



Algorithm Transparency, Seller Trust, and Service Quality on Indonesian Marketplace Platforms

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Abstract

Background: Online marketplaces increasingly rely on algorithmic systems to determine product visibility, ranking positions, and seller performance evaluations. When sellers have a limited understanding of how these mechanisms operate, uncertainty may arise, potentially affecting the seller–platform relationship.

Objective: This study examines the relationship between algorithm transparency and seller service quality and assesses whether sellers' trust in the platform mediates this relationship.

Methods: An explanatory quantitative research design was adopted, with 150 Indonesian marketplace sellers recruited through purposive sampling. A questionnaire comprising 16 items measured algorithm transparency, sellers' trust in the platform, and seller service quality using a five-point Likert scale. The data were analyzed using partial least squares structural equation modeling (PLS-SEM), including assessments of the measurement and structural models and hypothesis testing.

Results: The findings indicate that algorithm transparency is positively and significantly associated with seller service quality ($\beta = 0.569, t = 5.130, p < 0.001$) and seller trust in the platform ($\beta = 0.811, t = 23.451, p < 0.001$). Seller trust in the platform is also positively and significantly associated with seller service quality ($\beta = 0.346, t = 3.224, p = 0.001$). Furthermore, seller trust in the platform mediates the relationship between algorithm transparency and seller service quality ($\beta = 0.280, t = 3.109, p = 0.002$).

Conclusion: Algorithm transparency is positively associated with seller service quality and sellers' trust in the platform. The findings highlight the need for marketplaces to communicate clear and readily understandable information about algorithmic mechanisms, particularly those governing product rankings, visibility, performance evaluations, and algorithmic changes. Such transparency may help build sellers' trust and improve the quality of services delivered to consumers.

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INTRODUCTION

The expansion of the digital economy has turned marketplaces into one of the main avenues through which small businesses and sellers can reach a broader audience (Cutolo & Kenney, 2021; Nzembayie et al., 2024). Indonesia's e-commerce sector has grown considerably, with transaction

values of roughly USD 62 billion in 2024 and an estimated 21.4 million sellers active across leading platforms such as Shopee, Tokopedia, and Bukalapak (Anchanto, 2025). Within this environment, what sellers do is increasingly shaped by systems that the platforms themselves control. Functions such as product ranking, the allocation of visibility, recommendations, performance assessment, and even account-level penalties are progressively handled through algorithmic systems (Kellogg et al., 2020; Li et al., 2025). As a result, platforms hold considerable power over how sellers become visible and engage with consumers. Among the particular problems produced by this algorithmic control are opaque ranking criteria, abrupt shifts in product visibility with no advance warning, and ambiguity in seller performance evaluations that may result in account restrictions or diminished discoverability. For sellers, grasping how these algorithmic systems operate is essential, since variations in product visibility can influence how easily a product is found, the volume of interactions, and overall sales activity (Bačák et al., 2025; Bose, 2025; Sardianos & Briana, 2026).

This concern is tied to the notion of algorithm transparency. The algorithms underpinning digital platforms are complex enough that their decision-making processes are hard for users to comprehend (Alacovska et al., 2025; H. A. Rahman, 2021; M. Rahman & Islam, 2026). According to Burrell (2016) Sindayigaya & Dey (2022), such algorithmic opacity may arise from deliberate concealment, users' restricted technical knowledge, or the inherent intricacy of machine-learning systems. Within marketplaces, this can produce information asymmetry between the platform and its sellers, because the platform holds superior knowledge of the mechanisms that govern visibility and seller assessment. Whereas the traditional form of information asymmetry casts the buyer as the party lacking information about the goods a seller offers, in a platform ecosystem it is the sellers who are constrained in understanding the mechanisms the platform applies to evaluate and regulate what they do.

Algorithm transparency matters because making the workings of algorithms and the factors behind algorithmic decisions more open can lessen the uncertainty sellers experience (Kadolkar et al., 2025). Here, algorithm transparency is defined as the extent to which information about a platform's algorithmic system including its decision-making criteria, ranking factors, and evaluation mechanisms is accessible, explainable, and comprehensible to those subject to algorithmic decisions (Grimmelikhuijsen, 2023). This definition centers on the dimensions of information disclosure and explainability rather than on algorithmic fairness, which is treated as a separate construct. Grimmelikhuijsen (2023) shows that algorithm transparency, especially via accessibility and explainability, relates to greater perceived trustworthiness. Similarly, Park & Yoon (2024) report that algorithmic transparency can strengthen trust in the system. Together, these results support the idea that openness about algorithmic mechanisms can encourage a more favorable evaluation of a platform's credibility and reliability.

