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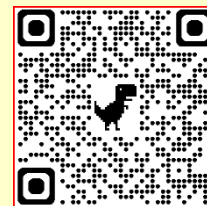
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SERVQUAL AND PDCA AS KEY FACTORS FOR LIVERPOOL'S MARKETPLACE

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ABSTRACT

The growth of electronic commerce has increased the need for organizations to improve service quality in order to strengthen customer satisfaction and competitiveness. This study analyzes the service quality of the Liverpool Marketplace through the integration of the SERVQUAL model and the Plan–Do–Check–Act (PDCA) cycle as complementary tools for evaluation and continuous improvement. A quantitative approach was adopted to identify gaps between customer expectations and perceptions across the five SERVQUAL dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The findings indicate that tangibles and reliability obtained the highest evaluations, whereas responsiveness, assurance, and empathy presented the greatest opportunities for improvement. Based on these results, a continuous improvement strategy was developed using the PDCA cycle, focused on strengthening customer service processes, reducing response times, improving communication, and increasing customer confidence. The study concludes that integrating SERVQUAL with the PDCA methodology provides a systematic framework for identifying critical service quality gaps and designing improvement actions that contribute to customer satisfaction and enhance the competitiveness of digital marketplace platforms.

KEY WORDS: Continuous improvement, Customer satisfaction, Electronic commerce, PDCA, SERVQUAL.

1. INTRODUCTION

The growth of e-commerce has transformed the way companies market their products, establish relationships with consumers, and manage the customer shopping experience. The expansion of digital platforms has generated new opportunities for organizations; however, it has also increased user expectations regarding service quality, transaction security, information availability, and the efficiency of customer service and delivery processes. In this context, service quality represents a relevant factor in customer satisfaction and in strengthening the relationship between consumers

and digital platforms.

Within this scenario, marketplaces have become a relevant business model in e-commerce because they integrate multiple sellers and a wide variety of products within a single platform. However, the participation of different suppliers, logistics operators, and customer service processes increases the complexity of ensuring a consistent service experience. Factors such as reliability, responsiveness, security, and customer care can influence users' perceptions throughout the different stages of their shopping experience. Therefore, the systematic evaluation of service quality represents an important tool for identifying areas for improvement and

strengthening customer satisfaction and user retention on digital platforms.

In Mexico, the transformation of e-commerce has encouraged companies in the retail sector to strengthen their digital strategies through the development of their own platforms and marketplaces. In this context, the Liverpool Marketplace represents an interesting case due to the diversity of products and suppliers operating within a single platform. This characteristic presents the challenge of maintaining consistent quality standards throughout the customer journey, from product search and selection to purchasing, delivery, customer service, and incident resolution processes.

To evaluate perceived service quality, the SERVQUAL model is one of the most widely used tools because it allows researchers to analyze different dimensions associated with users' perceptions of the service received. In digital contexts, its dimensions can be adapted to the specific characteristics of e-commerce platforms and used to identify strengths and areas for improvement in the customer experience. The application of this approach provides a diagnosis of users' perceptions; however, identifying opportunities for improvement must be complemented by systematic mechanisms that enable organizations to design, implement, and evaluate corrective and preventive actions.

In this regard, the PDCA cycle (Plan, Do, Check, and Act) represents a continuous improvement methodology that allows the results obtained through evaluation processes to be transformed into actions aimed at systematically improving organizational processes. The integration of SERVQUAL and PDCA can establish a complementary relationship between service quality diagnosis and the management of improvement actions. While SERVQUAL helps identify the dimensions in which greater opportunities for intervention exist, PDCA provides a structured framework for planning actions, implementing them, verifying their results, and standardizing those that contribute to improving service performance.

Despite the existence of studies addressing e-service quality and the application of continuous improvement methodologies, limited research has specifically integrated the evaluation of perceived service quality through SERVQUAL with a structured improvement proposal based on the PDCA cycle in the context of marketplace platforms. This situation is particularly relevant in the Mexican retail sector, where the consolidation of e-commerce requires organizations to strengthen the customer experience and develop continuous improvement mechanisms that respond effectively to users' expectations.

