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ARTICLE

# COMPETITIVE INTELLIGENCE AND CONSUMER ENGAGEMENT IN LIVE E-COMMERCE

## INTELIGÊNCIA COMPETITIVA E ENGAJAMENTO DO CONSUMIDOR NO E-COMMERCE AO VIVO

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**ABSTRACT**

**Purpose:** Live e-commerce has developed as a powerful digital selling channel that combines online shopping convenience with real-time interaction between sellers and consumers. This model has created new opportunities for promoting traditional handicraft products by enabling artisans and sellers to demonstrate craftsmanship, authenticity, and cultural value (CV) through live-streaming platforms. However, increasing competition and similarity of promotional strategies make it difficult to maintain consumer engagement (CE). Therefore, this research investigates the impact of competitive intelligence (CI), quality assurance (QA), and perceived value (PV) on CE in traditional handicraft markets.

**Methodology/approach:** A total of 275 consumers who had purchased handicraft items via live e-commerce platforms participated by completing a structured questionnaire. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. CI enables analysis of competitor strategies and customer responses, QA focuses on product authenticity and reliability to build consumer trust (TR), and PV reflects evaluation of product benefits including usefulness, cultural significance, and uniqueness.

**Originality/Relevance:** The study provides insights into how CI, QA, and PV influence consumer engagement in live-streaming handicraft markets, addressing challenges of competition and promotional similarity.

**Key findings:** The results indicate that CI, TR (β = 0.32) and QA significantly enhances PV, which in turn positively influences CE and purchasing intention in live-streaming handicraft markets.

**Theoretical/methodological contributions:** The research applies PLS-SEM to examine relationships among CI, QA, PV, TR, and CE, offering a structured analytical approach to understanding consumer behavior in live e-commerce environments.

**Keywords:** Live e-commerce. Competitive intelligence. Quality assurance. Perceived value. Consumer engagement. Traditional handicrafts.

**DOI:** https://doi.org/10.37497/eagleSustainable.v16i.638

**RESUMO**

**Objetivo:** O comércio eletrônico ao vivo desenvolveu-se como um poderoso canal de vendas digital que combina a conveniência das compras online com a interação em tempo real entre vendedores e consumidores. Este modelo criou novas oportunidades para promover produtos artesanais tradicionais, permitindo que artesãos e vendedores demonstrem habilidade, autenticidade e valor cultural (CV) por meio de plataformas de transmissão ao vivo. No entanto, o aumento da concorrência e a semelhança das estratégias promocionais dificultam a manutenção do engajamento do consumidor (CE). Portanto, esta pesquisa investiga o impacto da inteligência competitiva (CI), garantia de qualidade (QA) e valor percebido (PV) sobre o CE em mercados de artesanato tradicional.

**Metodologia/abordagem:** Um total de 275 consumidores que haviam adquirido itens artesanais por meio de plataformas de comércio eletrônico ao vivo participou respondendo a um questionário estruturado. Os dados foram analisados utilizando Modelagem de Equações Estruturais por Mínimos Quadrados Parciais (PLS-SEM) com o software SmartPLS. A CI permite a análise de estratégias de concorrentes e respostas dos clientes, a QA foca na autenticidade e confiabilidade do produto para construir confiança do consumidor (TR), e o PV reflete a avaliação dos benefícios do produto, incluindo utilidade, significado cultural e singularidade.

**Originalidade/Relevância:** O estudo fornece insights sobre como CI, QA e PV influenciam o engajamento do consumidor em mercados de artesanato via transmissão ao vivo, abordando desafios de concorrência e similaridade promocional.

**Principais conclusões:** Os resultados indicam que CI, TR (β = 0,32) e que a QA aumenta significativamente o PV, que por sua vez influencia positivamente o CE e a intenção de compra em mercados de artesanato com transmissão ao vivo.

**Contribuições teóricas/metodológicas:** A pesquisa aplica PLS-SEM para examinar as relações entre CI, QA, PV, TR e CE, oferecendo uma abordagem analítica estruturada para compreender o comportamento do consumidor em ambientes de comércio eletrônico ao vivo.

**Palavras-chave:** E-commerce ao vivo. Inteligência competitiva. Garantia de qualidade. Valor percebido. Engajamento do consumidor. Artesanato tradicional.

## 1 INTRODUCTION

Electronic Commerce is a revolutionary step towards modern-day retail economies that combine information technology infrastructure, logistic networks, and interactive consumer interfaces. The fast growth in the availability of broadband and the use of smartphones has greatly boosted the development of digital markets and transformed the trends of consumerism in the economies of the world. Web-based retailing offers greater accessibility, wide product differentiation, and facilitation of transactions that transform the business relationship between the producers and consumers (Palmié et al., 2022). Clearly, the informative decisions to

purchase involve transparent price comparison, product assessment, and immediate communication, which are enabled by digital environments.

