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Assessment of operational logistics service quality and repurchase intention among Urban E-commerce Customers in Nigeria

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A persistent challenge in urban e-commerce is that poor last-mile delivery performance decreases customer satisfaction and repurchase intention. Thus, this study examined the effect of timeliness, tracking visibility, address verifiability, and service recovery responsiveness (SRR) on customer satisfaction and repurchase intention among urban e-commerce customers in Lagos State. This study employed a quantitative cross-sectional survey design and a sample of 428 respondents to represent the realistic urban e-commerce delivery conditions. Descriptive profiling, reliability and validity tests, Spearman correlation, non-parametric tests, robust ordinary least squares regression and bootstrap mediation were used to analyze data. The findings showed that timeliness (beta = 0.300, p < 0.001), tracking visibility (beta = 0.147, p < 0.001), address verifiability (beta = 0.244, p < .001), and SRR (beta = 0.264, p < .001) each had significant positive effects on customer satisfaction. In the repurchase-intention model, customer satisfaction had the strongest positive effect on repurchase intention (beta = 0.531, p < .001), while timeliness and SRR also retained significant direct effects. The study concluded that customer satisfaction is the most significant mechanism linking delivery implementation with repurchase intention.

Key words: Logistics service quality, last-mile delivery, address verifiability, customer satisfaction, repurchase intention, urban e-commerce, Lagos State.

INTRODUCTION

The end delivery experience must be reliable, visible and convenient to make urban e-commerce commercially viable. Research on the last-mile suggests that consumers do not only assess online retail performance by price and product range, but also by whether an order is delivered on time, whether the customer can easily track the order, and whether problems are resolved without confrontation (Mohammad et al., 2023; Cauwelier et al., 2024; Dayal et al., 2025). The delivery phase is therefore a critical moment of truth in which logistics

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performance shapes customer experience and future revenue. Structural constraints are also most evident in the last mile in dense metropolitan markets.

Traffic variability, informal and formal descriptions of location, use of landmarks, and repetitive phone coordination between riders and customers can raise delivery times and reduce quality of completion. Research on unstructured addresses shows that weak location standardisation increases delivery time and uncertainty (Abdul Rahman et al., 2022), and the decision-support work in the last-mile logistics proves that service completion is extremely sensitive to the accuracy of information and the contextual route implementation (Pegado-Bardayo et al., 2023).

According to African studies, reliability and communication remain the main subject of customer ratings regarding the quality of delivery (Mogire et al., 2023; El Aissoug et al., 2026). Furthermore, timeliness, information quality, operational flexibility, and service recovery are the key service cues in e-commerce and omni-channel fulfilment, which have already been identified as central in the logistics service quality literature (Murfield et al., 2017; Sorkun et al., 2020; Jain et al., 2021; Do et al., 2023).

A lot of studies, however, are concerned with issues of address in an indirect way, usually as a sub-topic of generic information quality, order accuracy, or convenience. This is analytically constrained in big city markets where the ability to swiftly confirm, locate, describe, or identify a destination is not a minor operational factor but a visible driver of the customer experience itself.

Moreover, a more focused conceptual study is required for two reasons. First, the recent literature on the topic of logistics service quality and repurchase behaviour proves that satisfaction frequently conveys the commercial worth of delivery performance (Prassida et al., 2024; Ngo et al., 2025; Sisman and Demirci Orel, 2025).

Second, the African e-retail research indicates that visible delivery cues that minimize uncertainty in an execution-varying environment are critical to customer trust and repurchase intention (Mogire et al., 2023; El Aissoug et al., 2026). Verifiability must also be explicitly modelled, thus, as well as timeliness, visibility and recovery. This study responds by combining the stimulus-organism-response theory with the logic of logistics service quality to investigate the influence of four operational stimuli, namely, timeliness, tracking visibility, address verifiability, and service recovery responsiveness (SRR), on customer satisfaction and repurchase intention in urban e-commerce.

The study also applies an analytical design that integrates descriptive statistics to profile respondents with non-parametric tests and bootstrap-aided regression, which is applicable to ordinal survey data that does not follow a normal distribution.

Statement of the problem

Although the urban e-commerce in Nigeria has been growing at a very high rate, the last-mile delivery issue has remained to undermine customer satisfaction and repurchase intention. The quality of logistics services studies (ogire et al., 2023; El Aissoug et al., 2026; Prassida et al., 2024; Ngo et al., 2025; Sisman and Demirci Orel, 2025) are often based on broad dimensions (timeliness, information quality, reliability, and recovery), but they pay little direct attention to investigate the verifiability as a customer-facing delivery issue in dense urban markets like Lagos State.

This leaves an empirical gap on the joint effects of timeliness, tracking visibility, addressing verifiability and SRR on customer satisfaction and repurchase intention, and whether satisfaction mediates the relationship between quality of logistics services and repurchase intention. The current research is thus necessary to give context-based proof on the workings of e-commerce in Nigeria. This research, therefore, examines how timeliness, tracking visibility, address verifiability and SRR affect customer satisfaction and repurchase intention among e-commerce customers of Lagos State, and the mediation role of customer satisfaction.

LITERATURE REVIEW, THEORETICAL FOUNDATION, AND HYPOTHESIS DEVELOPMENT

Theoretical foundation: Stimulus-organism-response

One of the theories which explains behaviour as a sequence of processes in which an external environmental stimulus causes an internal assessment, which in turn, causes a behavioural response is the stimulus-organism-response (SOR) theory, (Mehrabian and Russell, 1974). SOR is also applicable in retailing and e-commerce research since it can be used to accommodate tangible and informational service cues. This argument has been extended to recent logistics studies to explain how quality of delivery, information transparency, and trust-building mechanisms influence downstream behavioural outcomes, such as loyalty and repurchase (Do et al., 2023; Ngo et al., 2025; El Aissoug et al., 2026). The stimulus layer in the present study comprises four last-mile logistics cues, that is, timeliness, tracking visibility, address verifiability, and SRR. The organismic state is customer satisfaction, which is the post-purchase evaluative judgement that the experience of delivery is as expected or even better. The solution is repurchasing intention. This correspondence is theoretically coherent as the logistics attributes are directly experienced in the fulfilment process, satisfaction is the internal assessment of the customer on the experience and repurchase intention is the behavioural

Table 1. Literature and Implication for the Present Model.