A synthesis of the reviewed literature consistently indicates that the SERVQUAL dimensions of reliability, responsiveness, and assurance are the aspects that most frequently present significant service quality gaps in e-commerce and marketplace environments, whereas tangibles generally receive the highest evaluations from users (Palese & Usai, 2018; Arli et al., 2024; Yang et al., 2024). In addition, previous studies highlight that the implementation of the PDCA cycle and other continuous improvement approaches contributes to reducing service gaps, strengthening customer satisfaction, and improving the competitiveness of digital platforms (Monoarfa et al., 2024; Pascual et al., 2022; Yuliana et al., 2026). These findings reinforce the relevance of integrating SERVQUAL and PDCA as complementary tools for evaluating and continuously improving service quality in digital marketplace platforms, providing a solid foundation for the present study.

Therefore, the objective of this study is to evaluate perceived service

quality on the Liverpool Marketplace through the application of an instrument based on the SERVQUAL model and, based on the results obtained, to develop a continuous improvement proposal structured around the PDCA cycle. The analysis seeks to identify the main strengths and areas for improvement perceived by users across the evaluated dimensions and to establish actions aimed at strengthening the customer experience and service quality.

The relevance of this study lies in the integration of two complementary approaches to quality management: a model for diagnosing service perceptions and a methodology focused on continuous improvement. From a practical perspective, the findings may contribute to guiding actions related to customer service, responsiveness, security, and other aspects of the digital customer experience. From an academic perspective, the study seeks to provide exploratory evidence regarding the usefulness of linking SERVQUAL and PDCA as complementary tools for analyzing and improving service quality in e-commerce marketplace platforms.

2. Research Elaborations

2.1 Research Approach and Design

This study adopted a quantitative, descriptive, and exploratory research approach to evaluate perceived service quality in the Liverpool Marketplace and to develop a continuous improvement proposal based on the PDCA cycle. The quantitative approach was selected because the study collected and analyzed numerical data obtained through a structured questionnaire designed to assess users' perceptions across the dimensions associated with service quality.

The research followed a non-experimental and cross-sectional design, as the variables were observed and measured without experimental manipulation at a specific point in time. The study focused on identifying the perceived strengths and areas for improvement in the service provided through the Liverpool Marketplace and subsequently using the findings as a basis for structuring improvement actions through the PDCA methodology.

The research process consisted of three main stages. First, a systematic literature review was conducted following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to establish the theoretical foundation of the study. Scientific articles published between 2016 and 2026 were identified through searches in academic databases using keywords related to service quality, SERVQUAL, PDCA, e-service quality, e-commerce, and marketplace platforms. After applying the established inclusion and exclusion criteria, 20 studies were selected for qualitative analysis. The findings from this review supported the adaptation of the SERVQUAL-based questionnaire and the development of the PDCA-based continuous improvement proposal. Second, the SERVQUAL-based questionnaire was administered to users with recent experience purchasing through the Liverpool Marketplace. Finally, the results obtained from the evaluation were analyzed and used to formulate a continuous improvement proposal structured according to the four stages of the PDCA cycle: Plan, Do, Check, and Act.

Table 1. PRISMA 2020 Study Selection Process

PRISMA Process Stage	Number of Records
Records identified through database searching	1,245
Records after duplicates removed	933
Titles and abstracts screened	933

Potentially relevant records (full-text retrieved)	187
Full-text articles assessed for eligibility	87
Articles excluded after full-text assessment	67
Studies included in the final review	20

Source: Authors' own elaboration based on the PRISMA 2020 protocol (Page et al., 2021).

Table 2. Complete Report of the 20 Studies Included in the PRISMA Systematic Literature Review

