with informants to obtain information about the implementation of the system, benefits, and obstacles faced. Documentation is used to supplement the data through a review of company documents, reports, policies, and other supporting data relevant to the research.

Data Analysis Techniques

Data analysis was carried out using the Miles and Huberman model which included three stages, namely data reduction, data presentation, and drawing conclusions. Data reduction is carried out by selecting and grouping information relevant to the focus of the research. Furthermore, the data is presented in the form of a narrative description so that it is easy to understand and analyze. The last stage is drawing conclusions based on the results of the analysis that has been carried out. To ensure the validity of the data, this study uses a triangulation technique by comparing the results of interviews, observations, and documentation from various sources.

RESULT AND DISCUSSION

Implementation of Vendor Management System (VMS) in Vendor Data Management at PT PLN (Persero)

The implementation of the Vendor Management System (VMS) at PT PLN (Persero) is part of digital transformation efforts in the management of data of goods and service providers that were previously spread across various applications and work units. Based on the provider management business process document, before VMS is implemented, vendor data is managed in a fragmented manner on various systems such as Electronic Procurement (Eproc), SAP, Vendor Invoice Portal (VIP), SCM Marketplace (SMAR), Contractor Safety Management System (CSMS), and other applications. This condition causes vendors to have to repeatedly register several applications, while on the PLN side, there is a data verification and evaluation process that is carried out repeatedly for the same provider's data. In addition, there is no nationally integrated vendor data management media so that vendor data is still spread across each parent unit and division. As a result, various problems arise such as data duplication, information inconsistency, monitoring difficulties, and low visibility into the overall vendor profile and performance. In fact, there are around 110,936 provider data with a duplication rate of 40% or around 44,000 vendor data registered in the PLN system before the implementation of VMS is carried out.

This problem is the basis for the development of VMS as an integrated vendor management system that is able to consolidate all vendor data in one platform. Based on the VMS Business Requirement Document (BRD), this system is designed as a vendor portal that is integrated with various PLN applications so that the registration, verification, assessment, coaching, and vendor data management process can be carried out centrally. VMS is the main gateway for vendors to interact with PLN in the procurement and vendor administration process, as well as being the main data source used by other applications within PLN.

The implementation of VMS begins with the vendor registration process which is carried out through the VMS portal. Vendors can register as new vendors or use their previous Eproc accounts. At the registration stage, vendors are required to input administrative, technical, financial, and other supporting information through an electronic form available on the system. The data inputted includes company identity, address, Business Identification Number (NIB), Taxpayer Identification Number (NPWP), bank account information, business sector classification, work area, and various required company legal documents. After all the data is uploaded, the system will conduct an evaluation process by the provider's managing officer before the vendor obtains "registered" status.

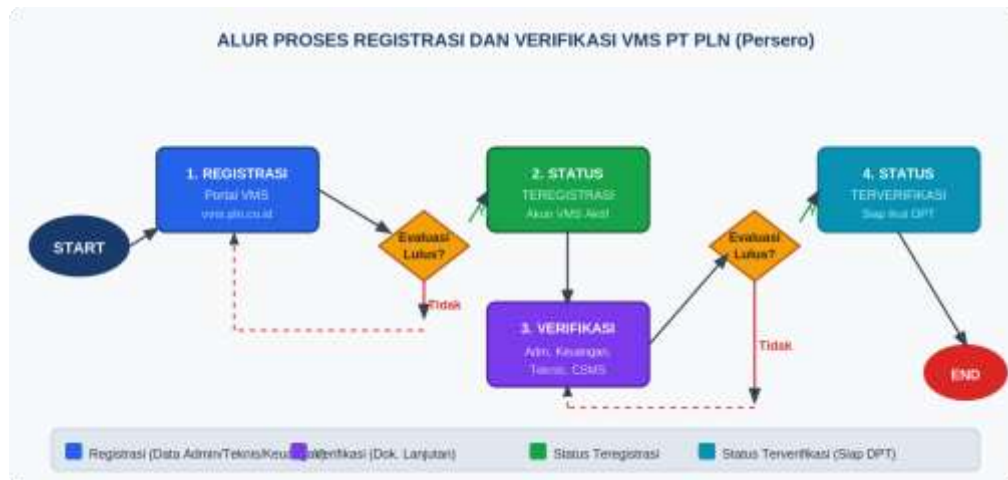


Figure 1 VMS Registration and Verification Process Flow at PT PLN (Persero)

