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Work productivity in the digital payment era: the roles of the pospay application, competition, and electronic service quality

Surahman[1], Bachtiar Rifai S[2], Novelia Kiki Permatasari[3]*

[1,3] Accounting Study Program, Faculty of Economics and Business, Mathlaul Anwar University, Banten, Indonesia

[2] Management Study Program, Faculty of Economics and Business, Mathlaul Anwar University, Banten, Indonesia

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ABSTRACT

This study examined the effects of the quality of the Pospay application system and the level of competition in the digital payment era on work productivity, with electronic service quality as a moderating variable. The study addressed the challenge of maintaining work productivity amid rapid digital payment development and increasing competition in postal services. A quantitative research approach was employed. The population comprised of users of the Pospay application at the Post Office of Pandeglang Regency. A purposive sampling technique was applied, resulting in 300 respondents. Primary data were collected through questionnaire distribution. The data were analyzed using statistical techniques to test direct and moderating effects among variables. The findings indicated that the quality of the Pospay application system had a significant effect on work productivity. The level of competition in the digital payment era also significantly influences work productivity. Electronic service quality significantly moderated the relationship between the quality of the Pospay application system and work productivity, as well as the relationship between competition and work productivity. These results emphasize the importance of system quality, competitive conditions, and electronic service quality in enhancing work productivity within digital payment services.

Corresponding Author:

Novelia Kiki Permatasari
Accounting Study Program,
Mathlaul Anwar University,
Jalan Raya Labuan KM 23, Cikaliung, Sindanghayu, Saketi, Kabupaten Pandeglang, Banten 42273.
Email: velkawijaya@gmail.com

1. INTRODUCTION

The development of financial technology in Indonesia is showing very rapid growth, marked by the increasing use of digital wallets by the public in various daily transaction activities (Databoks, 2023). This phenomenon not only reflects a shift in consumer behavior toward more practical and efficient cashless transactions but also indicates a tendency for users to utilize more than one digital payment application simultaneously to

adapt to diverse transaction needs (Financial, 2022). This condition has created increasingly fierce competition in the digital payments industry.

This massive digital transformation has also impacted the service sector, including the courier and logistics industry, which has seen increasing transaction volumes in line with the growth of e-commerce (Wijaya et al, 2024). Increasingly intense competition is driving service companies to optimize the use of digital technology to improve operational efficiency and work productivity (Ekonomi, 2022). In this context, work productivity is a key indicator of a company's success in maintaining competitiveness amidst rapidly changing market dynamics (Setiawan, 2020).

In response to this digitalization phenomenon, PT Pos Indonesia launched the Pospay digital wallet application as part of its digital financial services transformation strategy (Pospay, 2023). The Pospay application is designed to facilitate various digital financial transactions, supported by an extensive postal service network (Katadata, 2022). However, despite Pospay's significant potential in supporting digital work activities and financial services, its utilization and optimization still face challenges amidst the dominance of other, more established digital payment applications (Zhou, 2020).

This phenomenon demonstrates that the success of digital payment applications is determined not only by the availability of technology, but also by the quality of the application system, which is able to support user work effectiveness (DeLone et al, 2020). A system that is easy to use, reliable, secure, and responsive is believed to increase task completion efficiency and positively impact work productivity (Anastasya, 2020). Therefore, the quality of the Pospay application system is considered an important factor influencing work productivity.

In addition to system quality, the level of competition in the digital payment era is also a strategic phenomenon that impacts work performance and productivity (Ofori et al, 2020). Competition drives companies to continuously innovate and improve service quality to retain users and increase operational efficiency (Susanto, 2021). However, most previous studies have focused on the effects of digital competition on customer satisfaction, loyalty, technology adoption, and user behavior. Limited attention has been given to explaining how digital competition influences employee performance and work productivity within organizations. Consequently, the mechanisms through which competitive pressure contributes to productivity improvement remain insufficiently explored in the existing literature. However, most previous research has focused more on the impact of competition on user satisfaction or loyalty, while its influence on work productivity remains relatively underexplored. Therefore, this study assumes that the level of competition in the digital payment era significantly influences work productivity.

Furthermore, previous research generally analyzed application system quality and competition level as stand-alone variables, without considering the role of e-service quality as a contextual factor (Nugroho, 2021). However, e-services, including ease of use, reliability, security, and responsiveness, have the potential to strengthen the effectiveness of application systems in supporting work productivity (Santos, 2021). These limitations indicate the existence of a research gap that underlies the need to examine the moderating role of e-service quality in the relationship between the quality of the Pospay application system and work productivity (Sharma, 2022).