Sellers' trust in the platform is vital because marketplace sales are carried out through systems that the platform largely governs. To run their businesses, sellers depend on the platform's rules, evaluation systems, search algorithms, recommendations, and management mechanisms (Guo et al., 2018; Sun & Qu, 2025). Such trust represents sellers' conviction that the platform is dependable, enforces its rules even-handedly, and maintains a trustworthy system. When details about algorithmic mechanisms are made clearly available, sellers are better positioned to understand the platform's decisions and to form judgments about how reliable the system is.

Evidence from research on digital systems reinforces the connection between algorithm transparency and trust. Studies published in Decision Support Systems indicate that different forms of algorithmic transparency can strengthen trusting beliefs, with trust helping to account for the acceptance and use of algorithmic recommendations (Ning et al., 2024). Such results imply that trust may operate as a mechanism that links perceptions of system openness to how users behave. Within marketplaces, this relationship can be applied to sellers, who engage directly with the platform's system and deliver services to consumers.

The quality of a seller's service is a key element of successful marketplace transactions, since the service a seller provides also shapes the consumer's experience. Studies of electronic service quality have pointed to several facets of digital service, among them reliability, service fulfillment, and responsiveness. For sellers operating in marketplaces, service quality manifests in how quickly they answer consumer inquiries, the accuracy of the product information they provide, their delivery of orders as promised, their capacity to resolve complaints, and the dependability of their service. This

dimension of quality forms an inseparable part of the consumer's experience when transacting through the marketplace.

Algorithm transparency may affect the quality of a seller's service by influencing how sellers adjust their conduct to the platform's system. When information about algorithmic factors is clearer, sellers can more readily grasp the rules, standards, and evaluation mechanisms the platform employs. That comprehension gives sellers a foundation for handling their sales activities and customer service in a more focused way. Trust in the platform, too, can shape how sellers react to the rules and systems in place, and sellers with greater trust in the platform may be more willing to accept the mechanisms used to manage their activities.

Studies conducted on Indonesian marketplaces offer pertinent insights for developing this relationship. Using a sample of 250 Indonesian marketplace users and a PLS-SEM approach, Erwinda & Asriyanti (2025) investigated how marketplace algorithm transparency relates to consumer trust and to online purchase decisions. Their results indicated that algorithmic transparency is positively linked to consumer trust and that trust mediates the connection between algorithmic transparency and purchase decisions. Such evidence shows that algorithmic transparency is empirically relevant to how trust forms in Indonesian marketplaces. That study, however, concentrated on consumers as its respondents, leaving the experiences of sellers who deal directly with the marketplace's algorithmic system largely unaddressed.

A careful review of the existing literature exposes clear gaps that the present study seeks to close. Grimmelikhuijsen (2023) studied algorithm transparency within public-sector automated decision-making using citizen respondents, and Ning et al. (2024) looked at transparency in algorithm-based advisory systems with general users, yet neither treated marketplace sellers as the unit of analysis. Erwinda & Asriyanti (2025) extended the field by studying algorithm transparency in Indonesian marketplaces, but their respondents were consumers rather than sellers, and service quality was not included as an outcome variable. In addition, work on platform governance Koo (2024) and Koo & Eesley (2021) has centered on how sellers behaviorally respond to changes in platform design without treating trust as a mediating mechanism or capturing service-quality outcomes. This study addresses that gap by investigating the interplay of algorithm transparency, trust, and service quality from the sellers' standpoint, drawing on sellers who interact directly with marketplace algorithmic systems as respondents.

Because consumers and sellers occupy different positions, they encounter the marketplace's algorithmic system in distinct ways. Consumers mainly receive the outputs of algorithmic decisions, such as recommendations, search rankings, or featured products. Sellers, by contrast, must contend with the mechanisms that set product visibility, performance evaluations, and the chances of reaching consumers. For sellers, knowing how the algorithms function can serve as a basis for understanding how the platform appraises their activities. Such understanding may, in turn, shape their trust in the platform and the way they serve consumers.