Source: Provider Account Registration Process Workflow Document in VMS

After obtaining registered status, vendors can proceed to the verification stage. At this stage, the vendor uploads more detailed data related to administrative, financial, technical, and occupational safety aspects. Verification data includes financial statements, tax documents, work experience, list of experts, equipment list, ISO certification, CSMS certification, and other supporting documents according to the vendor's business field. The data is then evaluated by the provider's management officer and can involve the procurement planning officer and verification team to conduct due diligence if necessary. Vendors who are declared eligible will obtain a verified status that allows them to follow the procurement process with a wider scope than vendors who only have a registered status.

The implementation of VMS is further connected to the Selected Provider List (DPT) process which is carried out through integration with Eproc. Vendors who have verified status can follow the DPT registration process by uploading qualification documents according to the needs of certain procurement packages. Through this mechanism, vendor data that has been available in the VMS does not need to be re-inputted so that the selection process becomes more efficient. After the documents are evaluated and declared to meet the requirements, the vendor can be designated as a selected provider who is entitled to follow certain procurement mechanisms such as limited tenders, quick tenders, or direct appointments.

In order to provide a more systematic overview, the following is a summary of the VMS registration and verification process flow based on official documents of PT PLN (Persero) (source: Provider Account Registration Process Flow at VMS & DPT Registration at Eproc, Supply Chain Management in the Field of Vendor Management, 2025):

Table 1 Summary of the Workflow of the DPT Registration, Verification, and Registration Process on PT PLN (Persero) VMS

Yes	Stages	Inputted Data/Documents	Output/Final Status
1	Register with VMS (vms.pln.co.id)	Company identity, NIB, NPWP, deed of incorporation, bank account, business sector classification, work area, statement	Status: Registered Provider (Notification via email)
2	VMS Verification (SSO login → Input verification data)	Administration: change of identity, NIB, deed; Finance: balance sheets, audited financial statements; Technique: SPPJT, ISO,	Status: Verified Provider (Notification via email)

			experience, experts, equipment		
3	DPT (Eproc) (SSO login → Eproc icon → search for DPT package)	Registration	Administration: NIB, deed, NPWP, KSO; Finance: 3-year financial statements, financial ratings, tax proof; Technical: Pre-FS/FS, construction experience/IPP/O&M	Status: Determination (DPT notification)	DPT

Source: Provider Account Registration Process Flow at VMS & DPT Registration at Eproc, Supply Chain Management in the Field of Vendor Management PT PLN (Persero), 2025

The results of the study show that one of the main roles of VMS in managing vendor data is as a Single Source of Truth (SSOT) for all provider data within PLN. Before the implementation of VMS, each application had its own vendor database, resulting in redundancy and information differences between systems. After the implementation of VMS, the vendor registration and evaluation process is enough to be carried out once on the VMS, then the data can be used across units and across applications. PLN's business process documents show that all vendor-related applications such as Eproc, CSMS, IDD, VIP, and other applications obtain vendor data from VMS so that the vendor information used is uniform and consistent. With this mechanism, VMS functions as a data integration center that ensures that all applications use the same data source so that the quality and integrity of vendor data can be maintained.

The role of VMS as SSOT can also be seen from changes in the business flow of provider management. In the previous condition, each registration, verification, and qualification process was carried out separately in various applications, resulting in a linear and fragmented data flow. After the implementation of VMS, all vendor base data, verification data, and provider evaluation results are stored in one system that can be accessed and reused for the next procurement process. Thus, vendor data is no longer an asset spread across each unit, but rather a corporate data that can be used nationally by all PLN units.