In addition, limited studies have examined the role of e-service quality in strengthening the influence of competition in the digital payment era on work productivity, particularly in the context of state-owned service companies (Salsabilla, 2022). Quality electronic services can become an important differentiating factor in facing competitive pressures and sustainably improving work efficiency (Pratama, 2023). Therefore, this study also examines the moderating role of e-service quality in the relationship between the level of competition in the digital payment era and work productivity.

Based on the above description, the urgency of this research lies in the need to understand the factors that influence work productivity in the context of digital payment application adoption amidst increasingly fierce competition. Most previous studies on digital payment services have been conducted in private fintech companies and commercial e-wallet platforms. Empirical evidence from state-owned digital service platforms remains limited. Therefore, the Pospay application, as a digital transformation product of PT Pos Indonesia, provides a unique context for examining how digital technology, competition, and electronic service quality contribute to work productivity. This study contributes to the literature by extending the discussion of digital payment systems beyond customer-related outcomes and focusing on work productivity. In addition, this study provides empirical evidence from a state-owned service organization, thereby enriching the literature on technology-based work productivity in public-oriented digital service environments.

The novelty of this research lies in the integrative examination of the relationship between application system quality and the level of competition on work productivity by placing electronic service quality as a moderating variable.

2. RESEARCH METHOD

This study uses a quantitative approach with primary data. Primary data were obtained directly from respondents through a structured questionnaire compiled based on research variable indicators. The research instrument was developed based on relevant literature and previous research, particularly those related to application system quality, competition level, e-service quality, and work productivity, ensuring a strong theoretical foundation for the instrument.

Data collection was conducted by distributing questionnaires to Pospay app users in Pandeglang City. The questionnaires were distributed online using Google Forms to facilitate respondents' access and independent completion of the research questionnaire. Each statement was written clearly and concisely so that respondents could understand the question's intent and provide objective answers based on their experience using the Pospay app.

The variables in this study were measured using a five-level Likert scale, with a score range of 1 (strongly disagree) to 5 (strongly agree). The Likert scale was used to obtain quantitative data that could describe respondents' perceptions of the research variables in a measurable and systematic manner. The indicators for each variable are shown in the table below.

Tabel 1. Operasional Variabel

Variables Study	Definition Variables	Indicator
Quality System Application Pospay	Application Pospay is a digital platform based on account Giropos that allows owner account For access service Giropos, transactions finance, and other PT. Pos Indonesia services through device mobile they. (Aini et al., 2022)	Reliability system Flexibility system System integration Accessibility system Response time system
Level of Competition in the Digital Payment Era	Digital Payments are increasingly popular in society, as shown by the competition application digital payments emerging in Indonesia. (Kusuma, 2023)	Features and innovations *Brand image* Cost transaction Availability service direct and accessibility
Productivity Work	Productivity Work is ability For produce goods and services from something power work, machine, or factors production others that count based on comparison between results achieved with role as well as power work per unit time. (Sugiono, 2019)	Quality Work Accuracy time

Quality Electronic Services	Ability service For fulfil needs and expectations customer through electronic media called quality service Electronic *Service Quality* (Silvi Septiawati, 2024)	Ability customer access to application postpay
		The speed of the process of accessing and leaving application
		Speed level confirmation service application functioning with Good

The study population was all Pospay app users in Pandeglang City, with a total population of 36,748 users. The sampling technique used was purposive sampling, which selects samples based on specific criteria relevant to the research objectives. These criteria include respondents being active Pospay app users and having made transactions using the app. Active Pospay users were selected as the primary respondents because they have direct experience in using the application features and electronic services provided by Pospay. Their experience enables them to evaluate the quality of the application system, perceive the competitive environment of digital payment services, and assess the contribution of these factors to their work productivity. Therefore, active users are considered the most appropriate respondents for providing accurate and relevant information related to the variables examined in this study.

