The Impact of Yantek Mobile on Technical Service Performance at PLN UP3 Makassar Selatan

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Abstract. This research investigates the influence of Yantek Mobile on the performance of technical service officers at the State Electricity Company (PLN) UP3 Makassar Selatan, with particular attention to the mediating role of Perceived Usefulness (PU). As a core element of PLN's digital transformation program, Yantek Mobile is intended to optimize efficiency, improve response time, and enhance the reliability of field operations. Grounded in the Technology Acceptance Model (TAM) and the Information Systems Success Model (ISSM), this study assesses how dimensions of system quality and information quality shape officers' perceptions of usefulness, which subsequently affect their job performance. A quantitative methodology was applied, collecting data from service officers through surveys and analyzing it with Partial Least Squares Structural Equation Modeling (PLS-SEM). The empirical results demonstrate that Yantek Mobile significantly strengthens officers' perceptions of its usefulness, which, in turn, contributes to improvements in service quality, timeliness, accountability, and productivity. Furthermore, the findings underscore the pivotal mediating role of PU, suggesting that the effectiveness of digital solutions in the utility sector is determined not only by technical features but also by user perceptions of their value. The study offers theoretical contributions by combining TAM and ISSM within the public utility context and provides practical insights for PLN in enhancing its digital strategies to achieve better organizational performance.

Keywords: Yantek Mobile, perceived usefulness, information quality, system quality, technical service performance

1 Introduction

Digital transformation in public utilities has become an essential driver for improving service quality, operational efficiency, and customer satisfaction. Indonesia's stateowned electricity company (PLN), has introduced Yantek Mobile as part of its transformation agenda, enabling field officers to receive tasks, update progress, and report outcomes in real time. This initiative has been recognized as a notable achievement in enhancing customer service and technical responsiveness [1].

However, despite the adoption of Yantek Mobile, operational challenges persist. Based on PLN's Annual Report (2023), the company recorded over 4.5 million technical service complaints nationwide, with approximately 27% related to delays in field

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response and incomplete reporting [1]. PLN UP3 Makassar Selatan is among the PLN units with the highest number of customer complaints. However, the implementation of the PLN Mobile application for technical service officers, particularly within UP3 Makassar Selatan, has encountered challenges. Anomalies in complaint resolution reports were frequently observed, largely because many officers were still in the process of adapting to PLN's ongoing digital transformation initiatives. According to internal reports from PLN UP3 Makassar Selatan, in 2021, approximately 29.97% of 98,500 complaints showed anomalies in their resolution reports when processed through the Yantek Mobile application. Over time, however, and with the provision of targeted training on Yantek Mobile operations, this anomaly rate decreased significantly, reaching only 0.2% out of a total of 157,795 complaints resolved in 2024. Nevertheless, PLN UP3 Makassar Selatan has yet to conduct a systematic evaluation or in-depth assessment of the impact of Yantek Mobile implementation on the performance of technical service officers. Such an evaluation, particularly from the perspective of officers' acceptance and perceptions, is crucial to provide insights that could inform better strategies for future digital initiatives. This would ensure that PLN's digital transformation program is implemented effectively and without major obstacles [1, 2]. These figures highlight that digital tools alone may not automatically guarantee improved technical performance. Instead, their success depends on how effectively officers perceive and utilize the system in their daily work.

From a theoretical standpoint, the Information Systems Success Model emphasizes the importance of Information Quality (accuracy, timeliness) and System Quality (reliability, responsiveness) as determinants of system success [3]. Meanwhile, the Technology Acceptance Model (TAM) asserts that Perceived Usefulness (PU) plays a critical role in linking system attributes to user behavior and performance [4]. Thus, the gap identified in practice is whether the implementation of Yantek Mobile has genuinely translated into measurable improvements in officer performance, and to what extent this relationship is mediated by PU.

Although Yantek Mobile has been implemented to improve service efficiency, empirical evidence shows that response delays and quality issues remain significant in certain operational units. The central problem this study addresses is whether Yantek Mobile Implementation through the dimensions of Information and System Quality positively impacts Technical Service Performance, and whether this effect is strengthened by officers' Perceived Usefulness of the system.