Author(s)	Title	Main Focus	Key Findings	Relevance to the Present Study
Page, M. J., et al. (2021)	The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews	Methodological guideline	Updates the PRISMA protocol to improve transparency and reproducibility in systematic reviews.	Provides the methodological basis for conducting and reporting the literature review.
Palese, B., & Usai, A. (2018)	The Relative Importance of Service Quality Dimensions in E-Commerce Experiences	Service quality dimensions	Identifies the most influential SERVQUAL dimensions affecting customers' online shopping experiences.	Supports the application of SERVQUAL in digital marketplace environments.
Rita, P., Oliveira, T., & Farisa, A. (2019)	The Impact of E-Service Quality and Customer Satisfaction on Customer Behavior in Online Shopping	Electronic service quality	Confirms the positive relationship between e-service quality, customer satisfaction, and repurchase intention.	Supports the relationship between service quality and customer loyalty.
Blut, M. (2016)	E-Service Quality: Development of a Hierarchical Model	Hierarchical service quality model	Proposes a multidimensional structure of e-service quality, including efficiency, reliability, fulfillment, and privacy.	Provides the theoretical basis for evaluating electronic service quality.
Kumagai, S., & Malolepsza, N. (2021)	The Role of Cognitive and Affective Responses in Online Impulse Buying Behavior	Consumer behavior	Demonstrates that cognitive and affective responses significantly influence online purchasing decisions.	Complements the analysis of customer satisfaction and behavioral responses.
Ighomereho, S. O., et al. (2022)	From Service Quality to E-Service Quality: Measurement Dimensions and Model	Evolution of SERVQUAL	Extends the SERVQUAL model to electronic service environments by incorporating digital service dimensions.	Supports the adaptation of SERVQUAL to e-commerce platforms.
Arlı, D., van Esch, P., & Weaven, S. (2024)	The Impact of SERVQUAL on Consumers' Satisfaction, Loyalty, and Intention to Use Online Food Delivery Services	SERVQUAL application	Demonstrates a direct relationship between perceived service quality, customer satisfaction, and loyalty.	Provides empirical evidence supporting the SERVQUAL model.
Yang, Q., et al. (2024)	Investigating the Crucial Role of Logistics Service Quality in Customer Satisfaction for Fresh E-Commerce	Logistics service quality	Finds logistics quality is a significant determinant of customer satisfaction and repurchase intention.	Connects SERVQUAL with logistics performance in digital commerce.
Monoarfa, T., et al. (2024)	The Crucial Role of E-Logistics Service Quality on Continuous Usage Intention in Fresh Produce E-Commerce	E-logistics service quality	Demonstrates logistics service quality positively influences customers' intention to continue using online platforms.	Reinforces the importance of logistics quality in digital marketplaces.

Hernández-Sampieri, R., & Mendoza, C. (2018)	Research Methodology: Quantitative, Qualitative, and Mixed Methods	Research methodology	Defines methodological approaches applicable to quantitative, qualitative, and mixed-methods research.	Provides methodological support for the study design.
Arias, F. G. (2020)	The Research Project: Introduction to Scientific Methodology	Scientific methodology	Describes the stages involved in scientific research and project development.	Supports the methodological design of the study.
Willits, F. K., Theodori, G. L., & Luloff, A. E. (2016)	Another Look at Likert Scales	Measurement scales	Examines the validity and reliability of Likert scales in social science research.	Supports the use of Likert scales in the SERVQUAL questionnaire.
Hair, J. F., et al. (2019)	Multivariate Data Analysis (8th ed.)	Multivariate statistical analysis	Presents statistical techniques applicable to quality and behavioral research.	Supports the statistical treatment of the collected data.
Hui, et al. (2024)	Service quality in delivery processes	Delivery and return processes	Demonstrates that efficient delivery and return processes increase customer repurchase intention.	Supports the relationship between logistics quality and customer loyalty.
Motowidlak, U., Jakski, M., & Chomik, A. (2024)	Service quality management	Quality management strategy	Identifies service quality as a strategic competitive advantage in digital environments.	Reinforces the strategic role of quality management.
Kim, J., et al. (2024)	Enhancing Continuous Usage Intention in E-Commerce Marketplace Platforms	Customer satisfaction and trust	Confirms that satisfaction and trust positively influence continuous platform usage.	Supports customer loyalty in online marketplaces.
Rashid, A., et al. (2024)	Logistics Service Quality and Product Satisfaction in E-Commerce	Logistics quality	Shows that logistics quality directly affects customer satisfaction.	Connects logistics performance with SERVQUAL dimensions.
Pascual, et al. (2022)	The Effect of E-Commerce Service Quality on Customer Satisfaction, Trust, and Loyalty	Electronic service quality	Demonstrates strong relationships among service quality, trust, and customer loyalty.	Reinforces the SERVQUAL satisfaction model.
Vu, T. P., et al. (2025)	The Links Between Logistics Service Quality, Attitude, and Repurchase Intention	Consumer behavior	Identifies positive customer attitudes as mediators between quality and repurchase intention.	Expands the behavioral perspective of the study.
Yuliana, L., et al. (2026)	Quality Assurance Models Including TQM/PDCA and SERVQUAL in Contemporary Service Contexts	Quality assurance models	Integrates PDCA and SERVQUAL into quality assurance models for modern service organizations.	Provides the theoretical framework for integrating SERVQUAL and PDCA.