To ensure that the sample adequately represented Pospay users in Pandeglang Regency, respondents were selected based on several characteristics, namely: (1) being registered Pospay users, (2) actively conducting transactions through the application, (3) residing in Pandeglang Regency, and (4) having sufficient experience in using the application to evaluate its system quality and electronic service quality. These characteristics were considered relevant because they reflect the actual user population and support the objective assessment of work productivity in the context of digital payment services. Based on this technique, the sample size obtained and analyzed in this study was 400 respondents, which is considered to meet the minimum sample size for Structural Equation Modeling–Partial Least Squares (SEM-PLS) analysis.

Data analysis was performed using SmartPLS software version 4.0. The analytical techniques used included descriptive statistical analysis to describe respondent characteristics and response patterns, and SEM-PLS analysis to test causal relationships between research variables and the role of moderating variables. The SEM-PLS method was chosen because it is capable of analyzing complex structural models, does not require strict data normality assumptions, and is suitable for predictive research.

Evaluation of the measurement model (outer model) was conducted through convergent validity tests, discriminant validity tests, and construct reliability tests to ensure that each indicator was able to measure the research construct accurately and consistently. Furthermore, evaluation of the structural model (inner model) was conducted through a coefficient of determination (R-Square) test to assess the ability of the independent variables to explain variations in the dependent variable.

Hypothesis testing was carried out using the bootstrapping technique in SmartPLS to obtain path coefficient values and significance levels, so that it can be determined whether the research hypothesis is accepted or rejected according to the established testing criteria.

3. RESULTS AND DISCUSSIONS

The results of the respondents distributed according to the sample calculation were 400 respondents from 36,748 research respondent populations or approximately 1.08%. Respondent characteristics consisted of gender, age, last education, and occupation. The majority of the respondents' responses were dominated by women (244 people) (61%),

aged 21 to ~ 25 years (182 people) , the last education was dominated by high school (223 people) (56%), and occupations were dominated by others (154 people) (39%). Descriptive Statistical Analysis of Respondent Responses. Respondent responses to the distributed questionnaire were measured using a 5-point Likert scale. Convergent validity is part of the measurement model (measurement model) which in SEM-PLS is usually referred to as the outer model. The following are the results of the convergent validity test that has been calculated by the algorithm on 400 data from research respondents. An indicator is said to be valid if it has a factor loading score >0.5. Furthermore, the Results of the Final Structural Model Test (Outer Loading) are shown in Figure 1.

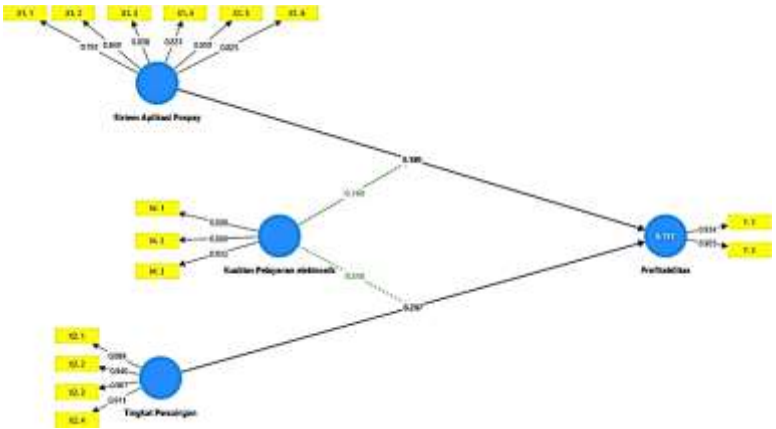

Figure 1. Final Structural Model Test Results (Outer Loading)

Validity and reliability testing aims to ensure the accuracy, consistency, and precision of measuring instruments in assessing a construct. Validity testing is conducted by analyzing the Average Variance Extracted (AVE) value, where a model is considered good if the AVE value for each construct is greater than 0.50. To measure construct reliability with reflective indicators, there are two commonly used methods: Cronbach's Alpha and Composite Reliability. A construct is declared reliable if the Composite Reliability or Cronbach's Alpha value is above 0.70. The results of this test are based on an analysis of 400 respondent data that have been collected. By using this approach, researchers can assess the extent to which the instrument used is reliable in measuring the variables studied.

Table 2. Test Results *Composite Reliability and Cronbach Alpha*

	Cronbach's alpha	*Composite reliability*	Information
Quality Service electronic	0.896	0.899	Reliable
Productivity Work	0.819	0.838	Reliable
Quality system Application Pospay	0.907	0.908	Reliable
Level of Competition	0.935	0.935	Reliable

Based on Table 2 which shows results testing reliability , good through mark Cronbach's Alpha and reliability composite , some construct exogenous and endogenous have proven reliable Because value obtained exceeds 0.70.