In its implementation, VMS management involves various stakeholders who have different roles and responsibilities. The first main actor is the provider of goods and services as the party that registers, updates data, and uploads the required documents in the system. The provider is responsible for ensuring that the data submitted is accurate and always updated according to the company's conditions.

The second stakeholder is the Provider Management Officer located at the PLN Head Office. This official has a central role in evaluating vendor registration and verification data, managing provider accounts, and ensuring that the entire vendor management process runs in accordance with applicable regulations. In its implementation, the provider management officer can be assisted by the verification team and appointed consultants to conduct document checks and due diligence on vendors.

The next stakeholder is the Procurement Planning Officer who plays a role in the process of preparing qualification documents, determining the requirements for the Selected Provider List (DPT), and evaluating specific verification data according to procurement needs. In addition, there are Procurement Implementing Officers who utilize vendor data from VMS in the procurement process and assess the performance of providers after the work is carried out. The results of the assessment then become important input for the process of coaching, monitoring, and managing vendors in the next period.

Based on these findings, it can be concluded that the implementation of VMS at PT PLN

(Persero) has changed the vendor data management mechanism from a fragmented system to an integrated system. VMS not only functions as a vendor registration portal, but also as a Single Source of Truth that consolidates vendor data nationally and becomes the main data source for various procurement applications at PLN. This implementation involves various stakeholders ranging from vendors, provider management officials, procurement planning officials, procurement implementation officials, to verification teams, who jointly form a more standardized, transparent, and digitized vendor data governance.

Vendor Management System (VMS) Implementation Evaluation

Based on the results of in-depth interviews conducted with eight informants consisting of management, technical team, evaluators, and external users (vendors), this study identified a number of findings that describe the conditions of implementation of the Vendor Management System (VMS) at PT PLN (Persero). The findings were further analyzed based on the dimensions in the DeLone and McLean Information Systems Success Model to evaluate system quality, information quality, service quality, usage, user satisfaction, and benefits resulting from VMS implementation.

1. System Quality

VMS is considered easier to use than previous systems such as Eproc. This is felt by PLN's internal evaluators, external vendors, and management. The available features are structured, the registration process no longer requires face-to-face contact with PLN admins, and the system interface uses more up-to-date templates. From a management perspective, VMS also allows vendor data to be integrated nationally, making the tracking process easier. These findings are in accordance with the System Quality dimension in the DeLone and McLean Information Systems Success Model, especially in the ease of use indicator (Akbar & Fajar, 2024).

However, technical obstacles are still found, especially in the loading speed and the process of uploading large documents. System performance is highly dependent on the quality of the user's internet connection. In inadequate network conditions, the process of uploading documents larger than 10 MB is an obstacle in itself. On the other hand, the technical team stated that the server specifications were adequate, but user experience in the field showed that further optimization was still needed, especially in the search and document upload features. Users consider this condition to be better than Eproc and can still be tolerated for a while. These findings relate to the indicators of response time and reliability in the System Quality dimension.

2. Information Quality

The notification and user guide aspects are still areas that need significant improvement in VMS. Vendors complain about the status of submissions that are difficult to monitor, especially in the early stages before having an account. The information displayed is considered too general and does not explain in detail the position of the evaluation stage or what errors need to be corrected. As a result, many vendors choose to come directly to VMS Corner because they can't wait to wait.

The usage guidelines available are also considered to be less communicative and not in line with today's consumer habits. Long manuals are considered less effective, especially for older vendors, so a guide format in the form of video tutorials or illustrated guides is proposed as an alternative that is easier to understand. In addition, the absence of a changelog causes

vendors to often not know about changes in mandatory requirements and only find out about it directly in the field.

A common misconception also occurs among vendors, where verified status in VMS is mistakenly interpreted as having been included in the Selected Provider List (DPT), even though the two are different processes. This condition shows that VMS has not met the ideal standards in the indicators of timeliness, clarity, and completeness in the DeLone and McLean Model Information Quality dimensions (Daliana et al., 2017; Nurul & Muhammad, 2024).