Live E-Commerce is an innovative modern development of online shopping that is combined with live video broadcasting and interactive sales communication. Digital platforms merge technology, livestreaming, instant messaging services, and product demonstration synchronization to form a virtual space that is close to face-to-face retail communication. Live interaction creates interactive shopping experiences with elements of entertainment, narration, and advertisement. Live comments, reactions, and instant purchasing options make the audience more engaged with the suppliers and the viewers (Hornik et al., 2025), using Figure 1.

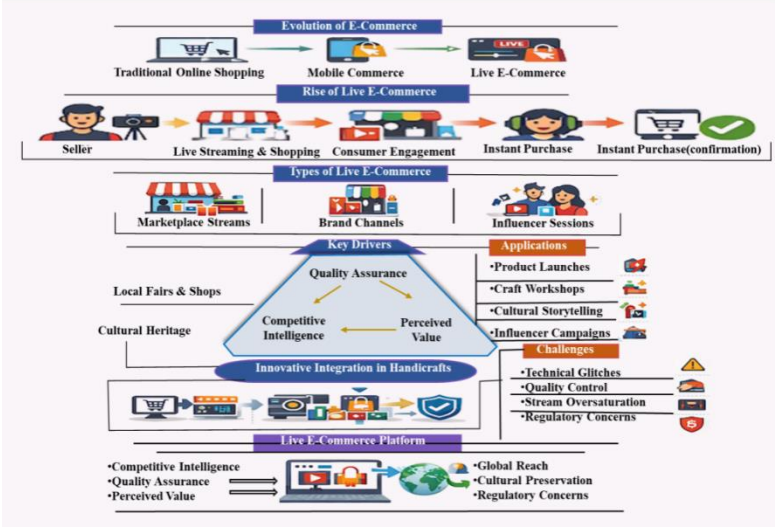


**Figure 1:** Integrated Method of Live E-Commerce in Handicrafts

Live ecosystems of commerce are structured using various formats of commercial interaction within the digital platform. Influencer-led streaming is a prevailing type of streaming that involves digital influencers demonstrating products to existing audiences and using social influence to change buying behavior. Streaming events hosted by the brand are direct product demonstrations by corporate representatives or brand ambassadors. Livestreaming that is integrated in the marketplace is carried out on big retailing websites where sellers drive interactive demonstrations to enhance product recognition and consumer interaction. Community-based streaming events focus on local business and cultural narration to emphasize local products and traditional craftsmanship (Liang et al., 2025). The livestream format of education has additionally placed importance on the sharing of knowledge, source of production, and cultural storytelling, which has enhanced the perceived authenticity and value of the product. In livestream commerce, handicraft sellers increasingly rely on digital transformation to reach broader markets. Consumer engagement in this context is influenced by multiple factors, including quality assurance (product authenticity and trust), competitive intelligence (market insights and strategy), and perceived value (cultural, emotional, and functional benefits).

Although livestream commerce has rapidly grown, there is a paucity of other scholarly studies on CE mechanisms in conventional handicraft livestream markets. Consumer purchase intention (PI) during brand crises in live-streaming e-commerce was examined using surveys and structural equation modeling (SEM) (Zhang et al., 2025). TR significantly influenced PI, with a focus on crisis scenarios, limiting generalization. Textual marketing signals improved foreign customer engagement by over 20% using large-scale product analysis (Lee, 2025), while excluding visual or live interaction factors constrained applicability. Problems related to low CE and uncertain purchasing behavior in live-stream handicraft markets were overcome by improving strategic insights and strengthening product credibility and perceived benefits.

## 2 THEORETICAL FRAMEWORK

Live e-commerce research highlights the importance of key constructs such as Competitive Intelligence (CI), Quality Assurance (QA), Trust (TR), Perceived Value (PV), Consumer Engagement (CE), and Purchase Intention (PI). Table 1 presents the summarized prior research, highlighting objectives, methodologies, outcomes, and identified research limitations.

**Table 1:** Summary of Live E-Commerce, CI, and Handicraft Quality Studies

| Reference | Objective | Method | Result | Limitation |
|---|---|---|---|---|
| Liu et al., (2023) | Analyzed CE and purchase behavior in live-streaming e-commerce | SEM with survey data | Engagement enhanced purchase behavior; explained 57% variance | Cross-sectional data restricted temporal analysis |
| Tedjakusuma et al., (2025) | Explored TR-driven CE | Framework integrating streamer characteristics, platform credibility | TR strengthened engagement; path coefficient 0.50 | Limited analysis of product quality |
| Chen & Yang, (2023) | Studied influencer effects on PI | Survey-based model on influencer TR | TR increased PI; coefficient 0.55 | Excluded platform-level competitive dynamics |
| Wu et al., (2023) | Assessed CI in SME adaptation | Quantitative analysis and structural modeling | Intelligence improved adaptability; variance 58% | Focused on general SME contexts, not live-commerce |
| Barata et al., (2023) | Examined AI and e-commerce adoption in SMEs | Survey-based multi-factor model | AI adoption improved efficiency; 25% increase | Focused on technology, not engagement outcomes |
| Kulawardena et al., (2026) | Analyzed e-commerce adoption in handicrafts | Survey on technological readiness and support | Perceived usefulness influenced adoption; coefficient 0.60 | Did not evaluate CE |
| Nair et al., (2024) | Developed a digital platform for handicraft marketing | Web-based platform with product and artisan management | Improved visibility; satisfaction 80% | Lacked evaluation of purchasing behavior or engagement |

Overall, prior studies confirm that trust and engagement are critical drivers of purchase intention in live commerce. However, limited research integrates CI, QA, and perceived value within handicraft livestream contexts.