Source: Authors' own elaboration based on the literature review following the PRISMA 2020 guidelines.

The 20 studies included in the systematic literature review provided the theoretical and methodological basis for this research. The review identified the SERVQUAL dimensions most frequently associated with customer satisfaction in e-commerce environments and highlighted the effectiveness of the PDCA cycle as a continuous improvement methodology. These findings supported the adaptation of the research instrument, the selection of the study variables, and the development of the PDCA-based improvement proposal applied to the Liverpool Marketplace.

2.2 Population and Sample

The study population consisted of users who had previous experience purchasing products through the Liverpool Marketplace. The sample comprised 150 participants who met the established eligibility criteria and had experience using the platform as customers.

A non-probability convenience sampling approach was used to recruit participants based on their accessibility and availability to participate in the study. The inclusion criteria considered participants who were 18 years of age or older and who had previous experience purchasing products through the Liverpool Marketplace. Participants who did not meet these criteria or who provided incomplete responses were excluded from the analysis.

The sample was selected with the purpose of obtaining an exploratory assessment of users' perceptions regarding the quality of the service provided by the platform. The information collected from the participants was subsequently used to evaluate the five SERVQUAL dimensions and to identify potential areas for improvement that could be addressed through the proposed PDCA-based continuous improvement framework.

Table 3. Participant Inclusion and Exclusion Criteria

Criteria	Description
Inclusion criteria	Participants aged 18 years or older
Inclusion criteria	Users with previous experience purchasing products through the Liverpool Marketplace
Inclusion criteria	Participants who completed the questionnaire
Exclusion criteria	Participants under 18 years of age
Exclusion criteria	Users without previous purchasing experience through the Liverpool Marketplace
Exclusion criteria	Incomplete questionnaires

Source: Authors' own elaboration.

2.3 Research Instrument

Data were collected using a structured questionnaire based on the SERVQUAL model developed by Parasuraman, Zeithaml, and Berry (1988). The instrument was adapted to the context of the Liverpool Marketplace to assess users' perceptions of service quality during their online shopping experience.

The questionnaire consisted of 20 items organized into five dimensions of service quality: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. Each dimension was evaluated through four items designed to assess specific aspects of the user's experience with the digital marketplace, including the platform's presentation and usability, the reliability of the service, the responsiveness to customer needs, the security and confidence associated with online transactions, and the personalized attention provided to users.

The items were measured using a five-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Higher scores indicated a more favorable perception of the service quality provided by the Liverpool Marketplace. The structure of the questionnaire and the distribution of the items across the five SERVQUAL dimensions are presented in Table 2.

Table 4. SERVQUAL-Based Questionnaire Structure

Dimension	Items	Description
Tangibles	P1–P4	Visual presentation, organization, and usability of the digital platform
Reliability	P5–P8	Ability to fulfill commitments and provide the expected service consistently
Responsiveness	P9–P12	Speed and willingness to assist

		users and resolve issues
Assurance	P13–P16	Security, trust, and protection during online transactions
Empathy	P17–P20	Personalized attention and consideration of user needs

Source: Authors' own elaboration based on Parasuraman et al. (1988) and Palese and Usai (2018).

2.4 SERVQUAL Dimensions and Variables

The SERVQUAL model was used as the main framework for evaluating users' perceived service quality. The instrument considered five dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. These dimensions were adapted to the characteristics of the digital marketplace environment to assess different aspects of the users' online shopping experience.

Tangibles refers to the visual and functional aspects of the digital platform. In the context of the Liverpool Marketplace, this dimension considers elements such as the presentation and organization of the platform, the clarity of product information, and the ease of navigation and use.

Reliability refers to the platform's ability to provide the promised service accurately and consistently. In this study, this dimension considers aspects related to the fulfillment of purchase commitments, the accuracy of information provided to users, and the consistency of the service throughout the purchasing process.