3. Service Quality

VMS has succeeded in realizing the concept of Single Source of Truth (SSOT) that has been awaited by PLN. Previously, vendor data was spread across various applications such as SAP and Eproc that were not interconnected, so the process of synchronizing data between systems became a very heavy job. With the presence of VMS, all data is managed through a single door, eliminating duplication and data inconsistencies. VMS not only stores administrative data, but also vendor capability and performance data. The policy requiring vendors to have a VMS account before they can accept payments further reinforces this strategic role of SSOT. These findings meet the ideal standards for data consistency and integrity indicators in the Information Quality dimension, as well as indicators of increasing organizational effectiveness in the Net Benefits dimension (Lisdayanti & Padmanegara, 2024).

In addition, the double verification mechanism is another major advantage that VMS has. This process involves two levels of evaluation, namely an examination by the consultant support team in the first layer, then approval by a master evaluator from PLN in the second layer, plus horizontal monitoring between fellow evaluators. This mechanism significantly improves the quality, accuracy, and reliability of vendor data compared to Eproc whose verification tends to be lax and non-standardized. Another impact is a change in vendor behavior that becomes more serious and careful in uploading documents because they are aware of strict checks. These findings meet the ideal standards for accuracy and integrity indicators in the Information Quality dimension, as well as reliability and control indicators in the System Quality dimension (Herwati et al., 2023).

4. Use & User Satisfaction

The service innovation that was most appreciated by the informants was the existence of VMS Corner, which is a face-to-face service that is open every Monday to Friday at the Central PLN office. This service allows vendors who experience problems in the registration and verification process to get direct assistance from the VMS team. Vendors rated VMS Corner as the most reliable end of communication when other channels were deemed less effective. One manager even called VMS Corner the main face of VMS to service providers that must be maintained and continuously improved.

In addition to VMS Corner, the technical team's support through digital channels such as WhatsApp and Service Desk is also considered quite responsive. The technical team is committed to completing incident reports in less than 24 hours through the Service Desk channel that already has a Service Level Agreement (SLA). However, there is still a gap between official and informal channels, where some vendors feel that they are responding faster when contacting the person in charge directly via WhatsApp than through the Service Desk. This condition indicates the need to increase the consistency and capacity of official service channels so that service professionalism is maintained and measured. Overall, these

findings reflect near-ideal conditions for the empathy and assurance indicators in the Quality of Service dimensions of the DeLone and McLean models (Pramudito et al., 2023; Subito et al., 2026), although there is still room for improvement in the responsiveness aspect of the official channels (Adamuddin & Yamin, 2025; Asfahani & Wijaya, 2024).

5. Net Benefits

VMS implementation results in significant and measurable efficiencies in various aspects, from time, cost, to human resource utilization. In terms of human resources, the need for personnel to handle vendor registration has been drastically reduced from 48 people spread across each unit to only 14 to 16 people centralized, equivalent to savings of about 65 to 70 percent. This efficiency also frees the evaluator team from repetitive technical work so that they can move on to more strategic thinking related to system development and vendor management going forward.

In terms of cost, the digitalization of the process eliminates various routine expenses such as paper costs, stamps, and physical signatures that have been operational burdens. Vendors also no longer need to spend transportation or printing documents to come directly to the PLN office, because the entire process can be completed independently through the VMS portal. In terms of time, document evaluation in the form of digital files is much faster and more practical than having to open physical documents like in the previous system. In addition, because the vendor's basic data has been verified from the beginning in VMS, the advanced qualification process such as the preparation of the Selected Provider List (DPT) is also faster because there is no need to repeat verification from the beginning.

These three forms of efficiency collectively represent tangible and intangible net benefits, as categorized by DeLone and McLean in the comprehensive definition of Net Benefits. These findings describe conditions that have met and even exceeded the ideal standard of the Net Benefit dimension in the DeLone and McLean models (Utama & Suwardi, 2026; Susanty et al., 2025).

