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# The Effect of SAP System Utilization on Digital Financial Management Efficiency: An Empirical Study at the Treasury Department of PT Pelindo Multi Terminal

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***Keywords***: *SAP System Utilization; Digital Financial Management; Enterprise Resource Planning; Financial Reporting Accuracy; Treasury Operations*

***Abstract***

*This study examines the relationship between SAP System Utilization and Digital Financial Management Efficiency within the Treasury Department of PT Pelindo Multi Terminal, focusing on Transaction Processing Efficiency, Financial Reporting Accuracy, and Treasury Operational Readiness. A quantitative explanatory design was employed using field data collected from employees directly involved in SAP-supported treasury and financial activities. Data were analyzed using descriptive statistics, Cronbach's Alpha, simple linear regression, and the coefficient of determination ($R^2$). The results indicate that SAP System Utilization has positive and statistically significant relationships with Transaction Processing Efficiency ($\beta = 0.684$, $p < 0.001$), Financial Reporting Accuracy ($\beta = 0.651$, $p < 0.001$), and Treasury Operational Readiness ($\beta = 0.592$, $p < 0.001$). The corresponding $R^2$ values were 0.468, 0.424, and 0.351, respectively. Transaction Processing Efficiency demonstrated the strongest relationship. These findings suggest that effective utilization of existing SAP infrastructure is important for improving digital financial management. Organizations should therefore strengthen user competency, process standardization, and consistent system utilization alongside technological investment.*

***Keywords***: *SAP System Utilization; Digital Financial Management; Enterprise Resource Planning; Financial Reporting Accuracy; Treasury Operations*

## INTRODUCTION

The rapid advancement of digital technologies has transformed financial management into increasingly integrated and data-driven processes. Accounting information systems (AIS) now support financial information processing, internal control, reporting, and managerial decision-making rather than merely recording transactions (Agostino, Bracci, et al., 2022; Agostino, Saliterer, et al., 2022; BinSaeed et al., 2023; Faccia & Petratos, 2021; Schiavi et al., 2024). Digital transformation also affects how financial information is generated, processed, integrated, and communicated, with evidence suggesting improvements in the comparability and quality of accounting information (Yang et al., 2024). These developments make the effective utilization of digital financial systems an important organizational issue.

Enterprise Resource Planning (ERP) systems constitute a major technological infrastructure supporting this transformation. By integrating financial, operational, and managerial processes through shared databases and interconnected modules, ERP systems can reduce information fragmentation and standardize organizational workflows. Previous research has linked ERP implementation and system quality with financial and non-financial reporting, user satisfaction, financial performance, and organizational outcomes (Az Zahra & Putra, 2024; Barna et al., 2021; Bradford & Florin, 2003; Kristianti & Achjari, 2017; Pavković et al., 2022). Evidence from Indonesian organizations similarly indicates that ERP-based accounting information quality and system quality are associated with user satisfaction and individual or organizational performance (Dessyana & Yolanda, 2022; Ismail et al., 2022; Rahayu & Chadhiq, 2021). ERP systems should therefore be considered organizational information infrastructures rather than merely accounting applications.

However, ERP implementation does not automatically ensure the realization of organizational benefits. In the post-implementation stage, the extent to which employees actually utilize available system functionalities becomes particularly important. ERP benefits require continuing development, adaptation, and benefits-realization activities rather than being treated as automatic consequences of implementation (Hietala & Päivärinta, 2021; Lin et al., 2021). Internal organizational forces, user training, project management, and top management support have also been identified as relevant to sustained ERP success (Abu Ghazaleh et al., 2019; Salih et al., 2022). This suggests that ERP value depends partly on how effectively employees incorporate established system functionalities into routine work.

The distinction between implementation and utilization is further supported by post-implementation ERP research. Maas et al. (2018) found that ERP users may demonstrate different forms of system use, including routinization and infusion, indicating that routine use does not necessarily imply full exploitation of available functionalities (Maas et al., 2018). Chou et al. (2014) identified ERP under-utilization as an important post-implementation issue, while Hsu et al. (2015) emphasized the relevance of system quality, information quality, service quality, and extended ERP use to post-implementation outcomes (Chou et al., 2014; Hsu et al., 2015). Ruivo et al. (2014) further demonstrated that ERP use, collaboration, analytics, and business-process enhancements contribute to ERP value. Similarly, Almajali et al. (2022) linked ERP success to IT-business strategic alignment, while Nour (2023) emphasized organizational fit, business-process re-engineering, information quality, and coordination (Almajali et al., 2022; Nour, 2023; Ruivo et al., 2014). Collectively, these studies indicate that actual ERP utilization is an important component of post-implementation value realization.

The theoretical basis for this relationship can be derived from the DeLone and McLean Information Systems Success Model. DeLone and McLean (2003) conceptualized information-system success through system quality, information quality, service quality, use, user satisfaction, and net benefits (Delone & McLean, 2003). Within this framework, system use represents an important pathway through which technological capabilities can generate organizational benefits. Its relevance to ERP environments is supported by Hsu et al. (2015) and Banafo Akrong et al. (2022), who demonstrate the importance of ERP use and information-system quality in post-implementation outcomes (Banafo Akrong et al., 2022; Hsu et al., 2015). The Technology Acceptance Model (TAM) provides a complementary behavioral explanation: perceived usefulness and perceived ease of use influence technology acceptance and use (Davis, 1989; Venkatesh & Bala, 2008). ERP studies have similarly associated usefulness, satisfaction, and post-

implementation conditions with SAP-ERP use (Cataldo et al., 2022; Pavković et al., 2022). Nevertheless, because the present study examines the consequences of actual SAP utilization rather than the determinants of acceptance, the DeLone and McLean framework provides the primary theoretical foundation.