By addressing this issue, the study aims to contribute both practically, by offering insights into the effectiveness of digital field service systems in public utilities, and theoretically, by integrating IS Success Model and TAM perspectives in the context of a developing country utility provider.

This research is urgent because the success of PLN's digital transformation depends not only on the deployment of mobile applications but also on their actual impact on employee performance. Without empirical evidence on how Yantek Mobile shapes officers' perceived usefulness and technical performance, PLN risks investing in digital tools that fail to deliver the intended benefits. From a theoretical standpoint, this study also addresses a gap in the literature by testing the integration of the IS Success Model and TAM in a developing country's utility sector, an area that remains underexplored.

Therefore, the findings are expected to provide both practical guidance for PLN's digital strategy and academic contributions to technology adoption research in public utilities

2 Literature Review

2.1 Digital Transformation

Digital transformation has become a key strategic priority for organizations across sectors, including public utilities, as it enables efficiency gains, service innovation, and customer-centric value creation [5]. In the utility industry, digitalization integrates advanced information systems, mobile applications, and real-time monitoring tools to enhance operational agility and reliability. Recent studies emphasize that digital transformation is not only a technological shift but also an organizational change process that requires new competencies, mindsets, and work practices [6, 7]. For state-owned enterprises such as PT PLN (Persero), digital transformation initiatives are essential to ensure responsiveness to customer demands, operational resilience, and sustainability in service delivery. The introduction of Yantek Mobile exemplifies this transformation by digitizing work order management, task allocation, and field reporting, thereby creating a more structured and efficient workflow [1].

Empirical studies support these arguments. For instance, research on PT Indonesia Power UPJP Kamojang found that digital transformation significantly enhanced both task and contextual employee performance [8]. In the banking sector, digital competence and digital leadership were found to improve performance, with self-efficacy acting as a mediator [9]. Similar evidence in public service organizations suggested that innovation and organizational learning mediate the relationship between digital transformation and employee performance [10]. These findings highlight the broad relevance of digital transformation across industries and set the stage for analyzing its impact in the PLN context.

2.2 Yantek Mobile

Yantek Mobile represents a digital platform designed to support field service management in the electricity sector. Its primary function is to integrate work orders, progress monitoring, and reporting in real time, thereby improving task allocation and service responsiveness. Drawing upon the ISSM, two dimensions are emphasized in assessing system implementation: information quality and system quality [3]. Information quality refers to the accuracy, timeliness, and relevance of information provided, while system quality relates to the reliability, responsiveness, and usability of the system. Previous research has highlighted that higher information and system quality contribute to improved user satisfaction and operational outcomes in digital applications [5]. In the PLN context, these dimensions ensure that field officers can execute tasks efficiently and provide consistent service delivery.

2.3 Perceived Usefulness

Perceived Usefulness (PU) represents a key variable within the Technology Acceptance Model (TAM), first conceptualized by [4], to describe how users' evaluations of a system's utility affect their willingness to adopt it and the resulting performance improvements. PU captures the degree to which individuals are convinced that the use of a specific technology will positively contribute to their work effectiveness. Prior research indicates that employees who regard digital tools as advantageous tend to be more motivated, display stronger commitment, and achieve superior outcomes [6]. Evidence from studies on mobile-based work management systems further demonstrates that PU serves as an intermediary link between system design characteristics and overall organizational effectiveness [11]. In this context, PU is anticipated to be a crucial explanatory factor in clarifying how the implementation of Yantek Mobile enhances technical service performance.

2.4 Technical Service Performance

Technical Service Performance in utility companies such as PT PLN (Persero) is measured through work quantity, work quality, timeliness, and responsibility/discipline. These dimensions are widely used in performance evaluation frameworks across service industries [12]. Work quantity refers to the number of tasks accomplished, while work quality relates to accuracy and compliance with standards. Timeliness measures punctuality in service execution, and responsibility reflects accountability and adherence to procedures. Prior studies indicate that digital systems supporting real-time monitoring and reporting contribute positively to these performance dimensions by reducing errors, enhancing speed, and ensuring accountability [8–11]. In the PLN context, performance improvements are not only critical for operational efficiency but also for maintaining customer trust and satisfaction.