Responsiveness refers to the willingness and ability of the service provider to assist customers and provide timely responses to their needs. In the context of the Liverpool Marketplace, this dimension focuses on the speed of customer service, the response to inquiries, and the resolution of problems or incidents that may occur during the purchasing process.

Assurance refers to the level of confidence and security perceived by users during their interaction with the service provider. For the purposes of this study, this dimension includes aspects related to transaction security, protection of personal information, confidence in the purchasing process, and the professionalism of the service provided.

Empathy refers to the degree of personalized attention and consideration given to customers. In the context of the Liverpool Marketplace, this dimension considers the extent to which users perceive that their individual needs are understood and that the platform provides adequate attention and support throughout their shopping experience.

The five dimensions were analyzed using the responses obtained from the questionnaire. The mean score for each dimension was calculated to identify the users' overall perception of service quality and to determine potential areas of improvement. These results subsequently served as the basis for the development of the continuous improvement proposal based on the PDCA cycle.

Table 5. Operationalization of SERVQUAL Dimensions

Dimension	Operational Definition	Measurement
Tangibles	Users' perception of the visual presentation, organization, and usability of the digital marketplace	4 Likert-scale items

Reliability	Users' perception of the platform's ability to fulfill service commitments accurately and consistently	4 items	Likert-scale
Responsiveness	Users' perception of the speed and willingness to provide assistance and resolve issues	4 items	Likert-scale
Assurance	Users' perception of security, trust, and confidence during online transactions	4 items	Likert-scale
Empathy	Users' perception of personalized attention and consideration of their individual needs	4 items	Likert-scale

Source: Authors' own elaboration, based on the SERVQUAL framework and its application to e-commerce contexts (Palese & Usai, 2018).

2.5 Data Collection Procedure

Data collection was conducted through the administration of a structured questionnaire to users who had previous experience purchasing products through the Liverpool Marketplace. Prior to completing the questionnaire, participants were informed about the purpose of the study and the general characteristics of their participation. Only responses from participants who met the established inclusion criteria were considered for the analysis.

The questionnaire was administered to a sample of 150 participants, and the responses obtained were compiled for subsequent statistical analysis. The collected data were reviewed to identify incomplete responses and ensure that the information was suitable for analysis. The valid responses were then organized according to the five SERVQUAL dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy.

The responses obtained through the five-point Likert scale were subsequently coded and organized into a database. Descriptive statistics were calculated for each SERVQUAL dimension to determine the average perceived service quality. In addition, the internal consistency of the questionnaire was evaluated using Cronbach's alpha coefficient.

The data collection and analysis process followed a structured procedure to ensure consistency between the research objectives, the measurement instrument, and the subsequent interpretation of the results. The findings obtained from the SERVQUAL assessment were later used to identify areas of opportunity and establish the basis for the continuous improvement proposal developed according to the PDCA cycle.

2.6 Data Analysis

The data collected through the SERVQUAL-based questionnaire were organized and analyzed using descriptive statistical procedures. The analysis focused on determining users' perceived service quality across the five dimensions of the model: Tangibles, Reliability, Responsiveness, Assurance, and Empathy.

For each SERVQUAL dimension, the mean score was calculated based on the responses provided by the participants. The mean

scores were used to identify the general perception of users regarding the quality of the service provided by the Liverpool Marketplace and to determine the dimensions with greater opportunities for improvement.

The responses were measured using a five-point Likert scale, ranging from 1 (Strongly disagree) to 5 (Strongly agree). The resulting mean scores were interpreted according to the evaluation ranges established for the study, allowing the perceived level of service quality to be classified from Very Poor to Excellent.

In addition to the descriptive analysis, the internal consistency of the questionnaire was assessed using Cronbach's alpha coefficient. This analysis was conducted for the overall instrument and for each of the five SERVQUAL dimensions. The reliability results were considered when interpreting the findings and assessing the consistency of the measurement instrument.

The results obtained from the descriptive analysis and reliability assessment were subsequently used to identify areas of opportunity in service quality. These findings served as the basis for developing the continuous improvement proposal structured according to the PDCA cycle, linking the diagnosis of perceived service quality with the formulation of improvement actions.