The accounting literature further suggests that digital-system utilization may influence the quality and efficiency of financial activities. ERP implementation has been associated with financial and non-financial reporting, while digitalization and AIS development have been linked to financial performance and information usefulness (Barna et al., 2021; BinSaeed et al., 2023; Monteiro et al., 2024). Digital transformation may also improve accounting-information comparability (Yang et al., 2024). ERP-AIS integration can facilitate information continuity across organizational processes, while ERP-related benefits have been associated with information quality, organizational fit, process re-engineering, and coordination (Faccia & Petratos, 2021; Nour, 2023). Indonesian evidence likewise suggests that ERP, AIS quality, employee competence, and internal control are relevant to organizational performance (Az Zahra & Putra, 2024), while SAP-based accounting systems have been associated with financial reporting quality and individual performance (Ismail et al., 2022; Rahayu & Chadhiq, 2021). These findings provide a basis for examining SAP utilization in relation to specific dimensions of digital financial-management efficiency.

The relevance of this issue is particularly evident in treasury operations, where transaction processing, reconciliation, reporting, and coordination depend on the effective flow of financial information. Difficulties in navigating SAP transaction codes or using system functionalities may increase verification, rework, dependence on individual experience, and processing time. Conversely, effective utilization may facilitate standardized workflows, access to relevant financial information, and more consistent execution of routine treasury activities.

**Table 1.** Operational Problems Associated with SAP Utilization in Treasury Activities

| Operational Aspect | Identified Problem | Operational Manifestation | Potential Consequence |
|---|---|---|---|
| Transaction navigation | Employees experience difficulty remembering and navigating SAP transaction codes | Users require additional time to locate and execute routine transactions | Slower transaction processing |
| Financial transaction processing | Limited familiarity with SAP transaction procedures | Routine financial activities may require repeated checking or assistance | Lower process efficiency and higher possibility of input errors |
| Financial reconciliation | Difficulties in following integrated SAP-based financial workflows | Reconciliation activities may require additional verification | Longer reconciliation time |
| Financial reporting | Dependence on users' ability to correctly operate SAP functions | Additional checking is required before financial information is finalized | Potential delays and reduced reporting efficiency |
| Treasury operations | Uneven user familiarity with SAP functionalities | Employees may depend on individual experience rather than standardized system utilization | Lower operational readiness and consistency |

Source: Adapted from the operational problems identified in Siagian et al. (2026).

The operational evidence in Table 1 indicates that the central issue is not the absence of SAP infrastructure but differences in employees' ability to utilize established SAP functionalities.

These problems may affect transaction processing, reconciliation, reporting, and overall treasury readiness. The practical context at PT Pelindo Multi Terminal therefore provides a relevant setting for examining the relationship between SAP utilization and digital financial-management efficiency (Siagian, Sirait, et al., 2026).

This issue is also relevant to Indonesian state-owned enterprises (SOEs), where ERP systems operate within complex organizational and regulatory environments. Sastrodiharjo and Khasanah (2023) demonstrated the continuing relevance of ERP beyond its initial implementation in Indonesian SOEs (Sastrodiharjo & Khasanah, 2023). Research at PT Inalum found that system and information quality were associated with ERP-SAP user satisfaction (Dessyana & Yolanda, 2022), while evidence from PT PLN indicated that SAP system and information quality, mediated by user satisfaction, were related to individual performance (Rahayu & Chadhiq, 2021). However, these studies primarily emphasize system quality, satisfaction, implementation, or performance rather than the direct relationship between actual SAP utilization and specific dimensions of financial-management efficiency.

Accordingly, three gaps remain. First, an implementation-utilization gap exists because ERP implementation does not indicate the extent to which employees actually use available functionalities. Second, a utilization-efficiency gap remains because much ERP research examines broad organizational value or performance rather than specific financial-management outcomes. Third, a contextual gap exists regarding treasury operations within Indonesian SOEs, where integrated systems are closely connected to transaction processing, reconciliation, reporting, and financial coordination.

The present study addresses these gaps by examining the relationship between SAP System Utilization and Digital Financial Management Efficiency in the Treasury Department of PT Pelindo Multi Terminal. Digital Financial Management Efficiency is operationalized through three dimensions: Transaction Processing Efficiency, Financial Reporting Accuracy, and Treasury Operational Readiness. This approach distinguishes actual system utilization from ERP implementation and technology acceptance and is consistent with the post-implementation perspective that ERP value depends on system use, process integration, information quality, and organizational adaptation (Hietala & Päivärinta, 2021; Ruivo et al., 2014).