Several studies have addressed algorithm transparency, trust, platform governance, and service quality in isolation from one another. Platform-governance research considers how platform owners coordinate their relationships with complementary parties by means of rules and coordination mechanisms (Jacobides et al., 2018; Pawar, 2023). A large part of the electronic service quality literature gauges service quality through consumer evaluations (Ghosh, 2018; Zia et al., 2023). Work on algorithmic transparency has established its link to user trust (Grimmelikhuijsen, 2023; Ning et al., 2024; Park & Yoon, 2024), and Erwinda & Asriyanti (2025) supply empirical evidence on the ties among algorithmic transparency, trust, and purchasing decisions among Indonesian marketplace users. Taken together, this literature offers a solid basis for exploring a comparable relationship from the sellers' point of view.

Building on the preceding discussion, this study sets out to address the following questions: can a platform's openness about its algorithmic system prompt sellers to deliver better service, and does trust in the platform act as a mediating mechanism that explains this link? These questions underpin the testing of the relationships among algorithm transparency, sellers' trust in the platform, and sellers' service quality in Indonesian marketplaces. In the study, algorithmic transparency is positioned as the independent variable, sellers' trust in the platform as the mediating variable, and the quality of sellers' services as the dependent variable. By means of this model, the study aims to furnish empirical evidence on the relationships between a platform's algorithmic governance, sellers' trust, and the quality of

services rendered to consumers.

METHOD

This research adopted a quantitative method with an explanatory design to investigate the relationships among algorithm transparency, sellers' trust in the platform, and sellers' service quality on Indonesian marketplaces. The population comprises sellers who operate on marketplaces in Indonesia. Data were gathered through a structured questionnaire built on a five-point Likert scale running from 1 (strongly disagree) to 5 (strongly agree). The instrument covers three principal constructs Algorithm Transparency (X) with 6 items, Sellers' Trust in the Platform (Z) with 5 items, and Seller Service Quality (Y) with 5 items amounting to 16 statements in total.

Data were obtained from 150 respondents selected through purposive sampling. These respondents were drawn from sellers active on leading Indonesian marketplace platforms including Shopee, Tokopedia, and Bukalapak with the questionnaire distributed online through seller community groups and social media channels. Eligibility required respondents to be at least 18 years old; to be sellers transacting through marketplaces in Indonesia; to have used a marketplace for selling for a minimum of six months; to remain actively selling when the data were collected; and to have used or engaged with marketplace features relating to search, recommendations, product or store ratings, performance evaluations, or other sales-management functions. Respondents were further asked to complete the entire questionnaire and to answer on the basis of their own experience as sellers. The questionnaire items were constructed from indicators drawn from earlier research and adapted to the characteristics of marketplace sellers in Indonesia.

Each research variable was operationalized as described below. Algorithm Transparency (X) was captured through six indicators adapted from Grimmelikhuijsen (2023) and Ning et al. (2024): accessibility of information on ranking criteria (X.1), explainability of algorithmic decisions (X.2), clarity of performance-evaluation mechanisms (X.3), transparency of visibility-allocation factors (X.4), comprehensibility of recommendation-system criteria (X.5), and communication of algorithm changes (X.6). Sellers' Trust in the Platform (Z) was assessed with five indicators adapted from Qin et al. (2022) and Guo et al. (2018): reliability of the platform system (Z.1), fairness in applying rules (Z.2), consistency of platform mechanisms (Z.3), trustworthiness of the evaluation system (Z.4), and confidence in the platform's dispute resolution (Z.5). Seller Service Quality (Y) was measured via five indicators adapted from Parasuraman et al. (2005), Parasuraman, A., Zeithaml, V.A. and Malhotra (2025) and Ghosh (2018): responsiveness to consumer inquiries (Y.1), accuracy of product information (Y.2), reliability of order fulfillment (Y.3), effectiveness of complaint handling (Y.4), and consistency of service delivery (Y.5).

The data were analyzed with Structural Equation Modeling-Partial Least Squares (SEM-PLS). This technique was chosen because the research model comprises latent constructs captured through multiple indicators and tests both direct relationships and the mediating role of Sellers' Trust in the Platform. The analysis covered both the measurement model and the structural model. The measurement model was judged on convergent validity, construct reliability, and discriminant validity: convergent validity was examined through outer loadings and the Average Variance Extracted (AVE), whereas construct reliability was gauged with Cronbach's Alpha and Composite Reliability. Discriminant validity was checked using cross-loadings and the Heterotrait-Monotrait ratio (HTMT). The structural model was then appraised using R^2 , effect size (f^2), predictive relevance (Q^2), and SRMR.