Study	Context and method	Core insight	Implication for this study
Murfield et al. (2017)	Omni-channel retailing; survey based logistics service quality analysis.	Customer-facing logistics service quality includes reliability, timeliness, information, and problem handling.	Supports the use of logistics service quality as the core explanatory domain.
Sorkun et al. (2020)	Omni-channel retailing; mediation model.	Operational logistics quality improves satisfaction through flexibility and service execution.	Supports the mediating role of satisfaction in logistics outcome models.
Jain et al. (2021)	E-tailing; survey and structural modelling.	Electronic logistics service quality improves repurchase intention through shopping satisfaction.	Justifies testing satisfaction as a central transmission mechanism.
Lai et al. (2022)	Parcel locker service; customer satisfaction study.	Visibility, convenience, and interface quality shape satisfaction in last-mile fulfilment.	Supports the inclusion of tracking visibility and fulfilment mode comparisons.
Do et al. (2023)	Cross-border e-commerce; logistics service quality and fairness.	Logistics service quality remains a strong predictor of repurchase even under cross-border complexity.	Shows that logistics quality is a direct commercial lever, not a peripheral variable.
Mogire et al. (2023)	Kenya; online customer perspective on last-mile delivery.	African urban delivery satisfaction is shaped by reliability, communication, and contextual execution quality.	Provides regional relevance for a customer-centred urban delivery model.
Ngo et al. (2025)	E-commerce sector; SOR-based repurchase model.	Logistics service quality influences repurchase through satisfaction and trust pathways.	Supports the use of SOR logic in the present conceptual framework.
El Aissoug et al. (2026)	African e-retail; logistics and payment drivers of trust.	African e-retail customers react strongly to visible and trustworthy delivery cues.	Reinforces the need to model visibility and contextual last-mile signals explicitly.

Source: Author's Compilation (2026).

implication of the assessment.

Logistics service quality and urban e-commerce last mile

The quality of logistics services has ceased to be an operational construct and is now a strategic capability that faces the customer. The e-service quality research that highlighted the need to correlate the quality of digital interface with fulfilment performance was preceded by early conceptualization of logistics service quality, anchored on timeliness, condition, availability, information and problem handling (Mentzer et al., 1999). Scholars of omni-channel settings see table 1 have shown that the quality of operational logistics services has an impact on customer satisfaction because customers perceive the delivery experience as a part of the retail experience (Murfield et al., 2017; Sorkun et al., 2020).

The current e-commerce supports this argument by recent studies. Jain et al. (2021) found that the intention to repurchase is provoked by the quality of electronic logistics services depending on the satisfaction of shopping. Do et al. (2023) have shown that the quality of logistics services is a strong predictor of repurchase intention even in e-commerce across the border. Satisfaction and trust also demonstrate that the commercial effects of delivery execution are passed on by Ngo et al. (2025) and Do et al. (2025). These research indicate that customer retention is based on a

combination of visible service cues and not on one logistics indicator.

Timeliness and customer satisfaction

Timeliness is one of the most secure and commercially important aspects of the quality of logistics services. Customers can deduce competence, reliability and operational control when the promised windows are honored. Delays on the other hand bring about uncertainty, schedule disruption and lack of confidence in the orders to come. Empirical results of e-tailing and online retail always associate prompt delivery with better satisfaction and repurchase-intention outcomes (Jain et al., 2021; Aljohani, 2024; Hui et al., 2025; Sisman and Demirci Orel, 2025). The SOR terms include such a positive external stimulus as timeliness, which is expected to strengthen the organismic state of satisfaction. Thus, the hypothesis is as follows:

H_1: Timeliness has a positive and significant effect on customer satisfaction.

Tracking visibility and customer satisfaction

Tracking visibility refers to the ability of the customer to track the status of an order through accessing timely, credible and useful information. Visibility is important since it will decrease uncertainty in the waiting period and will provide customers with a feeling of control over the results of delivery. The research on parcel locker and delivery platforms suggests that the openness of information, the clarity of the interface, and contact ability increase customer evaluation of the fulfilment process (Lai et al., 2022; Yuen et al., 2023). The development of trust and repeat behaviour in cross-border and African e-retail environments is also enabled by visible logistics cues (Do et al., 2023; El Aissoug et al., 2026). Therefore, visibility tracking must enhance satisfaction.

H_2: Tracking visibility has a positive and significant effect on customer satisfaction.

Address verifiability and customer satisfaction

Address verifiability is the extent to which a place of delivery can be specified correctly, shared, recognized, and accessed with little back-and-forth correction. Formal addresses are enhanced by landmarks, drop pins, phone calls and informal route directions in most urban settings. Studies of unstructured addresses reveal that poor address clarity adds to delivery time and coordination load (Abdul Rahman et al., 2022). The studies of service completion prediction and last-mile innovation also imply that reliable fulfilment is a demand of accurate delivery information (Mohammad et al., 2023; Pegado-Bardayo et al., 2023). Since the customers are the direct beneficiaries of the effects of poor address verification in terms of delays, failed attempts, and repetitive calls, address verifiability must act as a salient logistics service quality indicator in its own right.

H_3: Address verifiability has a positive and significant effect on customer satisfaction.

Service recovery responsiveness (SRR) and customer satisfaction

The last-mile systems are complex and thus prone to service failures, the speed and equity with which such failures are managed is the difference between strong and weak operators. Dissatisfaction may be prevented by converting into defection through responding to complaints in time, rescheduling, redelivery, and refund. According to recent e-commerce studies, the service recovery policy and implementation have a significant impact on post-delivery repurchase intentions in the event of a failure (Owusu et al., 2025). The studies of the quality of e-retail logistics services also show that customer satisfaction with the perceived support systems is increased when they believe that the support systems are fair, timely, and reliable (Jain et al., 2021; Do et al., 2025). SRR should in this respect improve customer satisfaction.