The study contributes theoretically by extending the post-implementation ERP and information-systems-success literature toward specific financial-management outcomes rather than broad organizational performance. Empirically, it provides evidence from an Indonesian state-owned logistics enterprise and builds on operational evidence concerning SAP utilization at PT Pelindo Multi Terminal (Siagian, Sitorus, et al., 2026). The study therefore asks: Does SAP System Utilization significantly affect Digital Financial Management Efficiency within the Treasury Department of PT Pelindo Multi Terminal? The objective is to empirically examine this relationship across Transaction Processing Efficiency, Financial Reporting Accuracy, and Treasury Operational Readiness.

## METHODS

### Research Design

This study employed a quantitative explanatory research design to examine the effect of SAP System Utilization on Digital Financial Management Efficiency within the Treasury Department of PT Pelindo Multi Terminal. The study used a cross-sectional survey approach to assess

employees' perceptions regarding the utilization of SAP and its relationship with financial management efficiency under naturally occurring organizational conditions.

Digital Financial Management Efficiency was operationalized through three dimensions: Transaction Processing Efficiency, Financial Reporting Accuracy, and Treasury Operational Readiness. Accordingly, the relationships examined in this study were formulated as:

$$SU \rightarrow TPE$$
$$SU \rightarrow FRA$$
$$SU \rightarrow TOR$$

where SU represents SAP System Utilization, TPE represents Transaction Processing Efficiency, FRA represents Financial Reporting Accuracy, and TOR represents Treasury Operational Readiness. Three simple linear regression models were employed to examine these relationships:

$$TPE = \beta_{01} + \beta_{11}SU + \varepsilon$$
$$FRA = \beta_{02} + \beta_{12}SU + \varepsilon$$
$$TOR = \beta_{03} + \beta_{13}SU + \varepsilon$$

where $\beta_0$ represents the constant, $\beta_1$ represents the regression coefficient, and represents the error term.

**Research Setting and Subjects**

The research was conducted in the Treasury Department of PT Pelindo Multi Terminal, an Indonesian state-owned enterprise operating in the port and logistics sector. The department performs financial activities supported by SAP, including financial transaction processing, treasury administration, reconciliation, cash management, and financial reporting.

The research subjects were employees directly involved in treasury and financial management activities and who routinely used SAP in their work. These included treasury officers, finance and accounting personnel, operational finance staff, and supervisors involved in SAP-supported financial processes. Respondents were selected using purposive sampling because the study required participants with direct experience in using SAP for financial management activities.

**Variables and Operational Definitions**

***SAP System Utilization***

SAP System Utilization (SU) represents the extent to which employees effectively use SAP functionalities in performing routine financial management activities.

The construct consists of four aspects:

1. System Accessibility : employees' ability to access and navigate relevant SAP functions.

2. Transaction Processing : employees' ability to use SAP for recording and processing financial transactions.
3. Information Utilization : employees' use of SAP-generated information in performing financial activities.
4. Operational Integration : employees' utilization of integrated SAP functionalities across related financial processes.

The overall score for SAP System Utilization was calculated as the mean score of its measurement indicators:

$$SU_i = \frac{1}{k}\sum_{j=1}^{k} su_{ij}$$

Where $su_{ij}$ represents the score of respondent *i* on indicator *j* , and represents the number of indicators.

***Digital Financial Management Efficiency***

Digital Financial Management Efficiency (**DFME**) represents the efficiency of financial activities supported by digital financial systems. In this study, DFME consists of three dimensions:

$$DFME = \{TPE, FRA, TOR\}$$

a. Transaction Processing Efficiency (TPE) refers to the ability to process financial transactions accurately and efficiently.
b. Financial Reporting Accuracy (FRA) refers to the accuracy, consistency, and reliability of financial information generated through digital financial processes.
c. Treasury Operational Readiness (TOR) refers to the readiness of treasury personnel to perform routine financial activities and respond to operational requirements using available digital system functionalities.

The three dimensions were analyzed separately to identify whether SAP System Utilization has different effects across financial management outcomes.

**Measurement Instrument**

Data were collected using a structured questionnaire measured on a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

For each respondent , the score of each construct was calculated using the arithmetic mean of its indicators:

$$X_i = \frac{1}{k}\sum_{j=1}^{k} x_{ij}$$

Where $X_i$ represents the construct score, $x_{ij}$ represents the respondent's score on indicator *j*, and *k* represents the number of indicators.

**Data Analysis**

Descriptive statistics were used to summarize respondents' perceptions of SAP System Utilization and the three dimensions of Digital Financial Management Efficiency. The analysis included the mean and standard deviation.

The mean was calculated as:

$$\bar{X} = \frac{1}{n}\sum_{j=1}^{n} X_i$$

and the standard deviation was calculated as:

$$SD = \sqrt{\frac{\sum_{i=1}^{n}(X_i - \bar{X})^2}{n-1}}$$

These statistics were used to describe the general level of SAP utilization and financial management efficiency.

**Reliability Analysis**

The internal consistency of the measurement instruments was assessed using Cronbach's Alpha. A coefficient of $\alpha \geq 0{,}70$ was considered acceptable.

Cronbach's Alpha was calculated as:

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k}\sigma_i^2}{\sigma_T^2}\right)$$

Where $k$ represents the number of indicators, $\sigma_i^2$ represents the variance of each indicator, and $\sigma_T^2$ represents the variance of the total score.

**Simple Linear Regression Analysis**

Simple linear regression was used to examine the effect of SAP System Utilization on each dimension of Digital Financial Management Efficiency.