Table 6. Interpretation Scale for SERVQUAL Mean Scores

Mean Score Range	Interpretation
4.21–5.00	Excellent
3.41–4.20	Good
2.61–3.40	Fair
1.81–2.60	Poor
1.00–1.80	Very Poor

Source: Authors' own elaboration.

2.7 PDCA-Based Continuous Improvement Proposal

Based on the results obtained from the SERVQUAL assessment, a continuous improvement proposal was developed using the Plan–Do–Check–Act (PDCA) cycle. This methodology was selected because it provides a systematic approach for identifying service quality gaps, implementing corrective actions, evaluating their effectiveness, and promoting continuous improvement.

The PDCA cycle was used as a management framework to translate the findings of the SERVQUAL analysis into practical actions aimed at improving customer satisfaction within the Liverpool Marketplace. Each phase of the cycle was designed to address specific service quality dimensions identified during the evaluation process.

During the Plan phase, the dimensions with the greatest opportunities for improvement were identified, and improvement objectives were established. The Do phase focused on implementing corrective actions, including process optimization, staff training, and enhancements to customer service and digital platform performance. In the Check phase, performance indicators were proposed to evaluate the effectiveness of the implemented actions and monitor improvements in service quality. Finally, the Act phase emphasized the standardization of successful practices and the establishment of continuous monitoring procedures to ensure long-term service improvement.

The integration of SERVQUAL and the PDCA cycle provides organizations with a structured methodology for diagnosing service

quality and implementing evidence-based improvement strategies that contribute to enhancing the customer experience.

Table 7. PDCA-Based Continuous Improvement Framework

PDCA Phase	Objective	Proposed Actions	Expected Outcome
Plan	Identify service quality gaps	Analyze SERVQUAL results and prioritize improvement areas	Improvement plan established
Do	Implement improvement actions	Staff training, platform optimization, customer service improvements	Improved service performance
Check	Evaluate implemented actions	Monitor customer satisfaction, response times, and complaints	Assessment of improvement effectiveness
Act	Standardize successful practices	Update procedures and establish continuous monitoring	Continuous improvement and service consistency

Source: Authors' own elaboration based on the PDCA approach described by Fonseca (2021).

3. Results

The SERVQUAL model was applied to evaluate the perceived service quality of the Liverpool Marketplace based on the responses of 150 participants. The results include the reliability assessment of the measurement instrument, followed by the descriptive analysis of the five SERVQUAL dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. Although the reliability analysis revealed low internal consistency, the descriptive results provide an exploratory overview of users' perceptions and support the development of the PDCA-based continuous improvement proposal.

3.1 Reliability Analysis

The internal consistency of the adapted SERVQUAL questionnaire was evaluated using Cronbach's alpha coefficient. The questionnaire consisted of 20 items distributed across five dimensions, with four items assigned to each dimension. The overall reliability coefficient obtained was $\alpha = 0.23$, indicating an unacceptable level of internal consistency. Similarly, the coefficients calculated for each SERVQUAL dimension were below the commonly accepted threshold of 0.70.

The low and, in some cases, negative Cronbach's alpha values suggest limited correlations among the questionnaire items. According to the analysis, this outcome is mainly explained by a ceiling effect, as most participants selected the highest response

categories (4 and 5), substantially reducing the variability of the data and weakening the inter-item correlations. Therefore, although the descriptive results are presented as an exploratory assessment of service quality, they should be interpreted with caution. Future studies should refine and validate the measurement instrument through pilot testing, factor analysis, and revision of the questionnaire items.

Table 8. Evaluation of Service Quality Using the SERVQUAL Model

SERVQUAL Dimension	Mean Score	Level	Interpretation
Tangibles	4.79	Excellent	Main strength. Interface and presentation were highly rated.
Reliability	4.41	Excellent	High fulfillment of promises and service availability.
Responsiveness	4.49	Excellent	Positive evaluation of response speed and willingness to assist customers.
Assurance	4.48	Excellent	High perception of trust and security during online transactions.
Empathy	4.49	Excellent	Positive perception of personalized attention and customer care.

Source: Authors' own elaboration based on the corrected database (n = 150).