Hypotheses were tested through the bootstrapping procedure within SEM-PLS, applying a 5% significance level (p -value < 0.05). The analysis assessed the link between algorithm transparency and sellers' trust in the platform, the link between sellers' trust in the platform and seller service quality, and the link between algorithm transparency and seller service quality. In addition, an indirect-effect test was carried out to establish the mediating role of sellers' trust in the platform in the relationship between algorithm transparency and seller service quality. The outcomes of the direct and indirect effects were then used to identify the mediation pattern present in the research model.

RESULTS AND DISCUSSION

Result

Measurement Model Test (Outer Model)

Convergent Validity

Convergent validity is examined to establish how well the indicators represent the construct

under measurement. This assessment relies on the outer loading values together with the Average Variance Extracted (AVE). An indicator is taken to satisfy convergent validity when its outer loading reaches ≥ 0.70 , and the suggested AVE value is ≥ 0.50 . The outer loading results for every indicator in this study appear in Table 1.

Table 1*Outer Loading Values*

	Algorithm Transparency (X)	Seller Service Quality (Y)	Sellers' Trust in the Platform (Z)
X.1	0.809		
X.2	0.877		
X.3	0.877		
X.4	0.847		
X.5	0.794		
X.6	0.710		
Y.1		0.851	
Y.2		0.831	
Y.3		0.888	
Y.4		0.739	
Y.5		0.835	
Z.1			0.745
Z.2			0.731
Z.3			0.771
Z.4			0.774
Z.5			0.774

As Table 1 shows, every indicator belonging to Algorithm Transparency, Seller Service Quality, and Sellers' Trust in the Platform records outer loadings between 0.710 and 0.888. Since all of these exceed the 0.70 threshold, each indicator is regarded as satisfying the convergent-validity criteria. The largest loading belongs to indicator Y.3 at 0.888, and the smallest to X.6 at 0.710. These figures suggest that the indicators adequately capture their respective research constructs.

Beyond the outer loadings, convergent validity was further examined through the Average Variance Extracted (AVE) values. AVE reflects the average share of an indicator's variance that its construct is able to account for. The AVE results for the three research variables are reported in Table 2.

Table 2*Average Variance Extracted (AVE) Values*

	Average variance extracted (AVE)
Algorithm Transparency (X)	0.674
Seller Service Quality (Y)	0.689
Sellers' Trust in the Platform (Z)	0.576

According to Table 2, the AVE values reached 0.674 for Algorithm Transparency, 0.689 for Seller Service Quality, and 0.576 for Sellers' Trust in the Platform. Each of these surpassed the minimum benchmark of 0.50, so all three constructs fulfilled the convergent-validity criteria on the basis of their AVE values. This means that every construct explains more than half of the variance in the indicators used to measure it.

Discriminant Validity

Discriminant validity serves to confirm that each construct possesses distinct characteristics and that its indicators represent the intended construct more strongly than they do other constructs. The test employed cross-loading values, comparing how each indicator loads on its own construct

against how it loads on the remaining constructs. An indicator is deemed to achieve discriminant validity when its loading on the construct it measures exceeds its loadings on the other constructs. The cross-loading results are displayed in Table 3.

Table 3
Cross-Loading Values

	Algorithm Transparency (X)	Seller Service Quality (Y)	Sellers' Trust in the Platform (Z)
X.1	0.809	0.736	0.745
X.2	0.877	0.745	0.703
X.3	0.877	0.722	0.618
X.4	0.847	0.677	0.714
X.5	0.794	0.641	0.582
X.6	0.710	0.648	0.609
Y.1	0.679	0.851	0.703
Y.2	0.680	0.831	0.601
Y.3	0.808	0.888	0.739
Y.4	0.601	0.739	0.599
Y.5	0.736	0.835	0.695
Z.1	0.557	0.567	0.745
Z.2	0.595	0.587	0.731
Z.3	0.688	0.617	0.771
Z.4	0.566	0.568	0.774
Z.5	0.655	0.707	0.774

Table 3 indicates that every indicator loads most strongly on the construct it is intended to measure. Indicators X.1 to X.6 show their highest loadings on Algorithm Transparency, with values from 0.710 to 0.877. Indicators Y.1 to Y.5 load most heavily on Seller Service Quality, ranging from 0.739 to 0.888. Likewise, indicators Z.1 to Z.5 record their highest loadings on "Sellers' Trust in the Platform," spanning 0.731 to 0.774. Consequently, under the cross-loading criterion, all indicators satisfy discriminant validity, as each loads more strongly on its own construct than on the others.