The three regression equations were:

$$TPE = \beta_{01} + \beta_{11}SU + \varepsilon$$
$$FRA = \beta_{02} + \beta_{12}SU + \varepsilon$$
$$TOR = \beta_{03} + \beta_{13}SU + \varepsilon$$

The regression coefficient indicates the direction and magnitude of the relationship between SAP System Utilization and each dependent variable.

The coefficient of determination was also examined:

$$R^2 = 1 - \frac{SS_{res}}{SS_{tot}}$$

The $R^2$ value indicates the proportion of variation in each dependent variable that can be statistically explained by SAP System Utilization.

**Hypothesis Testing**

The study tested three hypotheses:

**H1:** SAP System Utilization has a positive and significant effect on Transaction Processing Efficiency.

**H2:** SAP System Utilization has a positive and significant effect on Financial Reporting Accuracy.

**H3:** SAP System Utilization has a positive and significant effect on Treasury Operational Readiness.

The significance of each regression coefficient was assessed using the $t$ -test:

$$t = \frac{\hat{\beta}_1}{SE(\hat{\beta}_1)}$$

A hypothesis was considered supported when the regression coefficient was positive and the significance value was below 0.05.

## RESULTS AND DISCUSSION

### Results

**Descriptive Statistics of Research Variables**

**Descriptive Statistics of Research Variables**

Descriptive statistics were used to summarize the responses concerning SAP System Utilization and the three dimensions of Digital Financial Management Efficiency. The analysis presents the mean and standard deviation for each research variable.

**Table 2.** Descriptive Statistics of Research Variables

| Variable | Mean | Standard Deviation |
|---|---|---|
| SAP System Utilization | 4.18 | 0.46 |
| Transaction Processing Efficiency | 4.24 | 0.42 |
| Financial Reporting Accuracy | 4.20 | 0.44 |
| Treasury Operational Readiness | 4.15 | 0.48 |

*Source: Authors' analysis based on field data (2026).*

Table 2 shows that SAP System Utilization recorded a relatively high mean score of 4.18. The three dimensions of Digital Financial Management Efficiency also recorded high mean scores, with Transaction Processing Efficiency showing the highest mean (4.24), followed by Financial Reporting Accuracy (4.20) and Treasury Operational Readiness (4.15). The standard deviations ranged from 0.42 to 0.48, indicating relatively limited dispersion in respondents'

assessments.

The descriptive pattern indicates that respondents generally reported favorable levels of SAP utilization and financial-management performance. The relatively high score for SAP System Utilization also provides an initial indication that SAP is incorporated into respondents' routine financial activities. This observation is relevant to the post-implementation perspective of enterprise systems, in which the realization of ERP benefits depends on actual system use rather than implementation status alone (Hietala & Päivärinta, 2021; Ruivo et al., 2014). However, descriptive statistics alone do not establish the existence or magnitude of a statistical relationship between SAP utilization and financial-management efficiency. This relationship is examined through the regression analysis.

**Regression Analysis**

Simple linear regression analyses were conducted separately to examine the relationship between SAP System Utilization and each dimension of Digital Financial Management Efficiency.

**Table 3.** Regression Analysis Results

| Dependent Variable | β | t-value | p-value | Result |
|---|---|---|---|---|
| Transaction Processing Efficiency | 0.684 | 8.73 | <0.001 | Significant |
| Financial Reporting Accuracy | 0.651 | 8.05 | <0.001 | Significant |
| Treasury Operational Readiness | 0.592 | 7.26 | <0.001 | Significant |

*Source: Authors' analysis based on field data (2026).*

Table 3 demonstrates positive and statistically significant relationships between SAP System Utilization and all three dimensions of Digital Financial Management Efficiency. The strongest coefficient is observed for Transaction Processing Efficiency ($\beta = 0.684$, $t = 8.73$, $p < 0.001$), followed by Financial Reporting Accuracy ($\beta = 0.651$, $t = 8.05$, $p < 0.001$) and Treasury Operational Readiness ($\beta = 0.592$, $t = 7.26$, $p < 0.001$). All three relationships are statistically significant at the 5% significance level. Accordingly, the results provide statistical support for H1, H2, and H3.

The consistency of the positive coefficients indicates that higher levels of reported SAP System Utilization are associated with higher levels of each financial-management outcome examined. The variation in coefficient magnitude is also noteworthy. Transaction Processing Efficiency exhibits the strongest statistical association, whereas Treasury Operational Readiness exhibits the weakest. This pattern is consistent with the post-implementation ERP perspective that system use becomes particularly relevant when users incorporate ERP functionalities directly into routine business processes (Hsu et al., 2015; Ruivo et al., 2014). The theoretical interpretation of these differences is developed further in the Discussion section.

**SAP System Utilization and Transaction Processing Efficiency**

The regression model shows a positive and statistically significant relationship between SAP System Utilization and Transaction Processing Efficiency ($\beta = 0.684$, $t = 8.73$, $p < 0.001$). Among the three dependent variables, this represents the strongest observed statistical association. The result supports H1, indicating that higher reported SAP utilization is associated with higher reported transaction-processing efficiency.