H_4: SRR has a positive and significant effect on customer satisfaction.

Customer satisfaction and repurchase intention

Customer satisfaction is the internal evaluation condition whereby service experience impacts future behaviour. In case the performance in terms of the delivery is rated as positive, the customers will be more likely to continue using the platform, forget about switching temptations, and recommend the retailer to other individuals. The recent literature is very supportive of this stand. The quality of logistics services and behavioural intention in e-commerce, cross-border retail, and business-to-consumer logistics are mediated by satisfaction (Prassida et al., 2024; Ngo et al., 2025; Hui et al., 2025; Sisman and Demirci Orel, 2025). In the SOR sequence, satisfaction is thus anticipated to have a positive relationship with repurchase intention.

H_5: Customer satisfaction has a positive and significant effect on repurchase intention.

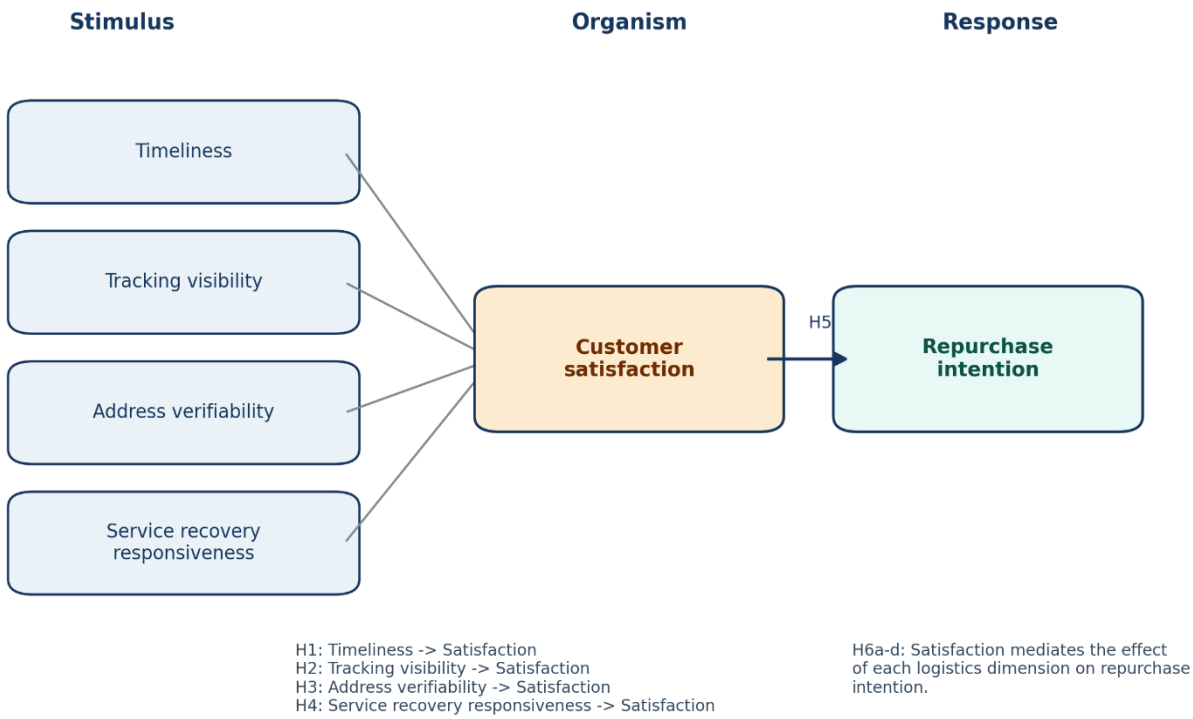

Figure 1. Conceptual framework.
Source: Developed by the author from SOR theory and logistics service quality literature (Mehrabian and Russell, 1974; Murfield et al., 2017; Sorkun et al., 2020; Ngo et al., 2025).

The mediating role of customer satisfaction and the conceptual framework

In case the stimuli are timeliness, visibility, address verifiability, and recovery responsiveness, the impact on repurchase intention should be communicated substantially through the organismic state of satisfaction. Mediation patterns of logistics quality, flexibility, and behavioural outcomes have already been identified in previous studies (Sorkun et al., 2020; Jain et al., 2021; Prassida et al., 2024). The current research builds on this reasoning by suggesting that even a context-specific execution cue like address verifiability must act through satisfaction and not directly and independently of it (Figure 1). The hypotheses of mediation that are then proposed are as follows: H_{6a}, customer satisfactionmediates the effect of timeliness on repurchase intention; H_{6b}, customer satisfaction mediates the effect of tracking visibility on repurchase intention; H_{6c}, customer satisfaction mediates the effect of address verifiability on repurchase intention; and H_{6d}, customer satisfaction mediates the effect of SRR on repurchase intention.

METHODOLOGY

Research design

This study used a quantitative cross-sectional survey of adult e-commerce customers who have recently made online purchase deliveries in Lagos State. The survey design is appropriate because the objective is to approximate the strength and direction of the relationships between different perceptual constructs and compare the chosen customer groups with inferential statistics. This design is consistent with the recent research in the field of transport, retailing, and e-commerce, which models the quality of logistics services, satisfaction, trust, and repurchase intention based on questionnaire data (Jain et al., 2021; Do et al., 2023; Adenigbo et al., 2025; Ngo et al., 2025).

Population, sampling technique, and sample size

The target population of the study is 14,070,000 consisting of customers aged 18 years and above who are e-commerce customers in Lagos State (Lagos Statistics, 2025). A purposive sampling technique was applied through a screening question to ensure recent delivery experience, after which quota balancing was used across broad delivery areas and fulfilment modes. The importance of such quotas is that the location type and fulfilment configuration can change the delivery experience in an urban

Table 2. Construct operationalization and source basis.