2.5 Hypotheses Development

Drawing on the Technology Acceptance Model (TAM) and the Information Systems Success Model (ISSM), this study develops hypotheses to explain the relationships among Yantek Mobile Implementation, Perceived Usefulness (PU), and Technical Service Performance.

According to ISSM, system success depends on information and system quality [3]. Reliable, accurate, and timely information enhances users' perception of a system's usefulness. Therefore, Yantek Mobile Implementation is expected to positively influence PU.

- **H1**: Yantek Mobile Implementation has a positive effect on Perceived Usefulness.

TAM emphasizes that PU strongly affects user performance [4]. When officers find Yantek Mobile beneficial, they are more likely to use it effectively, resulting in improved efficiency, timeliness, and reliability of service [5].

- **H2**: Perceived Usefulness has a positive effect on Technical Service Performance.

In addition to the indirect influence through PU, Yantek Mobile may also directly enhance performance by enabling real-time reporting, monitoring, and task allocation, which improve efficiency and accountability [6].

- **H3**: Yantek Mobile Implementation has a positive effect on Technical Service Performance.

Finally, PU is proposed to mediate the relationship between Yantek Mobile and performance. The system's benefits are realized only when users perceive it as useful, consistent with prior evidence showing PU as a mediator between system features and performance outcomes [5].

- **H4**: Perceived Usefulness mediates the relationship between Yantek Mobile Implementation and Technical Service Performance.

3 Methodology

3.1 Research Design

This research applied a quantitative design using a cross-sectional survey to analyze the associations between Yantek Mobile implementation, perceived usefulness, and technical service performance. A quantitative approach was considered appropriate as it enables systematic measurement of variable relationships and facilitates hypothesis testing through statistical techniques.

3.2 Population and Sample

The study population comprised 139 technical service officers at PT PLN (Persero) UP3 Makassar Selatan. From this population, a sample of 100 officers was drawn using stratified random sampling to guarantee balanced representation across various work units. This method was adopted to minimize sampling bias and to adequately reflect differences among officer sub-groups.

3.3 Data Collection

The primary data were collected through a structured questionnaire that was directly distributed to the selected participants. Conducted in 2025, the survey instrument was developed based on indicators that had been widely validated in previous information systems and organizational performance studies. To reduce the risk of social desirability bias and encourage honest responses, respondents were assured full confidentiality and anonymity.

3.4 Measurement of Variables

The constructs in this research were evaluated using multi-item measurement scales that have been widely utilized in earlier studies on information systems and organizational performance. All indicators were assessed on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Yantek Mobile was defined in line with the Information Systems Success Model (ISSM), consisting of two dimensions: information quality and system quality [4]. The dimension of information quality was measured through accuracy (YM1) and timeliness (YM2), while system quality was represented by reliability (YM3) and responsiveness (YM4).

Perceived Usefulness (PU), derived from the Technology Acceptance Model (TAM), was measured using three items adapted from prior research [4]. These included whether the system helps officers complete tasks more efficiently (PU1), improves the quality of task execution (PU2), and enhances effectiveness in achieving job objectives (PU3). Comparable indicators have been validated in numerous studies examining mobile technology adoption and employee performance [5].

Technical Service Performance was assessed using four dimensions frequently applied in performance measurement frameworks: quantity of work (TP1), quality of work (TP2), timeliness (TP3), and responsibility/discipline (TP4) [5]. These performance indicators are consistent with recognized approaches to employee evaluation in service-based organizations [8, 9]. By integrating system-related constructs (information quality, system quality, and PU) with performance measures, the overall framework provides a comprehensive evaluation of both technological factors and behavioral outcomes relevant to the study context.