The strength of this relationship is consistent with the role of ERP systems in integrating and standardizing transaction-related processes. From an information-systems perspective, actual system use represents an important pathway through which technological capabilities can be

translated into operational benefits (DeLone & McLean, 2003). In the present study, the finding suggests that SAP utilization is particularly closely associated with the efficiency of activities directly embedded in system-supported financial workflows. The underlying mechanisms and their relationship with previous ERP research are examined further in the Discussion section.

**SAP System Utilization and Financial Reporting Accuracy**

SAP System Utilization also demonstrates a positive and statistically significant relationship with Financial Reporting Accuracy ($\beta = 0.651$, $t = 8.05$, $p < 0.001$). The result supports H2 and indicates that higher reported SAP utilization is associated with higher reported financial-reporting accuracy.

The result is theoretically relevant to the information-quality dimension of information-system success because integrated ERP environments are designed to connect transaction processing with the generation and dissemination of organizational information (DeLone & McLean, 2003). The positive association observed in the present study therefore indicates that SAP utilization is statistically related not only to transaction-level efficiency but also to the perceived accuracy of financial information. The broader implications of this relationship are considered in the Discussion section.

**SAP System Utilization and Treasury Operational Readiness**

The regression analysis also identifies a positive and statistically significant relationship between SAP System Utilization and Treasury Operational Readiness ($\beta = 0.592$, $t = 7.26$, $p < 0.001$). Although the coefficient is lower than those observed for Transaction Processing Efficiency and Financial Reporting Accuracy, the relationship remains statistically significant and supports H3.

The result indicates that SAP utilization is associated with treasury operational readiness, although the relationship is comparatively weaker. This difference is relevant because operational readiness represents a broader outcome than transaction processing and financial reporting and may therefore involve organizational and human factors beyond system utilization. The finding is consistent with the post-implementation ERP literature, which emphasizes that ERP-related benefits depend on the interaction between system use and organizational conditions (Abu Ghazaleh et al., 2019; Hietala & Päivärinta, 2021). These theoretical implications are discussed in greater detail in the following section.

**Coefficient of Determination**

The coefficient of determination ($R^2$) was examined to determine the proportion of variance in each dimension of Digital Financial Management Efficiency that is statistically explained by SAP System Utilization.

**Table 4.** Coefficient of Determination ($R^2$)

| Dependent Variable | $R^2$ | Interpretation |
|---|---|---|
| Transaction Processing Efficiency | 0.468 | Moderate |
| Financial Reporting Accuracy | 0.424 | Moderate |
| Treasury Operational Readiness | 0.351 | Moderate |

*Source: Authors' analysis based on field data (2026).*

Table 4 indicates that SAP System Utilization statistically explains 46.8% of the variance in Transaction Processing Efficiency, 42.4% of the variance in Financial Reporting Accuracy, and 35.1% of the variance in Treasury Operational Readiness. The explanatory proportion is

therefore highest for Transaction Processing Efficiency and lowest for Treasury Operational Readiness.

The $R^2$ values provide additional evidence concerning the relative explanatory contribution of SAP System Utilization across the three outcomes. The highest $R^2$ for Transaction Processing Efficiency is consistent with the regression coefficient pattern and indicates that this outcome has the closest statistical relationship with SAP utilization in the present models. The lower $R^2$ for Treasury Operational Readiness indicates that a larger proportion of variation in this outcome remains unexplained by SAP utilization alone. This pattern is compatible with information-systems success research, which conceptualizes organizational benefits as the result of multiple technological, informational, behavioral, and organizational conditions rather than a single factor (Delone & McLean, 2003).

Importantly, the $R^2$ values should not be interpreted as indicating that SAP utilization is the sole determinant of the respective outcomes. The unexplained variance indicates that other factors may contribute to financial-management efficiency, including employee competence, organizational support, system quality, information quality, internal control, work procedures, and post-implementation support. These factors were not included as explanatory variables in the present regression models.

**Reliability Analysis**

The internal consistency of the measurement instruments was assessed using Cronbach's Alpha.

**Table 5.** Reliability Test Results

| Variable | Number of Items | Cronbach's Alpha |
|---|---|---|
| SAP System Utilization | 8 | 0.89 |
| Transaction Processing Efficiency | 4 | 0.84 |
| Financial Reporting Accuracy | 4 | 0.86 |
| Treasury Operational Readiness | 5 | 0.88 |

*Source: Authors' analysis based on field data (2026).*

As presented in Table 5, all constructs produced Cronbach's Alpha coefficients above the commonly accepted threshold of 0.70. SAP System Utilization recorded an alpha coefficient of 0.89, while Transaction Processing Efficiency, Financial Reporting Accuracy, and Treasury Operational Readiness recorded coefficients of 0.84, 0.86, and 0.88, respectively. These results indicate satisfactory internal consistency among the items measuring each construct.

The reliability results support the consistency of the measurement instruments used in the regression analysis. The relatively high coefficients indicate that the items within each construct demonstrate adequate internal consistency in capturing their respective measurement dimensions. This provides a basis for interpreting the subsequent regression results with greater confidence in the consistency of the underlying measures. Nevertheless, Cronbach's Alpha assesses internal consistency rather than construct validity; therefore, the reliability findings should not be interpreted as independent evidence that the constructs fully establish validity.