Construct	Indicators	Source basis
Timeliness (TIM)	On-time delivery, respect for promised window, fast order processing, low delay incidence.	Adapted from Murfield et al. (2017), Jain et al. (2021), Do et al. (2023), and Aljohani (2024).
Tracking visibility (TRK)	Timely status updates, tracking accuracy, useful courier communication, visibility of order progress.	Adapted from Lai et al. (2022), Yuen et al. (2023), Do et al. (2023), and El Aissoug et al. (2026).
Address verifiability (ADV)	Ease of pinning location, rider ability to find destination, usefulness of landmarks, clarity of drop-off instructions.	Context-tuned from Abdul Rahman et al. (2022), Pegado-Bardayo et al. (2023), Mohammad et al. (2023), and Mogire et al. (2023).
Service recovery responsiveness (SRR)	Fast complaint handling, quick redelivery or rescheduling, fair refund process, empathetic support.	Adapted from Jain et al. (2021), Do et al. (2025), and Owusu et al. (2025).
Customer satisfaction (SAT)	Overall delivery satisfaction, fulfilment of expectations, dependable experience, positive post-purchase evaluation.	Adapted from Sorkun et al. (2020), Prassida et al. (2024), and Ngo et al. (2025).
Repurchase intention (RPI)	Intention to continue buying, future platform preference, willingness to recommend.	Adapted from Jain et al. (2021), Do et al. (2023), Hui et al. (2025), and Sisman and Demirci Orel (2025).

Source: Compiled from the cited logistics service quality, last-mile, and e-commerce studies.

setting dramatically. Thus, the study used 428 respondents, the sample size is formally justified using the 10 to 15 observations-per-item rules of thumb for multivariate survey analysis (Hair et al., 2019); with 23 reflective measurement items, the recommended minimum range would be 230 to 345 respondents, so the achieved sample of 428 respondents is adequate.

Instrument development and measurement

Every construct was operationalized as a reflective measure on a five-point Likert scale with 1 = strongly disagree up to 5 = strongly agree (see Appendix 1. The wording of the items was based on the validated logistics service quality, satisfaction, and repurchase intention scales, which were modified to the operational language of urban last-mile delivery. Timeliness, tracking visibility, SRR, satisfaction, and repurchase intention were adapted from previous studies. Address verifiability was established as a context-specific construct that was developed based on the literature on unstructured addresses, service completion, and last-mile execution. Table 2 shows the operational definitions and source basis. The research instrument had 23 reflective items that covered six constructs including timeliness (4 items), tracking visibility (4 items), address verifiability (4 items), SRR (4 items), customer satisfaction (4 items), and repurchase intention (3 items). Sample items were; orders typically arrive within the promised time: Timeliness, tracking updates are timely: Tracking visibility, I can locate my address without having to call several times: Address verifiability, I will make another order using the same platform: Repurchase intention. Measurement reliability, convergent validity, and factor structure were reported using Cronbach alpha, composite reliability, average variance extracted and Exploratory Factor Analysis (EFA). Since the measurement assessment was an exploratory, but not a confirmatory one, CFA fit indices (Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR)) were not determined; measurement adequacy was determined by estimating KMO, Bartlett test, factor loadings, communalities, reliability coefficients, and AVE.

Data analysis

The sequence of analysis was intended to satisfy the requirements of a robust empirical base. First, the descriptive statistics were limited to respondent profile variables, which were required by the study design. Second, Cronbach's alpha, composite reliability, average variance extracted, KMO sampling adequacy, Bartlett test of sphericity and exploratory factor analysis were used to measure the quality of measurement. Third, the single-factor check of Harman was taken as a preliminary test of common method bias. Fourth, Shapiro-Wilk tests were used to test the normality of construct scores. Due to the ordinal composites of the data and the breach of the normality assumption, the association and group-difference analysis were based on Spearman rank correlation, Mann-Whitney U tests, and Kruskal-Wallis H tests with Bonferroni-adjusted pairwise follow-up when needed.

Lastly, hypotheses were tested using ordinary least squares regression analysis with standard errors on construct composites, and bootstrap mediation to determine the indirect effects of the four logistics dimensions on repurchase intention via customer satisfaction. This hybrid method is analytically consistent: the non-

Table 3. Socio-Economic characteristics of the respondent.

Variable	Category	Frequency	Percentage
Gender	Male	235	54.9
	Female	193	45.1
Age	25-34	181	42.3
	35-44	105	24.5
	18-24	82	19.2
	45+	60	14.0
Order frequency	3-5 orders/month	183	42.8
	1-2 orders/month	157	36.7
	6+ orders/month	88	20.6
Delivery zone	Mainland core	137	32.0
	Outer mainland	116	27.1
	Island corridor	91	21.3
	Peri-urban	84	19.6
Fulfilment mode	Home delivery	300	70.1
	Pickup point	72	16.8
	Store pickup	56	13.1

Source: Field Survey (2026).

parametric methods are sensitive to distributional facts, and robust regression and bootstrap mediation give interpretable estimates of the effects of the hypothesized paths. The evaluation of all decisions was done at the 5% level of significance.

RESULTS

Respondent profile

Table 3 shows the socio-economic characteristics of the respondents. The finding shows that 235(54.9%) of the respondents were male and 193(45.1%) were female, which shows that most of the respondents were male. In terms of age, 181(42.3%) of the respondents were between 25 to 34 years, 105(24.5%) were between 35 to 44 years, 82(19.2%) were between 18 to 24 years, while 60(14.0%) were 45 years and above. This shows that most of the respondents were aged between 25 to 34 years. In terms of the number of orders, 183(42.8%) of the respondents placed 3 to 5 orders monthly, 157(36.7%) placed 1 to 2 orders monthly, and 88(20.6%) placed 6 or more orders monthly.