Tabel 3. *Average variance extracted (AVE) value*

	Average variance extracted (AVE)
Quality Service electronics (M)	0.828
Productivity Work (Y)	0.846
Quality System Application Pospay (X1)	0.682
Competition Level (X2)	0.836

Referring to Table 3, the test validity carried out with analyze mark Average Variance Extracted (AVE) shows that variables dependent variable independent, and variable moderation everything own value above 0.50. This is show that all variables the has fulfil criteria established validity based on AVE.

In assessing the structural model , the steps First is evaluate R-square value for every endogenous latent variables, which function as indicator strength the model's predictions. Testing structural model done with inspect R-square value as measure of goodness of fit. With an R-square value of 0.727, it can be concluded that 72.7% of the variance in Work Productivity is explained by the Quality of the Pospay Application System, the Level of Competition in the Digital Payment Era, and Electronic Service Quality as a moderating variable. The remaining 27.3% is influenced by other factors outside the model. Furthermore, the adjusted R-square value of 0.727 indicates that the model has strong explanatory power, suggesting that the selected variables are highly relevant in explaining work productivity in the context of digital payment services. Testing done through Estimate Path Coefficients, which involve bootstrapping calculation. The purpose of testing This is For ensure that mark estimate connection track in the structural model nature significant. This process aim For test results hypothesis that has been submitted. The results of bootstrapping analysis can seen in Figure 2.

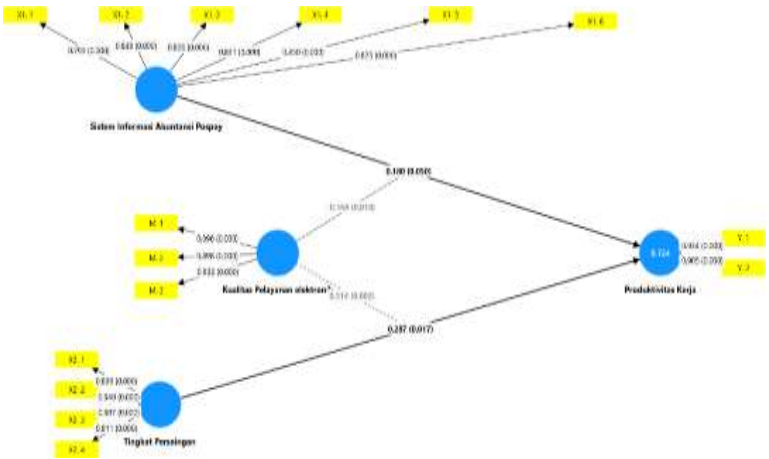

Figure 2. Structural Model Test Results Inner Model

Table 4. Test Results with Estimate Path Coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Quality System Application Pospay - > Productivity Work	0.180	0.158	0.092	1,958	0.025
Level of Competition -> Productivity Work	0.287	0.288	0.120	2,395	0.008
Quality Service electronics x Level of Competition - > Productivity Work	0.314	0.301	0.103	3,047	0.001
Quality Service electronic x Quality System Application Pospay - > Productivity Work	0.168	0.145	0.071	2,358	0.009

a. The Influence of the Quality of the Pospay Application System on Work Productivity

The results of the SEM-PLS analysis (SmartPLS 4.0) show that the quality of the Pospay application system has a positive and significant effect on work productivity, with a coefficient of 0.180 and P-Values of 0.025 (<0.05), thus the hypothesis H1 is accepted.

This effect occurs because a good quality application system directly reduces operational obstacles in the transaction process. A system that is easy to use, fast, stable, and accurate allows users to complete payment activities without errors and without reliance on manual processes, so that work time can be allocated more efficiently. For post office employees, a reliable system reduces the administrative burden and the risk of service errors, which ultimately increases work output at the same time (Jesslyn, 2023).