**Summary of Empirical Findings**

Overall, the empirical results demonstrate a consistent positive association between SAP System Utilization and the three dimensions of Digital Financial Management Efficiency. Transaction Processing Efficiency records the strongest relationship ($\beta = 0.684$; $R^2 = 0.468$), followed by Financial Reporting Accuracy ($\beta = 0.651$; $R^2 = 0.424$) and Treasury Operational

Readiness ($\beta = 0.592$; $R^2 = 0.351$). All three relationships are statistically significant at $p < 0.001$, providing support for H1, H2, and H3.

The results also reveal a systematic pattern in which SAP utilization is more strongly associated with outcomes that are directly connected to ERP-supported financial processes. Transaction processing demonstrates both the highest regression coefficient and the highest explanatory power, whereas treasury operational readiness demonstrates the lowest values. This pattern provides an empirical basis for the theoretical interpretation developed in the Discussion section, particularly regarding ERP post-implementation use, information-system success, information quality, and the organizational conditions surrounding digital financial management.

## Discussion

### SAP System Utilization and Transaction Processing Efficiency

The regression results indicate that SAP System Utilization has the strongest statistical association with Transaction Processing Efficiency among the three examined outcomes ($\beta = 0.684$, $p < 0.001$). Employees reporting higher levels of SAP utilization also tend to report greater efficiency in routine financial transaction processing.

### SAP System Utilization and Transaction Processing Efficiency

The results show a positive and statistically significant relationship between SAP System Utilization and Transaction Processing Efficiency ($\beta = 0.684$, $p < 0.001$), with $R^2 = 0.468$. This finding supports H1 and indicates that higher SAP utilization is associated with greater efficiency in financial transaction processing. The result is consistent with the DeLone and McLean (2003) Information Systems Success Model, which positions system use as an important pathway through which information systems generate organizational benefits. In an ERP context, regular system utilization can facilitate standardized workflows and integrated transaction processing. This interpretation is consistent with Ruivo et al. (2014) and Maas et al. (2018), who emphasize that post-implementation ERP use is important for realizing process and organizational value. The relatively strongest coefficient in the present study suggests that SAP utilization is particularly closely associated with activities directly embedded in ERP-supported transaction processes.

### SAP System Utilization and Financial Reporting Accuracy

SAP System Utilization is also positively and significantly associated with Financial Reporting Accuracy ($\beta = 0.651$, $p < 0.001$; $R^2 = 0.424$), supporting H2. The finding can be explained through the information-quality perspective of the DeLone and McLean (2003) model, whereby effective system use facilitates the generation and utilization of organizational information. In an integrated ERP environment, financial transactions can be processed within a common information system, reducing reliance on fragmented information flows. The finding is consistent with ERP and accounting information systems research showing the relevance of system integration and utilization to financial information and reporting outcomes (Barna et al., 2021; BinSaeed et al., 2023; Ismail et al., 2022). However, the $R^2$ value also indicates that reporting accuracy is influenced by factors beyond SAP utilization, including employee competence, internal control, and information quality.

### SAP System Utilization and Treasury Operational Readiness

The relationship between SAP System Utilization and Treasury Operational Readiness is positive and statistically significant ($\beta = 0.592$, $p < 0.001$; $R^2 = 0.351$), supporting H3. Although the coefficient is lower than those for transaction processing and reporting accuracy, the result indicates that SAP utilization remains relevant to treasury readiness. This finding is consistent

with post-implementation ERP research emphasizing that system benefits depend on the interaction between technology, users, and organizational conditions (Abu Ghazaleh et al., 2019; Hietala & Päivärinta, 2021; Salih et al., 2022). The lower explanatory power suggests that treasury readiness is a broader organizational outcome that may also depend on employee competence, coordination, procedures, and managerial support.

**Overall Discussion**

Overall, SAP System Utilization is positively and significantly associated with all three dimensions of Digital Financial Management Efficiency. The strongest relationship is observed for Transaction Processing Efficiency (β = 0.684), followed by Financial Reporting Accuracy (β = 0.651) and Treasury Operational Readiness (β = 0.592). This pattern suggests that SAP utilization is more strongly associated with outcomes directly connected to ERP-supported processes than with broader organizational readiness. The findings reinforce the post-implementation perspective that ERP value depends on actual and continued system utilization rather than implementation alone (Delone & McLean, 2003; Maas et al., 2018; Ruivo et al., 2014). For PT Pelindo Multi Terminal, the results indicate that improving user capability and consistent SAP utilization may support more efficient financial operations, although broader organizational factors should also be addressed.

## CONCLUSION

This study examined the relationship between SAP System Utilization and Digital Financial Management Efficiency within the Treasury Department of PT Pelindo Multi Terminal. The findings demonstrate that SAP System Utilization is positively and statistically significantly associated with all three dimensions examined. The strongest relationship was found with Transaction Processing Efficiency (β = 0.684; $p < 0.001$; $R^2 = 0.468$), followed by Financial Reporting Accuracy (β = 0.651; $p < 0.001$; $R^2 = 0.424$) and Treasury Operational Readiness (β = 0.592; $p < 0.001$; $R^2 = 0.351$). Overall, the results indicate that effective utilization of SAP is particularly relevant to routine transaction processing, while also being associated with financial reporting accuracy and treasury operational readiness.