The results presented in Table 6 show that all five SERVQUAL dimensions obtained mean scores above 4.40, classifying them as Excellent according to the evaluation criteria established for this study. The Tangibles dimension achieved the highest mean score ($M = 4.79$), indicating that participants expressed a highly favorable perception of the platform's visual appearance, organization, and ease of navigation.

The remaining dimensions—Reliability ($M = 4.41$), Responsiveness ($M = 4.49$), Assurance ($M = 4.48$), and Empathy ($M = 4.49$)—also received excellent evaluations, suggesting that users perceive the Liverpool Marketplace as a reliable platform that provides timely assistance, secure transactions, and personalized customer service.

Despite these positive findings, the descriptive results should be interpreted as exploratory due to the low internal consistency of the measurement instrument identified during the reliability analysis. Consequently, while the high mean scores reflect a favorable perception of service quality, additional validation of the questionnaire is recommended before drawing broader conclusions.

4. Discussion

The findings of this study indicate that users perceive the Liverpool Marketplace as providing a high level of service quality across all five SERVQUAL dimensions. The highest score was obtained for the Tangibles dimension, suggesting that participants positively evaluated the platform's visual appearance, organization, and ease of use. Likewise, the dimensions of Reliability, Responsiveness, Assurance, and Empathy also achieved excellent mean scores,

reflecting favorable perceptions of the shopping experience.

These findings are consistent with previous studies that emphasize the importance of service quality in e-commerce environments. Research has shown that website usability, transaction security, customer support, and responsiveness are key determinants of customer satisfaction and loyalty in digital marketplaces. The high scores obtained in this study reinforce the relevance of these dimensions in shaping users' perceptions of online service quality.

Despite the positive evaluations obtained through the descriptive analysis, the reliability assessment revealed a low Cronbach's alpha coefficient. This limitation suggests that the measurement instrument requires further refinement and validation before the findings can be generalized. Similar methodological challenges have been reported in exploratory studies where respondents tend to concentrate their answers in the highest categories of the Likert scale, reducing data variability and affecting internal consistency.

The integration of the SERVQUAL model with the PDCA cycle represents one of the main contributions of this study. While SERVQUAL provides a structured diagnosis of perceived service quality, the PDCA methodology offers a systematic framework for translating those findings into continuous improvement actions. This combination enables organizations not only to identify strengths and weaknesses but also to implement, monitor, and standardize improvement initiatives aimed at enhancing customer satisfaction.

Overall, the study contributes to the literature on service quality assessment in e-commerce by proposing a practical framework that combines service quality evaluation with continuous improvement. Future research should focus on validating the measurement instrument with larger and more diverse samples and evaluating the effectiveness of the proposed PDCA strategy after its implementation.

5. CONCLUSION

This study evaluated the service quality of the Liverpool Marketplace using the SERVQUAL model and developed a continuous improvement proposal based on the Plan–Do–Check–Act (PDCA) cycle. The results indicate that users generally perceive the platform positively, with all five SERVQUAL dimensions—Tangibles, Reliability, Responsiveness, Assurance, and Empathy—achieving high mean scores. Among these dimensions, Tangibles received the highest evaluation, reflecting users' satisfaction with the platform's visual design, organization, and ease of navigation.

The findings demonstrate that the SERVQUAL model is an effective framework for identifying strengths and opportunities for improvement in e-commerce service quality. Furthermore, integrating SERVQUAL with the PDCA methodology provides organizations with a structured approach for transforming customer feedback into continuous improvement actions. This combination contributes to improving customer satisfaction and supports better decision-making in digital service management.

Despite the positive perceptions identified in the descriptive analysis, the reliability assessment revealed a low Cronbach's alpha coefficient, indicating limited internal consistency of the measurement instrument. Therefore, the results should be interpreted as exploratory. Future studies should refine and validate the questionnaire by reviewing the survey items, increasing sample diversity, and conducting additional statistical validation procedures to improve the instrument's reliability.

In conclusion, this research contributes to the understanding of

service quality assessment in online marketplaces by demonstrating the applicability of the SERVQUAL model in combination with the PDCA cycle. The proposed methodology offers a practical framework that can assist organizations in continuously monitoring and improving service quality. Future research may expand this work by applying the proposed framework to other e-commerce platforms and comparing customer perceptions across different digital marketplaces.

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