This reveals that most of the respondents placed 3 to 5 orders per month. Also, 137(32.0%) of the respondents were from the mainland core, 116(27.1%) were from the outer mainland, 91(21.3%) were from the island corridor, while 84(19.6%) were from the peri-urban area, indicating that the majority were from the mainland core. Finally, 300(70.1%) of the respondents preferred home delivery, 72(16.8%) preferred pickup point, while 56(13.1%) preferred store pickup, showing that the majority preferred home delivery.

Measurement diagnostics

The measurement results shown in Tables 4 and 5 are satisfactory; the reliability coefficients range from 0.830 to 0.911, which is above the generally accepted threshold of 0.70. The values of composite reliability are 0.887 to 0.945, and the average variance is 0.663 to 0.851. All six constructs have satisfactory internal consistency and convergent quality as demonstrated by these values. The least mean score is on address verifiability that is analytically significant because it means that location clarity remains a rather weak point of the delivery experience. All non-target cross-loadings were below 0.30, indicating satisfactory simple structure and supporting the separation of the constructs, including the SRR items whose primary loadings were the lowest in the set.

KMO and Bartlett's Test Result

As shown in Table 6, the factorability diagnostics also favor scale adequacy, the KMO value is 0.925, which means that the sampling adequacy is excellent, and the Bartlett test is significant (Chi-square = 5819.393, df = 253, $p < 0.001$), which proves that the item correlation matrix is appropriate to be subjected to factor analysis. The initial unrotated Harman factor explains 39.26% of variance, which is less than the standard 50% warning level and indicates that the common method bias is not

Table 4. Exploratory factor analysis results.

Item	Construct	Primary factor	Loading	Communality
TIM1	TIM	F4	0.730	0.643
TIM2	TIM	F4	0.726	0.634
TIM3	TIM	F4	0.707	0.647
TIM4	TIM	F4	0.725	0.648
TRK1	TRK	F2	0.717	0.589
TRK2	TRK	F2	0.686	0.555
TRK3	TRK	F2	0.756	0.603
TRK4	TRK	F2	0.745	0.627
ADV1	ADV	F3	0.771	0.655
ADV2	ADV	F3	0.737	0.623
ADV3	ADV	F3	0.692	0.560
ADV4	ADV	F3	0.771	0.675
SRR1	SRR	F5	0.655	0.550
SRR2	SRR	F5	0.619	0.490
SRR3	SRR	F5	0.698	0.594
SRR4	SRR	F5	0.714	0.600
SAT1	SAT	F6	0.658	0.732
SAT2	SAT	F6	0.672	0.723
SAT3	SAT	F6	0.661	0.705
SAT4	SAT	F6	0.641	0.671
RPI1	RPI	F1	0.770	0.756
RPI2	RPI	F1	0.782	0.780
RPI3	RPI	F1	0.793	0.798

Six factors explain approximately 64.6% of total variance after rotation; all primary loadings exceed 0.60.
Source: Field Survey (2026).

Table 5. Reliability, convergent validity, and construct summary statistics.

Construct	Items	Alpha	CR	AVE	Mean	SD
TIM	4	0.874	0.915	0.728	3.029	1.063
TRK	4	0.850	0.900	0.691	2.995	1.004
ADV	4	0.867	0.910	0.717	2.818	1.043
SRR	4	0.830	0.887	0.663	2.878	0.988
SAT	4	0.905	0.934	0.779	3.259	1.162
RPI	3	0.911	0.945	0.851	3.248	1.188

Alpha = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted.
Source: Field Survey (2026)

likely to dominate the covariance pattern.

However, this result should be interpreted cautiously because Harman's single-factor test is only a preliminary and relatively weak diagnostic for common method variance, thus, it cannot conclusively rule out method bias on its own.

Descriptive diagnostics, normality, and Inter-construct Association

Table 7 shows the construct-level descriptive diagnostics, address verifiability and customer satisfaction have a mean of between 2.818 and 3.259, respectively. The

Table 6. KMO and Bartlett's test result.

Test	Value	Interpretation
Kaiser-Meyer-Olkin (KMO) Measure	0.925	Excellent sampling adequacy
Bartlett's Test of Sphericity - Chi-Square	5819.393	Significant
Degrees of Freedom (df)	253	Adequate for analysis
Significance Level (p-value)	< 0.001	Statistically significant

Table 7. Construct descriptives and normality diagnostics.

Construct	Mean	SD	Median	Shapiro-Wilk W	p	Skew	Kurtosis
TIM	3.029	1.063	3.000	0.972	< 0.001	0.013	-0.915
TRK	2.995	1.004	3.000	0.977	< 0.001	0.064	-0.799
ADV	2.818	1.043	2.750	0.972	< 0.001	0.187	-0.799
SRR	2.878	0.988	2.750	0.978	< 0.001	0.111	-0.712
SAT	3.259	1.162	3.500	0.955	< 0.001	-0.238	-0.972
RPI	3.248	1.188	3.333	0.949	< 0.001	-0.216	-1.015

Source: Field Survey (2026).

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Table 8. Spearman rank correlations among study constructs.

Construct	TIM	TRK	ADV	SRR	SAT	RPI
TIM	-	0.345***	0.374***	0.352***	0.532***	0.492***
TRK	0.345***	-	0.235***	0.291***	0.384***	0.360***
ADV	0.374***	0.235***	-	0.313***	0.472***	0.338***
SRR	0.352***	0.291***	0.313***	-	0.485***	0.466***
SAT	0.532***	0.384***	0.472***	0.485***	-	0.686***
RPI	0.492***	0.360***	0.338***	0.466***	0.686***	-

Note: Asterisks denote significance; all displayed coefficients are significant at p < .001.
Source: Field Survey (2026).

trend has a substantive value: the customers are relatively more positive in terms of the overall experience of the delivery process than the correctness of the addresses and drop-off instructions processing. This is the reason why it is reasonable to consider verifiability as a separate construct rather than concealing it under the umbrella of information quality. The significance of all Shapiro-Wilk tests implies that the composite distributions are not normal and, therefore, the use of Spearman correlation and non-parametric group tests is justified.