To reinforce the evidence for discriminant validity, the Heterotrait-Monotrait ratio (HTMT) was also inspected. For every pair of constructs, the HTMT values fell beneath the 0.85 limit advised by Henseler et al. (2015) and Panzeri et al. (2024): Algorithm Transparency–Seller Service Quality (0.847), Algorithm Transparency–Sellers' Trust in the Platform (0.831), and Sellers' Trust in the Platform–Seller Service Quality (0.842). These figures confirm that discriminant validity holds across all constructs.

Composite Reliability

Reliability testing was performed to gauge the internal consistency with which the indicators measure each research construct. Construct reliability was assessed through Cronbach's Alpha, Composite Reliability (rho_a), and Composite Reliability (rho_c). A construct is judged reliable when both its Cronbach's Alpha and its Composite Reliability values exceed 0.70.

Table 4
Results of Construct Reliability Testing

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
Algorithm Transparency (X)	0.902	0.905	0.925
Seller Service Quality (Y)	0.886	0.894	0.917
Sellers' Trust in the Platform (Z)	0.816	0.819	0.872

As reported in Table 4, each construct records a Cronbach's Alpha above 0.70 0.902 for
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Algorithm Transparency, 0.886 for Seller Service Quality, and 0.816 for Sellers' Trust in the Platform. The Composite Reliability (rho_a) values likewise spanned 0.819 to 0.905, and the Composite Reliability (rho_c) values ranged from 0.872 to 0.925. These outcomes show that all constructs display sound internal consistency and satisfy the reliability criteria.

Structural Measurement Test (Inner Model)

Once the measurement-model testing confirmed that all constructs satisfied the validity and reliability criteria, the subsequent stage was to perform a structural (inner) model test. This test served to identify the relationships among the variables in the research model namely those linking Algorithm Transparency, Sellers' Trust in the Platform, and Seller Service Quality. The structural model of the research is depicted in Figure 1.

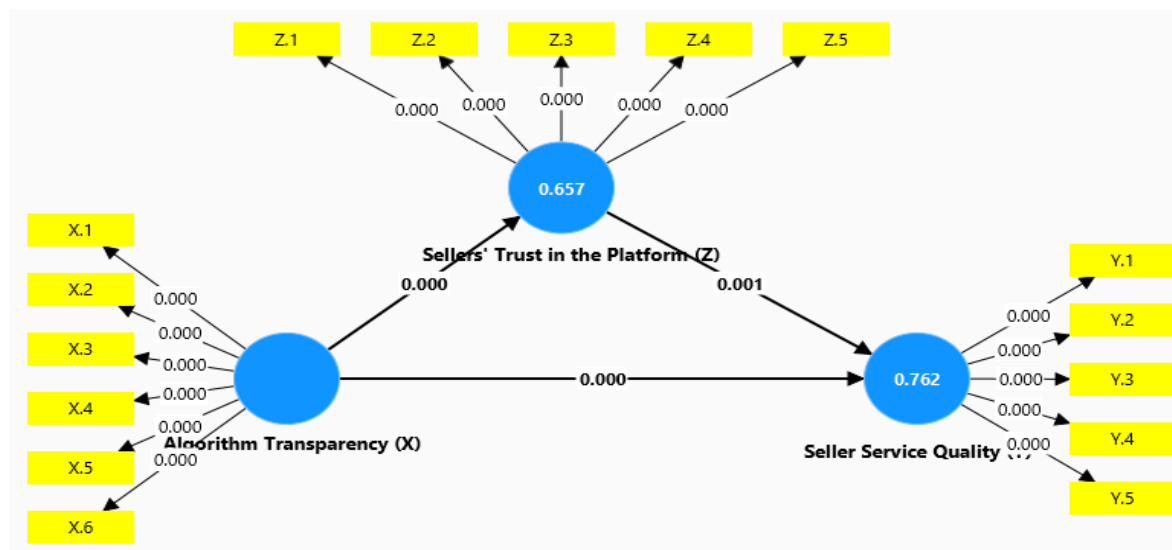


Figure 1. Structural Model of the Study

Figure 1 portrays the structural model, depicting the direct path from Algorithm Transparency to Sellers' Trust in the Platform, the path from Sellers' Trust in the Platform to Seller Service Quality, and the direct path from Algorithm Transparency to Seller Service Quality. The model additionally serves to examine whether Sellers' Trust in the Platform mediates the relationship between Algorithm Transparency and Seller Service Quality.