Improvement Strategies to Optimize VMS Implementation in Vendor Data Management at PT PLN (Persero)

Based on the results of in-depth interviews with all informants, this study identifies various improvement strategies proposed directly by the actors involved in the implementation of VMS. These strategies were born from real experience in the field, both from the side of PLN's internal users, the supporting technical team, and external vendors as the main users of the system. The findings in this sub-section are a categorization of the statements that are most often and most strongly expressed by informants as concrete recommendations that need to be made in order to optimize the implementation of VMS. Here are the findings oriented towards VMS improvement strategies:

It is important to emphasize that the improvement strategies in this study are not compiled based on the opinion of the researcher alone, but are rooted in the systematic identification of gaps between the actual conditions of VMS implementation found through evaluation using the DeLone and McLean Information Systems Success Models and the ideal conditions expected by users and organizations. This approach is in line with the principle of gap analysis, which is to compare the current state with the desired state, so that each gap identified becomes the scientific basis for the preparation of relevant and measurable improvement recommendations. Thus, the strategies formulated are empirical, contextual, and can be

accounted for academically, not solely derived from the subjective assessment of the researcher.

1. Development of Real-Time Notification Features and Interactive Visual Guides

The most urgent and consistent improvement strategy voiced by informants is the need for more informative, real-time, and easy-to-understand notification features for vendors. The current situation, where notifications are only sent via email with status information that is still general, is considered not to be able to provide enough visibility for vendors to monitor the progress of their registration and verification process. As a result, many vendors choose to come directly to VMS Corner just to check the status that should be available through the system.

In addition to status notifications, the available usage guidelines are also considered less communicative and do not adapt to the characteristics of today's users. Long text-based guidebooks are considered less effective, especially for vendors who are older or less digitally literate. Therefore, a guide format in the form of video tutorials and illustrated guides (infographics) is proposed as an alternative that is easier to understand by all vendor segments. Video tutorials also have the practical advantage of being able to update when there is a feature change without having to reprint the manual.

Another gap identified was the absence of a changelog or notification of policy changes. When PLN makes changes to document requirements, the information does not always reach the vendor in a timely manner, so the vendor experiences the impact directly without prior preparation. This condition is a deficiency in the information completeness indicator because users do not receive up-to-date information about the changed system policies.

From the management side, the Vice President of Vendor Management proposed the use of instant messaging platforms such as WhatsApp to increase notification responsiveness, considering that the level of user consumption of WhatsApp is much higher than email. While there are cost challenges to broadcast to thousands of vendors, the essence remains the same that users need faster, more contextual notifications. A middle solution that can be considered is push notifications in the mobile VMS app or email with a more informative format with clear status markers.

Common misconceptions among vendors also need to be addressed through more contextual notifications. When the vendor successfully achieves verified status, the system should automatically provide an explanation that verification does not mean that it has been included in the Selected Provider List (DPT), as well as informing what steps need to be taken next. This shows the need for VMS to have contextual guidance features that actively guide users at every stage of the process.

Based on the DeLone and McLean Information Systems Success Model, this improvement strategy is directly related to the Information Quality dimension and the Service Quality dimension. The unclear status of the submission and the absence of notification of rule changes are deficiencies in the indicators of timeliness and clarity (understandability), while the absence of a changelog violates the principle of completeness of information. Improvements in this aspect are relatively easy to implement but have a significant impact on user experience and operational efficiency. Key priorities that can be done immediately include the development of a more detailed and real-time status dashboard in the VMS portal, the creation of interactive video tutorials and visual guides that can be accessed directly from the

system, the implementation of an active and transparent changelog mechanism, and the improvement of process flow communication through contextual notifications at each stage.

2. Capacity Building and Competence of Human Resources Support Team

The next improvement strategy is the urgent need to increase the capacity and competence of human resources (HR) who are tasked with supporting VMS operations. This includes the aspect of the number of personnel that is felt to be insufficient to serve the growing volume of demand, as well as aspects of depth of knowledge and uniformity of understanding among all teams, both support teams of evaluators and verifiers spread across PLN units throughout Indonesia.