4 Results

4.1 Description of Respondents' Characteristics.

Analysis of the questionnaire responses from 100 participants shows that all respondents in this study were male. With respect to age, the largest group fell within the 41– 60 years category, consisting of 48 officers (48%), followed by 31 officers (31%) aged 31–40 years, and 21 officers (21%) between 21–30 years. In terms of educational attainment, the majority had completed senior high school or its equivalent, representing 93 respondents (93%). Meanwhile, one respondent (1%) held a Diploma III qualification, and six respondents (6%) possessed a Bachelor's (S1) degree. Regarding tenure, most officers had more than 10 years of work experience (43 respondents, 43%), while 37 respondents (37%) reported 3–10 years, and 20 respondents (20%) had between 1– 3 years of service.

4.2 Measurement Model.

All measurement items demonstrated satisfactory reliability, with loading values between 0.74 and 0.89, thereby exceeding the recommended minimum of 0.70. The Com-

posite Reliability (CR) values fell within the range of 0.81 to 0.85, well above the acceptable threshold of 0.70. Similarly, the Average Variance Extracted (AVE) values were between 0.67 and 0.68, surpassing the 0.50 criterion for convergent validity. Discriminant validity was also confirmed, as all HTMT ratios were below the conservative cutoff value of 0.85.

Table 1. Measurement Model.

Construct	Indicator	Loading	CR	AVE
Yantek Mobile	YM1	0.80	0.85	0.67
	YM2	0.87		
	YM3	0.79		
	YM4	0.81		
Perceived Usefulness	PU1	0.74	0.81	0.68
	PU2	0.83		
	PU3	0.89		
Technical Service Performance	TP1	0.83	0.84	0.67
	TP2	0.84		
	TP3	0.81		
	TP4	0.77		

Source: Author's own calculation using SMART-PLS ver 4 (2025)

4.3 Structural Model.

The results in Table 2 demonstrated significant relationships: Yantek Mobile on PU ($\beta = 0.76$, $p = 0.000$), PU on Performance ($\beta = 0.41$, $p = 0.001$), and Yantek Mobile on Performance ($\beta = 0.39$, $p = 0.002$). Mediation analysis showed that PU partially mediated the effect of Yantek Mobile Implementation on Performance, with an indirect effect of 0.31 ($p = 0.002$).

Table 2. Structural Model.

Path	Coeficient (β)	t-statistic	p-value	Decision
Yantek Mobile → PU	0.76	17.68	0.000	Supported
PU → Performance	0.41	3.41	0.001	Supported
Yantek Mobile → Performance	0.39	3.07	0.002	Supported
Indirect Effect (X→PU→Y)	0.31	3.16	0.002	Supported

Source: Author's own calculation using SMART-PLS ver 4 (2025)

4.4 Model Quality Assessment.

The R^2 values were 0.49 (PU) and 0.59 (Performance), indicating moderate explanatory power. Effect size (f^2) showed that Yantek Mobile had a large impact on PU (0.54), PU had a medium impact on Performance (0.19), and Yantek Mobile had a small-to-medium impact on Performance (0.11). Predictive relevance (Q^2) values were 0.31 (PU) and 0.36 (Performance), confirming predictive validity. The GoF index was 0.57, above the 0.36 threshold, indicating strong model fit.

Table 3. Model Quality Assessment.

Path	R^2	f^2 Effect Size	Q^2	GoF
Yantek Mobile → PU	0.49	0.54 (large)	0.31	
PU → Performance		0.19 (medium)		
Yantek Mobile → Performance	0.59	0.11 (small-medium)	0.36	0.57

Source: Author's own calculation using SMART-PLS ver 4 (2025)

5 Discussion

The results of the analysis provide strong empirical support for the relationships between Yantek Mobile Implementation, Perceived Usefulness (PU), and Technical Service Performance. The findings indicate that Yantek Mobile significantly enhances PU, which in turn exerts a notable influence on performance outcomes. Moreover, mediation testing confirmed that PU partially mediates the connection between Yantek Mobile and performance, suggesting that the system improves efficiency not only directly, through better task allocation and reporting, but also indirectly by shaping officers' perceptions of its utility.