Table 8 indicates that all the constructs are moving in the right direction as indicated by the Spearman matrix. Satisfaction is the most related variable to repurchase intention (rho = 0.686, p =0.001), which can be attributed to prior research on the quality of logistics services. Timeliness is also highly correlated with satisfaction (rho = 0.532, p <00.001) and repurchase intention (rho = 0.492, p <00.001). Address verifiability and satisfaction (rho = 0.472, p < 0.001) have a significant relationship, which confirms the conceptual relevance of address verifiability.

Non-parametric group differences

The key subgroup comparisons are shown in Table 9. Gender does not create any significant difference in satisfaction or repurchase intention, but age and frequency of ordering also show a very similar perception. In comparison, address verifiability is relevant to delivery zone, and tracking visibility is relevant to fulfilment mode. In particular, the address verifiability in peri-urban areas is much less than in mainland core and island corridor areas with Bonferroni adjustment.

Table 9. Selected non-parametric group comparisons.

Test	Grouping variable	Outcome	Statistic	p	Effect size	Post hoc
Mann-Whitney U	Gender	SAT	21774.000	0.477	0.040	Not applicable
Mann-Whitney U	Gender	RPI	22976.500	0.814	-0.013	Not applicable
Kruskal-Wallis H	Order frequency	SAT	3.468	0.177	0.003	Not applicable
Kruskal-Wallis H	Order frequency	RPI	5.296	0.071	0.008	Not applicable
Kruskal-Wallis H	Age	SAT	2.523	0.471	0.000	Not applicable
Kruskal-Wallis H	Age	RPI	2.838	0.417	0.000	Not applicable
Kruskal-Wallis H	Delivery zone	ADV	11.768	0.008	0.021	Mainland core vs Peri-urban (p_{bonf}=0.006); Peri-urban vs Island corridor (p_{bonf}=0.046)
Kruskal-Wallis H	Fulfilment mode	TRK	8.863	0.012	0.016	Home delivery vs Store pickup (p_{bonf}=0.027); Store pickup vs Pickup point (p_{bonf}=0.017)

Source: Field Survey (2026).

Table 10. Regression analysis results.

Predictor	SAT model B	SAT model Beta	SAT model t	SAT model p	RPI model B	RPI model Beta	RPI model t	RPI model p
Intercept	0.093	-	0.612	0.540	0.315	-	2.178	0.029
TIM	0.328	0.300	7.586	< 0.001	0.167	0.149	3.341	< 0.001
TRK	0.171	0.147	3.560	< 0.001	0.075	0.064	1.751	0.080
ADV	0.273	0.244	6.520	< 0.001	-0.023	-0.020	-0.550	0.582
SRR	0.310	0.264	6.793	<0.001	0.173	0.144	3.761	< 0.001
SAT	-	-	-	-	0.543	0.531	11.707	< 0.001

R^2 = 0.467, Adj. R^2 = 0.462, F = 134.120, p < .001. RPI model: R^2 = 0.529, Adj. R^2 = 0.523, F = 134.940, p < .001. HC3 standard errors were used.
Source: Field Survey (2026).

Store-pickup users also possess reduced tracking visibility than home-delivery and pickup-point users. These results suggest that spatial complexity and fulfilment design may alter the experiences of customers relative to particular logistics cues even though the overall satisfaction between demographic groups remains relatively constant.

Test of hypotheses

The results in Table 10 presents the hypotheses testing using regression analysis. In the model, the positive and significant effects of timeliness (B = 0.328, p < 0.001), tracking visibility (B = 0.171, p < 0.001), address verifiability (B = 0.273, p < 0.001), and service recovery responsiveness (B = 0.310, p < 0.001) are identified. The model accounts for 46.7% of the variation in satisfaction. The strongest predictor in the repurchase-intention model is

Table 11. Bootstrap mediation effects through customer satisfaction.

Predictor	Direct	Indirect	Total	95% bootstrap CI	Decision
TIM	0.167	0.178	0.345	[0.122, 0.238]	Supported
TRK	0.075	0.092	0.168	[0.041, 0.147]	Supported
ADV	-0.023	0.148	0.125	[0.097, 0.204]	Supported
SRR	0.173	0.170	0.343	[0.118, 0.227]	Supported

Source: Field Survey (2026).

customer satisfaction (B = 0.543, p < 0.001), but timeliness and service recovery responsiveness also have a strong direct effect.

Tracking becomes less visible and address verifiability is not significant when the concept of satisfaction is added to the model, which also corresponds to mediated influence and is not a direct pathway. Hence, all the hypotheses are all accepted, thus, timeliness has a positive and significant effect on customer satisfaction; tracking visibility has a positive and significant effect on customer satisfaction; address verifiability has a positive and significant effect on customer satisfaction; service recovery responsiveness has a positive and significant effect on customer satisfaction and finally customer satisfaction has a positive and significant effect on repurchase intention.

The bootstrap mediation estimates are shown in Table 11. All positive indirect effects are significant, and their 95% confidence intervals are not inclusive of zero which is in favor of H6a to H6d. The greatest indirect effects are those on timeliness and service recovery responsiveness, and closely after that, address verifiability. It is important to note that the direct impact of address verifiability on repurchase intention is insignificant once satisfaction is introduced in the model, but the indirect impact is evidently positive. This implies complete mediation and that location clarity enhances repurchase intention mainly since it enhances the perceived quality of the delivery experience.