R-squared

The R-squared test was used to establish how well the exogenous variables account for the variation in the endogenous variables within the research model. The adjusted R-squared, which takes the number of predictors into consideration, serves as an additional measure. A higher R-squared value signifies a greater capacity of the predictor variables to explain the endogenous variable. The R-squared results for this study are set out in Table 5.

Table 5

R-Squared Values

	R-square	R-square adjusted
Seller Service Quality (Y)	0.762	0.759
Sellers' Trust in the Platform (Z)	0.657	0.655

Table 5 shows an R-squared of 0.762 for Seller Service Quality, with an adjusted R-squared of 0.759. These figures mean that Algorithm Transparency and Sellers' Trust in the Platform jointly account for 76.2% of the variation in Seller Service Quality, leaving the remaining 23.8% to factors outside the research model. For Sellers' Trust in the Platform, the R-squared is 0.657 and the adjusted R-squared 0.655, indicating that Algorithm Transparency explains 65.7% of its variation, while the other 34.3% is attributable to factors not captured by the model.

F-Square, Q-Square, and SRMR Tests

After the R-squared analysis, evaluation of the structural model proceeded with the effect size through the F-square value, predictive relevance through the Q-square value, and model fit through the Standardized Root Mean Square Residual (SRMR). The F-square value quantifies how much each exogenous variable contributes to the endogenous variable, whereas the Q-square value measures the model's predictive capacity for the endogenous variable. The SRMR assesses model fit by comparing the observed correlation matrix with the one the model produces. The results of the f-square, Q-square, and SRMR tests appear in Table 6.

Table 6*F-Square, Q-Square, and SRMR Tests*

Test	Variable/Relationship	Value	Description
F-Square	Algorithm Transparency (X) → Seller Service Quality (Y)	0.465	Large effect, indicating that Algorithm Transparency makes a strong contribution to Seller Service Quality.
F-Square	Algorithm Transparency (X) → Sellers' Trust in the Platform (Z)	1.917	Large effect, indicating that Algorithm Transparency makes a very strong contribution to Sellers' Trust in the Platform.
F-Square	Sellers' Trust in the Platform (Z) → Seller Service Quality (Y)	0.172	Small to moderate effect, indicating that Sellers' Trust in the Platform makes a relatively limited contribution to Seller Service Quality.
Q-Square	Seller Service Quality (Y)	0.515	High predictive relevance, indicating that the model has good predictive capability for Seller Service Quality.
Q-Square	Sellers' Trust in the Platform (Z)	0.366	Moderate to high predictive relevance, indicating that the model has good predictive capability for Sellers' Trust in the Platform.
SRMR	Saturated Model / Estimated Model	0.080	The model is at the commonly accepted threshold for SRMR.

The test results in Table 6 show f-square values of 0.465 for the effect of Algorithm Transparency on Seller Service Quality and 1.917 for its effect on Sellers' Trust in the Platform, both of which represent a large effect. Sellers' Trust in the Platform, by contrast, yields an f-square of 0.172 for Seller Service Quality, pointing to a small-to-moderate effect.

The Q-square values stand at 0.515 for Seller Service Quality and 0.366 for Sellers' Trust in the Platform. Because both exceed 0, the model demonstrates predictive relevance for the endogenous variables. The larger Q-square for Seller Service Quality reflects a stronger predictive capacity of the model for that variable than for Sellers' Trust in the Platform.

In addition, the SRMR values for both the saturated and the estimated models are 0.080. Since these lie within the generally accepted SRMR thresholds, the structural model can be regarded as having an acceptable fit. On this basis, the f-square, Q-square, and SRMR results together indicate that the model possesses adequate predictive power and fit to move on to testing the relationships among the variables and the mediation effects.

Hypothesis Testing

Once the structural model satisfied the evaluation criteria, the following step was to test the hypotheses in order to ascertain the significance of the relationships among the study's variables. Testing used the bootstrapping procedure in SEM-PLS at a 5% significance level ($p\text{-value} < 0.05$), with a hypothesis accepted when the $p\text{-value}$ was below 0.05 and the $t\text{-statistic}$ above 1.96. The tests addressed the direct relationship between Algorithm Transparency and Seller Service Quality, the

relationship between Algorithm Transparency and Sellers' Trust in the Platform, the relationship between Sellers' Trust in the Platform and Seller Service Quality, and the indirect effect operating through Sellers' Trust in the Platform as a mediating variable. The hypothesis-testing results are presented in Table 7.