Beyond these statistical outcomes, the findings are consistent with the theoretical underpinnings of the Technology Acceptance Model (TAM) and the Information Systems Success Model (ISSM). The observed strong link between Yantek Mobile and PU emphasizes the role of information quality and system quality as key drivers of userperceived benefits in digital service operations [3, 4]. This supports prior research, which argues that technical characteristics of systems have a direct effect on user attitudes and subsequent behavioral responses [3].

The significant impact of PU on service performance further corroborates TAM's proposition that perceived usefulness is central to improving employee outcomes [4]. Officers who view Yantek Mobile as enhancing efficiency, effectiveness, and productivity are more likely to deliver reliable services, meet deadlines, and act with accountability. The partial mediation effect also demonstrates that, although system attributes directly enhance performance, their contribution is amplified when users recognize the system's value for their work.

These outcomes are in line with existing empirical studies. For instance, research at Indonesia Power UPJP Kamojang reported that digital transformation significantly improved both task-related and contextual employee performance [8]. Similarly, studies

in the banking industry revealed that digital competence and leadership foster employee outcomes through self-efficacy [9]. In the public sector, digital transformation has been shown to indirectly enhance performance by stimulating innovation and organizational learning [10]. Research on mobile applications, such as m-CRM, also established that information and system quality improve performance by increasing user satisfaction [11]. This study extends such evidence by highlighting the mediating role of PU in linking system implementation to performance in the specific context of a state-owned utility in Indonesia.

Despite these contributions, several limitations must be acknowledged. The data were collected solely from PLN UP3 Makassar Selatan, which may limit the generalizability of the findings to other organizational contexts. In addition, the cross-sectional nature of the design restricts the ability to assess the long-term consequences of Yantek Mobile adoption. The study also focused exclusively on PU as a mediator, without considering other potential factors such as user satisfaction, digital competence, or organizational support. Future research should broaden the scope by including multiple PLN branches across various regions, employing longitudinal methods to capture changes over time, and incorporating additional constructs such as organizational culture, digital literacy, and user satisfaction to provide a more comprehensive understanding of how digital transformation influences performance in utility services.

In sum, the present findings provide methodologically robust evidence that the observed performance gains associated with Yantek Mobile are not artefacts of measurement error but reflect substantively meaningful relationships that satisfy established PLS-SEM quality expectations. The measurement model demonstrates adequate reliability and convergent validity, aligning with recommended evaluation procedures for variance-based structural modelling and strengthening confidence in the interpretability of the structural estimates [13, 14]. Furthermore, the confirmation of discriminant validity using the HTMT criterion indicates that Yantek Mobile implementation, perceived usefulness, and technical service performance are empirically distinct constructs, thereby reducing the risk of construct overlap inflating path estimates and reinforcing the credibility of the mediation inferences [15]. Taken together, these methodological assurances support a clear practical implication: investments in system and information quality are most likely to translate into durable operational improvements when PLN simultaneously safeguards measurement integrity in its evaluation routines and actively cultivates user perceptions of usefulness as a behavioural pathway through which digital systems yield frontline performance benefits.

6 Conclusion

This study shows that technical service performance is much enhanced by Yantek Mobile's deployment, both directly and indirectly through Perceived Usefulness (PU). The findings demonstrate that users' favorable opinions of the system's utility, along with its dependability and quality of information, have a significant influence on the amount, caliber, timeliness, and responsibility of labor.

Theoretically, the study contributes by integrating TAM and ISSM within the context of a public utility in a developing country, offering evidence that PU plays a crucial mediating role in linking system implementation with performance outcomes. Practically, the findings provide important insights for Indonesia's state-owned electricity company (PLN). Investments in reliable systems, accurate and timely information, and responsive features will enhance officers' perceptions of usefulness, thereby improving service performance.

Overall, this research highlights that digital transformation in public utilities is most effective when technological improvements are complemented by fostering positive user perceptions. The results reinforce the importance of aligning system design with frontline employees' needs to maximize the benefits of mobile-based field service management applications.

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