DISCUSSION

The findings are in line with the SOR logic developed in the conceptual model. The four logistics service cues act as meaningful environmental stimuli, customer satisfaction acts as the organismic state and repurchase intention acts as the behavioural response. This is consistent with the recent e-commerce studies that make satisfaction central to conversion through which the logistics performance defines customer loyalty (Prassida et al., 2024; Ngo et al., 2025; Hui et al., 2025). Although the Harman single factor result presented in the study suggested that common method variance was not dominant, this interpretation remains limited as this is not a standalone diagnostic. Therefore, future studies should complement it with procedural controls, marker-variable techniques, or CFA-based common method checks to strengthen the evidence against common method bias.

Timeliness is one of the foundations of successful logistics of urban e-commerce. The fact that timeliness has a substantial impact on satisfaction is a validation that the discipline of delivery promise remains an anchor to the customer judgement even though the customers may be accustomed to some level of uncertainty in the market. This is consistent with the previous results in e-tailing and business-to-consumer logistics that on-time fulfilment is a service signal and a trust signal (Jain et al., 2021; Aljohani, 2024; Sisman and Demirci Orel, 2025). It is also found that service recovery responsiveness is almost equally important. This is both theoretically and practically important; in a situation where failures cannot be completely avoided, the speed and equity of recovery is included in the value proposition and not a back-office corrective process.

The best outcome is associated with address verifiability. The fact that it has a lower mean score, is a significant determinant of satisfaction, and differs among zones, indicates that location clarity is a useful source of delivery friction. This assists in arguing that the address verification will be explicitly modelled in the dense urban delivery research. The literature on unstructured addresses, service completion prediction, and last-mile innovation already operationally implies this problem (Abdul Rahman et al., 2022; Mohammad et al., 2023; Pegado-Bardayo et al., 2023), but the current model directly takes it into account as a service quality dimension perceived by customers. Satisfaction transmits its effect on repurchase, which means that customers do not necessarily reason in terms of technical address, but they remember whether delivery was easy, stress-free, and professionally organized.

The full repurchase model lacks stronger tracking visibility. This too is educative, visibility will increase satisfaction as it will reduce uncertainty during the waiting stage, but information alone may not lead to repurchase intention in case the actual delivery experience is bad. That is, visibility seems to be required but not adequate.

This description can be applied to the studies on the satisfaction with parcel lockers, crowdsourced delivery, and African e-retail trust, where the informational transparency is successful but requires a plausible implementation (Lai et al., 2022; Yuen et al., 2023; El Aissoug et al., 2026).

Another practical value is the results of the subgroup. The address verifiability of peri-urban respondents is lower, which means that the managerial solution is to enhance geocoding, landmark capture, and pre-delivery verification in more spatially ambiguous areas. Store-pickup users also complain of reduced tracking visibility, which implies that certain fulfilment modes might not be as richly communicated as home-delivery orders. These tendencies indicate why a general logistics service quality model should be sensitive to the spatial and fulfilment heterogeneity rather than assuming that all the customers share the same experience of the last mile.

CONCLUSION

This study formulates and illustrates a survey-based model to explain the repurchase intention in urban e-commerce using operational logistics service quality. According to the SOR theory, the model proves that the timeliness, tracking visibility, address verifiability, and service recovery responsiveness are all important service stimuli, and customer satisfaction is the most important organismic mechanism that conveys their effect to repurchase intention. The most compelling evidence is that timeliness, service recovery responsiveness, and address verifiability are managerial priorities in the urban last mile.

MANAGERIAL RECOMMENDATIONS

The results of the analysis lead to four practical recommendations. Firstly, platforms and delivery partners should improve the discipline of delivery commitments by decreasing unrealistic delivery windows, improving dispatch precision, and increasing late orders before customers are expected to complain. Second, visibility monitoring should be changed to more believable real-time updates and proactive courier communication, as compared to the status messages which are not dynamic. Third, verifiability should be institutionalized, where geolocation pin capture is mandatory, organized landmark fields, address confirmation prompts before dispatch, and rider interfaces that retain location memory of frequent customers.

Fourth, visible response-time standards, easy rescheduling and fast refund channels ought to be controlled in service recovery because quality of recovery is a major factor in satisfaction and subsequent repurchase intention.

THEORETICAL IMPLICATION

The main theoretical implication is that address verifiability is to be viewed as a distinct customer-facing logistics service quality dimension in dense urban e-commerce. This extends the traditional model of logistics quality without leaving its traditional roots. The second implication is that the most important transmission mechanism is satisfaction that helps to justify the utility of SOR logic in delivery research.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Abdul RM, Aamir BM, Khalid Z, Tahir M, Uppal M (2022). Last mile logistics: Impact of unstructured addresses on delivery times. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences 48:3-8. https://doi.org/10.5194/isprs-archives-XLVIII-4-W5-2022-3-2022

Adenigbo AJ, Mageto J, Luke R (2025). Factors affecting efficient cargo logistics management at Murtala Muhammed International Airport, Lagos, Nigeria. Research in Transportation Business and Management 59:101252. https://doi.org/10.1016/j.rtbm.2024.101252

Aljohani K (2024). The role of last-mile delivery quality and satisfaction in online retail experience: An empirical analysis. Sustainability 16(11):4743. https://doi.org/10.3390/su16114743

Cauwelier K, Buldeo Rai H, Puttemans K, Macharis C, Mommens K (2024). From cart to door: Unravelling consumer behaviour through attitudinal sustainability profiles. Transportation Research Part D: Transport and Environment 130:104168. https://doi.org/10.1016/j.trd.2024.104168

Dayal E, Khuntia L, Lakshay L, Buldeo Rai H, Pani A (2025). Behavioral intention to use parcel lockers in the last mile and underlying linkages with travel modal choice. Research in Transportation Economics 111:101568. https://doi.org/10.1016/j.retrec.2025.101568

Do AD, Ha DL, Pham MT, Khuat MAT, Le VAT, Nguyen DND, La TQ (2025). Impacts of e-RLSQ on repurchase intention in Vietnam's e-commerce market: The mediating role of customer satisfaction and trust. International Journal of Information Management Data Insights 5(2):100346. https://doi.org/10.1016/j.jjimei.2025.100346

Do QH, Kim TY, Wang X (2023). Effects of logistics service quality and price fairness on customer repurchase intention: The moderating role of cross-border e-commerce experiences. Journal of Retailing and Consumer Services 70:103165. https://doi.org/10.1016/j.jretconser.2022.103165

El Aissoug C, Kim TY, Wang X (2026). Bridging logistics and payment to build trust in African e-retail: The role of logistics service quality, payment drivers, and cultural influences. Journal of Retailing and Consumer Services 88:104471. https://doi.org/10.1016/j.jretconser.2025.104471

Hair JF, Black WC, Babin BJ, Anderson RE (2019). Multivariate data analysis. 8th edition. Cengage.