When there are too few support teams to serve multiple vendors simultaneously, the impact is slow response and poor user experience. This condition encourages vendors to find shortcuts through personal contact or come directly to the PLN office, which is inefficient for both parties. Furthermore, the limited number of personnel also has an impact on the inconsistency of the speed of evaluation between fellow vendors. Vendors who get different evaluation times have the potential to create a perception of injustice that undermines trust in the system.

From the internal side of PLN, verifiers in the units still often make mistakes because VMS verification is not their main task. The solution is to increase mentoring, communication, and knowledge transfer from the central team to the unit verifier gradually. In addition, uniformity of understanding among the entire evaluator team is also fundamental. The inconsistency of the answers that vendors receive for the same case will make vendors feel confused and unsure of the certainty of the rules. To overcome this, it is necessary to standardize the internal knowledge base which contains guidelines for handling general cases so that all evaluators have the same reference.

Positive developments have occurred, where the evaluation completion time has been shortened from an average of 16 days (exceeding the Service Level Agreement/SLA of 14 days) to an average of 9 days, well below the SLA. This proves that investment in human resource development is one of the most effective and efficient improvement strategies. However, the challenge ahead is to maintain and continue to improve this achievement as the number of vendors who register grows.

Based on the DeLone and McLean Models, this improvement strategy relates to the Quality of Service dimension and the Net Benefit dimension. The limited number of personnel that causes slow response violates the responsiveness indicator, while the competency gap and inconsistency of understanding between verifiers reflect the weak assurance indicator. Concrete steps that can be taken include gradually increasing the number of support team personnel according to the growth in vendor volume, developing an intensive mentoring program for verifiers in units, creating a standardized knowledge base that can be accessed by the entire support team, and improving technical competencies through periodic training based on Information Technology Infrastructure Library (ITIL) standards.

3. Accelerate Integration and Centralization of Data into a Comprehensive VMS

Another improvement strategy that is very consistently expressed by almost all informants is the need to accelerate the process of integration and centralization of data into VMS as a whole. This is mainly related to the transfer of the Selected Provider List (DPT) process from Eproc to VMS, as well as the centralization of verification data which is specific

in nature and is currently still decentralized in PLN units. As long as the integration has not been fully realized, the concept of Single Source of Truth (SSOT) which is the spirit of VMS has not been able to function optimally (Isra & Irwan, 2025).

Currently, specific technical data such as type tests, SPM certificates, and special qualification documents are still stored separately in each unit. As a result, the qualification process for a particular procurement package still has to access data outside of the VMS, which reduces the efficiency and potential advantages of the system. From the vendor side, the impact is even more pronounced because they still have to upload the same data in several different places. Vendors are forced to enter the same data twice because the system is not fully connected, so the vendor's administrative burden has not been completely eliminated even though VMS has made a lot of progress.

Vendors are eagerly awaiting the full move of DPT into VMS as they believe it will significantly speed up and simplify the procurement process. When DPT is fully integrated in a VMS, vendors no longer need to switch applications and upload repetitive data, which will drastically cut their time and administrative burden.

From a long-term perspective, the expansion of VMS coverage to the entire PLN Group is also proposed as an ambitious vision that if realized will make VMS a truly comprehensive vendor management system throughout the national electricity ecosystem. If vendors simply register in one place to be able to work with the entire PLN Group, the perceived efficiency benefits will be doubled.

Based on the DeLone and McLean Model, this improvement strategy is related to the System Quality dimension in the integration indicator, the Information Quality dimension in the completeness and consistency indicators, and the Net Benefit dimension. The main priorities that can be implemented immediately are the full transfer of the DPT process from Eproc to VMS, the centralization of specific technical data such as type tests and SPM certificates into the VMS, as well as the development of a standard integration mechanism that allows all supporting applications in PLN to consume vendor data from a single source. In the long term, the expansion of VMS to the entire PLN Group will provide double efficiency and make VMS the foundation of vendor governance throughout Indonesia.