Table 7*Results of Hypothesis Testing*

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Algorithm Transparency (X) -> Seller Service Quality (Y)	0.569	0.565	0.111	5.130	< 0.001
Algorithm Transparency (X) -> Sellers' Trust in the Platform (Z)	0.811	0.816	0.035	23.451	< 0.001
Sellers' Trust in the Platform (Z) -> Seller Service Quality (Y)	0.346	0.351	0.107	3.224	0.001
Algorithm Transparency (X) -> Sellers' Trust in the Platform (Z) -> Seller Service Quality (Y)	0.280	0.286	0.090	3.109	0.002

Drawing on Table 7, the hypothesis-testing results can be described as follows.

1. The results demonstrate a positive and significant relationship between Algorithm Transparency and Seller Service Quality, with an original sample value of 0.569, a t-statistic of 5.130, and a p-value below 0.001. Because the t-statistic surpasses 1.96 and the p-value is under 0.05, H1 is supported.
2. Algorithm Transparency is positively and significantly related to Sellers' Trust in the Platform, showing an original sample value of 0.811, a t-statistic of 23.451, and a p-value below 0.001. As these satisfy the significance criteria, H2 is supported.
3. Sellers' Trust in the Platform exhibits a positive and significant relationship with Seller Service Quality, with an original sample value of 0.346, a t-statistic of 3.224, and a p-value of 0.001. Given that the t-statistic exceeds 1.96 and the p-value is below 0.05, H3 is accepted.
4. The indirect-effect test reveals that Sellers' Trust in the Platform mediates the relationship between Algorithm Transparency and Seller Service Quality, with an indirect effect of 0.280, a t-statistic of 3.109, and a p-value of 0.002. Because the p-value is below 0.05, H4 is accepted. These findings imply that algorithm transparency relates to seller service quality by way of heightened seller trust in the platform. Since both the direct path between Algorithm Transparency and Seller Service Quality ($\beta = 0.569$, $p < 0.001$) and the indirect path through Sellers' Trust in the Platform ($\beta = 0.280$, $p = 0.002$) are significant, the mediation is categorized as partial (complementary). This signifies that algorithm transparency is linked to seller service quality both directly and through the mechanism of seller trust.

Discussion

The Relationship between Algorithm Transparency and Seller Service Quality

The results indicate a positive and significant relationship between Algorithm Transparency and Seller Service Quality ($\beta = 0.569$, $t = 5.130$, $p < 0.001$). This suggests that when sellers perceive greater algorithm transparency, they also perceive higher seller service quality. Increased openness about algorithmic systems may give sellers a clearer grasp of the mechanisms marketplaces use to manage visibility, evaluations, and sales activities.

The R^2 for Seller Service Quality is 0.762, meaning that Algorithm Transparency and Sellers' Trust in the Platform together explain 76.2% of its variance within the research model, with the remaining 23.8% linked to factors beyond the model. As those additional factors were not investigated here, their precise contribution cannot be established from the present data.

These outcomes can be interpreted through the lens of information asymmetry. When sellers possess only limited knowledge of algorithmic mechanisms, uncertainty surfaces as they try to decide on actions consistent with the platform's system. Transparency can ease this by offering clearer information about the platform's expectations and its evaluation mechanisms. Prior work has demonstrated that alterations in platform design can mold sellers' responses and behavior (Koo, 2024; Koo & Eesley, 2021), and the nature of platform mechanisms has likewise been found to affect sellers' responses in an experiment covering 3,000 sellers in China (Koo, 2024). Evidence from Indonesia further indicates that platform rules and mechanisms are decisive for sellers' activities (Foster & Bentley, 2022).

In light of these results, marketplaces should present information on algorithmic factors covering rankings, visibility, performance evaluations, and system changes in a more readily understandable form. For sellers, such information can provide a foundation for adapting their operations, meeting consumer needs, and sustaining service quality.

The Relationship between Algorithm Transparency and Sellers' Trust in the Platform

The findings reveal a positive and significant relationship between Algorithm Transparency and Sellers' Trust in the Platform, with an original sample value of 0.811, a t-statistic of 23.451, and a p-value below 0.001. These results back H2 and show that stronger perceived algorithm transparency corresponds with higher levels of sellers' trust in the platform.

Within the marketplace setting, research on 250 Indonesian marketplace users reported a positive association between algorithm transparency and consumer trust (Erwinda & Asriyanti, 2025). Ning et al. (2024) similarly found that algorithmic transparency can bolster trusting beliefs in the use of algorithm-based systems. These findings imply that marketplaces should offer sellers comprehensible explanations of how the system functions, especially regarding the factors that shape rankings, visibility, and performance evaluations. Transparent information about algorithm changes can further cultivate the perception that the platform runs its system in a more understandable and dependable way.