Furthermore, the quality of the application system creates trust and certainty in the work process, which encourages consistent application use. When the system is able to meet user expectations, work processes become more standardized and controlled, thereby increasing productivity through process efficiency, not through increased workload (Tran et al, 2023). This finding is consistent with previous research that suggests that the quality of the application system plays a key role in determining work productivity in digital-based work environments (Berliana et al, 2024).

b. The Impact of Competition Levels in the Digital Payment Era on Work Productivity

The results of the SEM-PLS analysis (SmartPLS 4.0) show that the level of competition in the digital payment era has a positive and significant effect on work productivity, with a coefficient value of 0.287 and a P-value of 0.008 (<0.05), thus the hypothesis H2 is accepted. This effect occurs because the high level of competition encourages companies to improve operational efficiency and accelerate service innovation. In conditions of digital competition, companies are required to simplify work processes, optimize the use of technology, and reduce non-value-added activities. This directly increases employee work effectiveness and accelerates task completion, thereby increasing work productivity (Sfenrianto, 2020).

Furthermore, competition in the digital payment era forces management to be more responsive to user needs by improving service quality and customizing application features. User-centric innovations create more standardized and efficient work processes, enabling employees to work with clearer targets and more optimal work systems. This explains why increased competition does not decrease performance but instead triggers increased work productivity (Kurniawan, 2021).

This finding is consistent with previous research which stated that the level of competition in the digital payment sector has a significant impact on work productivity because it encourages companies to continuously improve operational efficiency and performance (Sánchez, 2020).

c. The Role of Electronic Service Quality in Moderating the Effect of Pospay Application System Quality on Work Productivity

The results of the SEM-PLS analysis (SmartPLS 4.0) show that electronic service quality can moderate the effect of the quality of the Pospay application system on work productivity, with an interaction coefficient value of 0.168 and P-Values of 0.009 (<0.05), thus the hypothesis H3 is accepted. This moderating role occurs because good application system quality will not optimally increase work productivity without being supported by adequate electronic service quality. Electronic services that include ease of access, transaction reliability, security, and responsiveness to user complaints strengthen the benefits of the application system, so that users can utilize the application features more effectively and consistently. This condition makes the work process smoother and more efficient, which ultimately increases work productivity (Mubeen, 2021).

Furthermore, quality e-services create a sense of trust and assurance for users, thereby reducing psychological barriers to using digital systems. When e-services are perceived as satisfactory, users are more tolerant of system complexity and focus more on completing tasks, rather than technical challenges. This explains why e-service

quality can strengthen the relationship between application system quality and work productivity (Wang, 2022).

The findings of this study are in line with previous research which stated that electronic service quality plays a reinforcing factor in the relationship between application system quality and work productivity, especially in the context of application-based digital services (Kurniawan, 2021).

d. The Role of Electronic Service Quality in Moderating the Influence of Competition Levels in the Digital Payment Era on Work Productivity

The results of the SEM-PLS analysis (SmartPLS 4.0) show that the quality of electronic services moderates the influence of the level of competition in the digital payment era on work productivity, with an interaction coefficient value of 0.314 and a P-Value of 0.001 (<0.05), indicating that H4 is accepted. This finding suggests that high-quality electronic services strengthen the positive impact of competition on work productivity. In a highly competitive environment, companies are encouraged to innovate and improve their services; however, the benefits of these innovations can only be fully realized when supported by reliable, responsive, secure, and user-friendly electronic services (Jesslyn, 2023). As a result, users and employees can utilize digital services more efficiently, leading to improved work productivity. Furthermore, high-quality electronic services help organizations create more standardized and efficient work processes, enabling employees to focus on value-added activities and further enhancing work productivity (Wijaya, 2024).

The findings of this study are in line with previous research which stated that the quality of electronic services acts as a moderating variable that strengthens the influence of the level of competition in the digital payment era on work productivity (Sfenrianto, 2020). These findings imply that PT Pos Indonesia should continuously improve the quality of its digital services, particularly in terms of system reliability, service responsiveness, transaction security, and ease of use. Strengthening these aspects will not only enhance user experience but also improve work productivity and support the sustainability of the company's digital transformation initiatives.

4. CONCLUSION

This research shows that the quality of the Pospay application system and the level of competition in the digital payment era significantly influence work productivity. In addition, electronic service quality strengthens the effects of both application system quality and competition level on work productivity. These findings indicate that system quality, competitive dynamics, and electronic service quality are important factors in enhancing work productivity within digital payment services. The findings imply that state-owned enterprises, particularly PT Pos Indonesia, should continuously improve application system quality and electronic service quality to support digital transformation, strengthen competitiveness, and enhance operational performance. Future research may examine additional factors affecting work productivity, such as digital literacy, user trust, and technology readiness, as well as compare digital payment platforms across different organizational contexts.

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