4. Technical Infrastructure Optimization and User Interface Consistency

The fourth improvement strategy is the need for regular optimization of the VMS technical infrastructure, as the load of system usage increases. The reference to the powerful but slow Eproc is a very relevant warning that functional systems can be held hostage by poor performance due to undeveloped infrastructure as their usage load grows. VMS must learn from this experience by making infrastructure capacity assessments a routine agenda, not just reactive when problems have arisen (Muslihi, 2025).

Technical barriers related to upload speed and file size limits are also a concern for vendors. The limited size of files that can be uploaded causes many vendors to be unable to complete their documents, especially financial statement documents that are naturally quite large. Solutions can be increased file size limits, automatic compression of documents on the server side, or a phased upload mechanism for large documents.

In addition, VMS also relies on third-party system services, such as the Directorate General of Taxes (DGT) for NPWP verification, which is beyond PLN's direct control. When the DGT system is disrupted, the evaluation process at VMS is also hampered. Technical

solutions such as the NPWP data caching mechanism or automatic verification rescheduling when the DGT system returns to normal can minimize the impact of such external interference.

In addition to infrastructure, inconsistencies in the appearance of the user interface also need to be fixed. Although it is referred to as a minor problem from a content perspective, the inconsistent appearance of the registration and verification flows can be confusing for users as they have to adapt again each time they switch flows. User interface standardization is an important part of system quality that must receive adequate attention. Regular server maintenance is a good step, but it needs to be accompanied by more proactive approaches such as real-time capacity monitoring and long-term infrastructure scalability planning.

Based on the DeLone and McLean Models, this improvement strategy is directly related to the System Quality dimension, especially in the indicators of response time, reliability, and flexibility. While some of the issues are still minor individually, collectively they can erode the perception of system quality from a user's perspective. Concrete steps that can be implemented immediately include periodic reviews of server capacity and proactive improvement of infrastructure scalability, more flexible adjustment of file size limits or the implementation of automatic compression mechanisms on the server side, development of caching or fallback mechanisms for NPWP verification to reduce reliance on external systems, and standardization of user interfaces throughout the registration and verification process.

Based on the overall analysis of the informants' statements, this study identifies four key improvement strategies that are interrelated and mutually reinforcing within the framework of sustainable VMS optimization. First, the development of real-time notification features and interactive visual guides to answer vendors' needs for clearer and more contextual information. Second, increasing the capacity and competence of the support team's human resources as the key to service consistency and uniformity of evaluation quality. Third, accelerate the integration and centralization of data into VMS as a whole to realize true SSOT. Fourth, optimizing the technical infrastructure and consistency of the user interface as a technical foundation to keep the system responsive and reliable as the number of vendors and the volume of data managed grow. The gradual and systematic implementation of these four strategies will bring VMS to a higher level in realizing its vision as a Single Source of Truth in the efficient, transparent, and accountable management of vendor data at PT PLN (Persero).

CONCLUSION

Based on the research findings, the implementation of the Vendor Management System (VMS) at PT PLN (Persero) successfully supported the digital transformation of vendor data management through the adoption of the Single Source of Truth (SSoT) concept, which centrally integrated vendor data and improved the efficiency, accuracy, transparency, and quality of the procurement process. Evaluation using the DeLone and McLean Information Systems Success Model indicated that VMS demonstrated good system quality, information quality, and service quality, while providing benefits in the form of increased user satisfaction and reduced data duplication. However, several aspects still required improvement, including the development of more informative and real-time notifications, optimization of document upload performance, enhancement of technical support capacity, and improvement of the user interface. Therefore, PT PLN (Persero) was recommended to continue developing VMS by prioritizing user experience and strengthening support services. Future researchers could

expand the research scope by examining aspects of User Experience (UX), User Interface (UI), and the Technology Acceptance Model (TAM) to gain deeper insights into user acceptance and satisfaction with the system.

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