The unusually high path coefficient ($\beta = 0.811$) linking Algorithm Transparency and Sellers' Trust in the Platform calls for cautious interpretation. Both constructs were captured through self-reported questionnaire responses from the same respondents, so the results should be read in the context of perception-based data. Subsequent studies could supplement self-reported measures with further data sources or alternative measurement approaches to firm up the appraisal of relationships among the constructs.

The Relationship between Sellers' Trust in the Platform and Seller Service Quality

The results show that Sellers' Trust in the Platform is positively and significantly associated with Seller Service Quality, with an original sample value of 0.346, a t-statistic of 3.224, and a p-value of 0.001; accordingly, H3 is accepted. This indicates that sellers' trust in the platform is connected to their capacity to uphold service quality for consumers.

Trust lays the groundwork for sellers to accept and comply with the mechanisms the platform puts in place. When a platform is seen as reliable, sellers enjoy a more conducive environment for aligning their sales activities with the relevant rules and standards (Qin et al., 2022). Earlier studies have shown that modifications to platform design and rules can influence seller behavior (Foster & Bentley, 2022; Koo & Eesley, 2021). A comparable pattern appears among sellers and platform partners in India, where platform mechanisms are incorporated into their business operations (Yadav et al., 2022). Trust in the platform can therefore reinforce the adoption of platform mechanisms within sellers' service activities.

As a result, marketplaces must preserve consistency in their rules, clarity in their communication, and reliability in their systems in order to maintain sellers' trust. Under such conditions, sellers can pursue their sales activities more purposefully and uphold the quality of their interactions with consumers.

The Mediating Role of Sellers' Trust in the Platform

The indirect-effect test returned a value of 0.280, a t-statistic of 3.109, and a p-value of 0.002. Because the p-value is below 0.05, H4 is accepted. These results show that Sellers' Trust in the Platform mediates the relationship between Algorithm Transparency and Seller Service Quality, so algorithm

transparency relates to seller service quality by way of enhanced trust in the platform.

These results establish that trust acts as the mechanism connecting sellers' perceptions of algorithm transparency with the quality of service they provide. When sellers obtain clearer information about the algorithmic system, they gain a firmer basis for understanding and assessing the platform, which can in turn nurture trust. This pattern is consistent with research indicating that trusting beliefs account for user responses to algorithmic systems (Ning et al., 2024). Research on Indonesian marketplace users likewise found that trust contributes to the relationship between algorithmic transparency and purchasing decisions (Erwinda & Asriyanti, 2025), though that study took consumers as its unit of analysis.

In view of these findings, marketplaces should enhance algorithm transparency while simultaneously cultivating trust among sellers. Details about system changes, evaluation factors, and ranking mechanisms can be conveyed on a regular basis in plain, accessible language. For marketplace operators, this strategy can promote stronger relationships with sellers and, at the same time, support improvements in the quality of service delivered to consumers.

CONCLUSION

This study demonstrates that algorithm transparency is positively and significantly related to both sellers' trust in the platform and seller service quality, while sellers' trust is itself positively related to service quality and mediates the connection between algorithm transparency and seller service quality. These results suggest that greater perceived openness about algorithmic systems accompanies stronger seller trust and more favorable perceptions of service quality. For marketplace operators, the findings underscore the value of supplying clear and comprehensible information about ranking mechanisms, product visibility, performance evaluations, and algorithm changes as a means of sustaining relationships with sellers and supporting service quality.

The study is subject to certain limitations: it drew on only 150 sellers as respondents and depended on perception-based data gathered through a questionnaire, so the findings do not yet capture differences across platforms or shifts in seller behavior over time. Future research might enlarge the sample and encompass several marketplaces to yield a more varied picture. Model refinement could additionally incorporate variables such as perceptions of algorithmic fairness, dependence on the platform, and sellers' experiences in using marketplaces. Moreover, employing actual data on seller service performance alongside the perception-based data could permit a deeper understanding of the relationships among algorithm transparency, trust, and service quality.

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AUTHOR CONTRIBUTION STATEMENT

Tri Septiar Syamfithriani, Munir, Chairul Furqon, and Asep Wahyudin jointly contributed to conceptualizing and developing the study, addressing methodological considerations, interpreting the findings, and preparing the manuscript. All authors took part in the intellectual development of the research, approved the manuscript's final version, and agreed to be answerable for the integrity of the work.

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