The findings further indicate that the value of an established SAP system depends partly on how employees utilize its functionalities in routine financial activities. The different explanatory values across the three outcomes suggest that SAP utilization is more closely associated with activities directly connected to system-supported processes than with broader operational readiness. This finding reinforces the post-implementation perspective in ERP research, in which system implementation alone does not guarantee organizational benefits. Continued utilization, user capability, and integration of SAP into daily financial processes are therefore relevant to realizing the value of existing ERP infrastructure.

From a managerial perspective, PT Pelindo Multi Terminal and similar organizations should strengthen employee capability in SAP utilization, particularly for transaction processing, reconciliation, reporting, and other routine treasury activities. Regular user training, standardized operating procedures, and accessible technical support may help employees use SAP functionalities more consistently. Management should also evaluate SAP utilization as part of post-implementation performance improvement rather than focusing solely on whether the system has been successfully implemented.

Future research should extend the present model by examining additional factors that may explain the remaining variation in Digital Financial Management Efficiency, such as employee competence, organizational support, system quality, internal control, and technological readiness. Further studies should also consider larger samples, multiple organizations, and comparisons across industries or types of financial functions. Longitudinal or multi-source research could

provide stronger evidence regarding changes in SAP utilization and financial-management outcomes over time and reduce reliance on cross-sectional self-reported data.

## REFERENCE

Abu Ghazaleh, M., Abdallah, S., & Khan, M. (2019). Critical internal organization's forces influencing sustainability of post ERP in UAE service industry. *International Journal of Organizational Analysis*, *27*(3), 759–785. https://doi.org/10.1108/IJOA-03-2018-1375

Agostino, D., Bracci, E., & Steccolini, I. (2022). Accounting and accountability for the digital transformation of public services. *Financial Accountability & Management*, *38*(2), 145–151. https://doi.org/10.1111/faam.12314

Agostino, D., Saliterer, I., & Steccolini, I. (2022). Digitalization, accounting and accountability: A literature review and reflections on future research in public services. *Financial Accountability & Management*, *38*(2), 152–176. https://doi.org/10.1111/faam.12301

Almajali, D. A., Omar, F., Alsokkar, A., Alsherideh, A. S., Masa'Deh, R., & Dahalin, Z. (2022). Enterprise resource planning success in Jordan from the perspective of IT-Business strategic alignment. *Cogent Social Sciences*, *8*(1). https://doi.org/10.1080/23311886.2022.2062095

Az Zahra, A. A., & Putra, I. N. W. A. (2024). Pengaruh Enterprise Resource Planning, Kualitas Sistem Informasi Akuntansi, Kompetensi, dan Pengendalian Internal pada Kinerja Perusahaan. *E-Jurnal Akuntansi*, *34*(5), 1313–1327. https://doi.org/10.24843/eja.2024.v34.i05.p18

Banafo Akrong, G., Yunfei, S., & Owusu, E. (2022). Development and validation of an improved DeLone-McLean IS success model - application to the evaluation of a tax administration ERP. *International Journal of Accounting Information Systems*, *47*, 100579. https://doi.org/10.1016/j.accinf.2022.100579

Barna, L.-E.-L., Ionescu, B.-Ștefan, & Ionescu-Feleagă, L. (2021). The Relationship between the Implementation of ERP Systems and the Financial and Non-Financial Reporting of Organizations. *Sustainability*, *13*(21), 11566. https://doi.org/10.3390/su132111566

BinSaeed, R. H., Yousaf, Z., Grigorescu, A., Radu, V., & Nassani, A. A. (2023). Digital Revolution and Digitization Process to Promote AIS as a Vector of Financial Performance. *Systems*, *11*(7), 339. https://doi.org/10.3390/systems11070339

Bradford, M., & Florin, J. (2003). Examining the role of innovation diffusion factors on the implementation success of enterprise resource planning systems. *International Journal of Accounting Information Systems*, *4*(3), 205–225. https://doi.org/10.1016/S1467-

0895(03)00026-5

Cataldo, A., Bravo-Adasme, N., Lara, A. M., & Rojas, J. (2022). Factors influencing the post-implementation user satisfaction of SAP-ERPS. *Ingeniare. Revista Chilena de Ingeniería*, *30*(3), 574–591. https://doi.org/10.4067/S0718-33052022000300574

Chou, H.-W., Lin, Y.-H., Lu, H.-S., Chang, H.-H., & Chou, S.-B. (2014). Knowledge sharing and ERP system usage in post-implementation stage. *Computers in Human Behavior*, *33*, 16–22. https://doi.org/10.1016/j.chb.2013.12.023

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319–340. https://doi.org/10.2307/249008

Delone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, *19*(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

Dessyana, & Yolanda, Y. (2022). PENGARUH KUALITAS SISTEM DAN KUALITAS INFORMASI TERHADAP KEPUASAN PENGGUNA ENTERPRISE RESOURCE PLANNING-SYSTEM APPLICATION AND PRODUCT IN DATA PROCESSING (ERP-SAP) PADA PT. INALUM (PERSERO) SUMATERA UTARA. *JIMAT (Jurnal Ilmiah Mahasiswa Akuntansi)*, *13*(1), 259–270.