Hui G, Al Mamun A, Reza MNH, Wan Hussain WMH (2025). An empirical study on logistic service quality, customer satisfaction, and cross-border repurchase intention. Heliyon 11(1):e41156. https://doi.org/10.1016/j.heliyon.2024.e41156

Jain NK, Gajjar H, Shah BJ (2021). Electronic logistics service quality and repurchase intention in e-tailing: Catalytic role of shopping satisfaction, payment options, gender and returning experience. Journal of Retailing and Consumer Services 59:102360. https://doi.org/10.1016/j.jretconser.2020.102360

Lagos Statistics (2025). Spotlight on Lagos Statistics, 2025 Edition. Available at: https://lagosmepb.org/wp-content/uploads/Hotline_Stat.pdf

Lai PL, Jang H, Fang M, Peng K (2022). Determinants of customer satisfaction with parcel locker services in last-mile logistics. The Asian Journal of Shipping and Logistics 38(1):25-30. https://doi.org/10.1016/j.ajsl.2021.11.002

Mehrabian A, Russell JA (1974). An approach to environmental psychology. MIT Press.

Mentzer JT, Flint DJ, Kent JL (1999). Developing a logistics service quality scale. Journal of Business Logistics 20(1):9-32.

Mogire E, Kilbourn PJ, Luke R (2023). Customer satisfaction with last-mile delivery in Kenya: An online customer perspective. Journal of Transport and Supply Chain Management 17:a844. https://doi.org/10.4102/jtscm.v17i0.844

Mohammad WAM, Diab YN, Elomri A, Triki C (2023). Innovative solutions in last mile delivery: Concepts, practices, challenges, and future directions. Supply Chain Forum: An International Journal 24(2):151-169. https://doi.org/10.1080/16258312.2023.2173488

Murfield M, Boone CA, Rutner P, Thomas R (2017). Investigating logistics service quality in omni-channel retailing. International Journal of Physical Distribution and Logistics Management 47(4):263-296. https://doi.org/10.1108/IJPDLM-06-2016-0161

Ngo TTA, An GK, Dao DK, Nguyen NQN, Phong BH, Nguyen NYV (2025). Unveiling the nexus between logistics service quality and customer repurchase intentions in e-commerce sector. Research in Transportation Business and Management 63:101474. https://doi.org/10.1016/j.rtbm.2025.101474

Owusu P, Li Z, Mensah IA, Omari-Sasu AY (2025). Consumer response to e-commerce service failure: Leveraging repurchase intentions through strategic recovery policies. Journal of Retailing and Consumer Services 82:104137.

Pegado-Bardayo A, Lorenzo-Espejo A, Munuzuri J, Aparicio-Ruiz P (2023). A data-driven decision support system for service completion prediction in last mile logistics. Transportation Research Part A: Policy and Practice 176:103817. https://doi.org/10.1016/j.tra.2023.103817

Prassida GF, Munawaroh H, Yani RAW (2024). The distinctive role of satisfaction in bridging the relationship between logistics service quality and behavioral intentions. Procedia Computer Science 234:1313-1321. https://doi.org/10.1016/j.procs.2024.03.129

Sisman G, Demirci Orel F (2025). The impact of e-commerce supply chain agility and logistics service quality on repurchase intention in a business-to-consumer context: Evidence from an emerging market. The International Journal of Logistics Management 36(4):1301-1325. https://doi.org/10.1108/IJLM-07-2024-0413

Sorkun MF, Huseyinoglu IOY, Boruhan G (2020). Omni-channel capability and customer satisfaction: Mediating roles of flexibility and operational logistics service quality. International Journal of Retail and Distribution Management 48(6):629-648. https://doi.org/10.1108/IJRDM-07-2019-0235

Yuen KF, Koh LY, Wong YQ, Wang X (2023). Sustainable crowdsourced delivery: A study of technological, health, value, and trust antecedents of consumer loyalty. Journal of Cleaner Production 405:137010. https://doi.org/10.1016/j.jclepro.2023.137010

Appendix 1. Questionnaire items, all items are to be measured on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

Code	Item wording
TIM1	Orders usually arrive within the promised period.
TIM2	The delivery window is generally respected.
TIM3	Order processing and dispatch are fast.
TIM4	Delays are uncommon in my recent orders.
TRK1	Tracking updates are timely.
TRK2	Tracking information is accurate.
TRK3	It is easy to know where my order is at any time.
TRK4	Courier contact and status communication are useful.
ADV1	My delivery location can be shared or pinned accurately.
ADV2	Riders can locate my address without repeated calls.
ADV3	It is easy to provide clear delivery instructions.
ADV4	Landmark or area descriptions are recognised well by delivery staff.
SRR1	Complaints receive a quick response.
SRR2	Failed deliveries are resolved quickly.
SRR3	Rescheduling or refund options are fair and easy.
SRR4	Support staff show empathy when problems occur.
SAT1	Overall, I am satisfied with the delivery experience.
SAT2	The delivery service meets my expectations.
SAT3	The delivery service is dependable.
SAT4	My recent delivery experiences have been positive.
RPI1	I intend to continue buying from platforms with this delivery service.
RPI2	I will choose the same platform again for future orders.
RPI3	I would recommend the platform because of its delivery service.

Source: Prepared by the author from the study's adapted measurement framework.