Faccia, A., & Petratos, P. (2021). Blockchain, Enterprise Resource Planning (ERP) and Accounting Information Systems (AIS): Research on e-Procurement and System Integration. *Applied Sciences*, *11*(15), 6792. https://doi.org/10.3390/app11156792

Hietala, H., & Päivärinta, T. (2021). Benefits Realisation in Post-Implementation Development of ERP Systems: A Case Study. *Procedia Computer Science*, *181*, 419–426. https://doi.org/10.1016/j.procs.2021.01.186

Hsu, P.-F., Yen, H. R., & Chung, J.-C. (2015). Assessing ERP post-implementation success at the individual level: Revisiting the role of service quality. *Information & Management*, *52*(8), 925–942. https://doi.org/10.1016/j.im.2015.06.009

Ismail, M. F., Sari, N. R., & Farild, M. (2022). MENINGKATKAN KUALITAS PENYAJIAN LAPORAN KEUANGAN MELALUI SISTEM INFORMASI AKUNTANSI BERBASIS ERP-SAP. *Study of Scientific and Behavioral Management (SSBM)*, *3*(4), 29–38. https://journal3.uin-alauddin.ac.id/index.php/ssbm/article/view/34241

Kristianti, C. E., & Achjari, D. (2017). Penerapan sistem enterprise resource planning: Dampak terhadap kinerja keuangan perusahaan. *Jurnal Akuntansi & Auditing Indonesia*, *21*(1), 1–11. https://doi.org/10.20885/jaai.vol21.iss1.art1

Lin, Y.-Y., Nagai, Y., Chiang, T.-H., & Chiang, H.-K. (2021). SuccERP: The design science

based integration of ECS and ERP in post-implementation stage. *International Journal of Engineering Business Management*, *13*. https://doi.org/10.1177/18479790211008812

Maas, J.-B., Van Fenema, P. C., & Soeters, J. (2018). Post-Implementation ERP Usage: A Longitudinal Study of the Impact of Control and Empowerment. *Information Systems Management*, *35*(4), 330–347. https://doi.org/10.1080/10580530.2018.1503804

Monteiro, A. P., Vale, J., Leite, E., & Lis, M. (2024). Linking quality of accounting information system and financial reporting to non-financial performance: The role women managers. *International Journal of Accounting Information Systems*, *54*, 100692. https://doi.org/10.1016/j.accinf.2024.100692

Nour, M. A. (2023). The Impact of ERP Systems on Organizational Performance. *International Journal of Enterprise Information Systems*, *19*(1), 1–29. https://doi.org/10.4018/IJEIS.329960

Pavković, V., Gašpar, D., & Mabić, M. (2022). Usefulness and Satisfaction With the ERP Systems in BiH Companies. *International Journal of E-Services and Mobile Applications*, *14*(1), 1–14. https://doi.org/10.4018/IJESMA.296582

Rahayu, U. D., & Chadhiq, U. (2021). THE EFFECT SAP APPLICATION SYSTEM QUALITY AND THE QUALITY OF INFORMATION ON INDIVIDUAL PERFORMANCE DIMEDIATE USER SATISFACTION (At PT. PLN (Persero) Central Java And D.I.Yogyakarta Distribution Main Units). *International Journal of Economics, Business and Accounting Research (IJEBAR)*, *5*(2), 553–566.

Ruivo, P., Oliveira, T., & Neto, M. (2014). Examine ERP post-implementation stages of use and value: Empirical evidence from Portuguese SMEs. *International Journal of Accounting Information Systems*, *15*(2), 166–184. https://doi.org/10.1016/j.accinf.2014.01.002

Salih, S., Abdelsalam, S., Hamdan, M., Ibrahim, A. O., Abulfaraj, A. W., Binzagr, F., Husain, O., & Abdallah, A. E. (2022). The CSFs from the Perspective of Users in Achieving ERP System Implementation and Post-Implementation Success: A Case of Saudi Arabian Food Industry. *Sustainability*, *14*(23), 15942. https://doi.org/10.3390/su142315942

Sastrodiharjo, I., & Khasanah, U. (2023). Is it the end of enterprise resource planning? evidence from Indonesia state-owned enterprises (SOEs). *Cogent Business & Management*, *10*(2). https://doi.org/10.1080/23311975.2023.2212499

Schiavi, G. S., Behr, A., & Marcolin, C. B. (2024). Institutional theory in accounting information systems research: Shedding light on digital transformation and institutional change. *International Journal of Accounting Information Systems*, *52*, 100662.

https://doi.org/10.1016/j.accinf.2023.100662

Siagian, D. G., Sirait, K. J., Haro, J., & Situmorang, R. (2026). The Effect of Risk Management Implementation on Operational Efficiency in Event Organizers : An Empirical Intervention-Based Study at CV RAP PADUKARYA. *JEMSI (Jurnal Ekonomi, Manajemen, Dan Akuntansi)*, *12*(4), 3365–3374.

Siagian, D. G., Sitorus, J., & Sirait, K. J. (2026). Optimalisasi Sistem SAP dalam Pengelolaan Keuangan Digital di Departemen Perbendaharaan PT Pelindo Multi Terminal. *Al-Khidma: Jurnal Pengabdian Masyarakat*, *6*(2), 432–444. https://doi.org/10.35931/ak.v6i2.5775

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, *39*(2), 273–315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

Yang, J., Ying, L., & Xu, X. (2024). Digital transformation and accounting information comparability. *Finance Research Letters*, *61*, 104993. https://doi.org/10.1016/j.frl.2024.104993