Prior studies on live-streaming e-commerce have predominantly focused on consumer trust, influencer effects, and engagement mechanisms. CI and technological adoption were examined in broader e-commerce contexts. However, limited attention was given to how QA and PV jointly influence CE in traditional handicraft markets within live-streaming environments. To overcome challenges in sustaining CE and PI, the research analyzed key influencing factors and mediating mechanisms within live-stream commerce for handicraft products.

### 2.1 Hypothesis Development

This research proposes that CI, QA, information quality (IQ), and seller expertise (SE) influence consumer perceptions in live e-commerce handicraft markets. TR, perceived authenticity (PA), and CV shape PV and engagement, ultimately affecting PI. Additionally, mediating mechanisms explain how these relationships strengthen CE and purchasing decisions.

H1: CI positively influences TR.
H2: QA positively influences PA.
H3: IQ positively influences CV.
H4: SE positively influences TR.
H5: TR is expected to have a positive effect on PV.
H6: PA is expected to have a positive effect on PV.
H7: CV is expected to have a positive effect on CE.
H8: PV is expected to have a positive effect on PI.
H9: TR is an intermediary in the relationship between CI and PV.
H10: PA will mediate the correlation between QA and PV.
H11: CV is a mediator between IQ and CE.
H12: PV is the indirect aspect in the connection between TR & PI.

Conceptual model figure 2 shows how the major influencing factors, mediators, and outcomes relate in the live-stream business of time-honoured handicraft products.

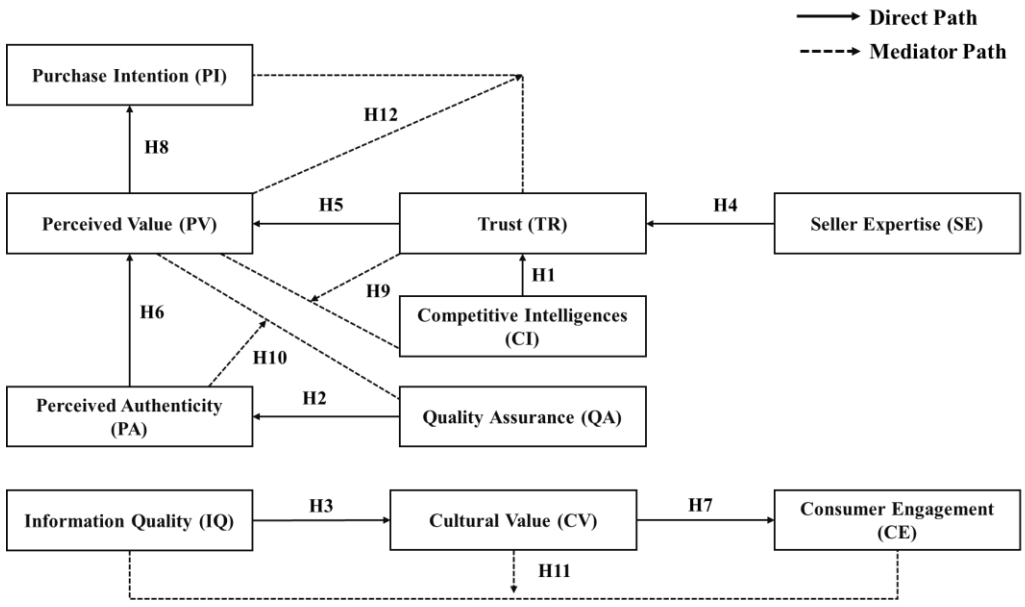


**Figure 2:** Determinants of PI in Live E-Commerce

## 3 METHOD

This study adopts a quantitative research design to examine the relationships between CI, QA, PV, CE, and PI in live e-commerce for handicraft products. A cross-sectional survey was carried out on consumers who have experience in buying handicrafts via live-streams. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM is suitable for this study due to its ability to handle complex models with multiple constructs, its predictive capability, and its suitability for moderate sample sizes without strict normality assumptions. It is also appropriate in multifaceted associations among many constructs and provides predictive models with moderate sample sizes without the need to make strict requirements of normal distributions.

### 3.1 Participants and Sampling Strategy

The research focuses on consumers who have experience in buying traditional handicraft products on the basis of live e-commerce. These platforms allow sellers to show products with live and interactive video streaming features. Participants were selected through purposive sampling, a non-random method of recruitment, based on their experience purchasing the products. This method ensures that participants have relevant experience in live-stream shopping, improving the validity of responses.

### 3.1.1 Selection Criteria:

A total of 350 respondents were initially contacted. After applying inclusion and exclusion criteria, 275 valid responses were retained for analysis, while 75 responses were excluded.

Inclusion Criteria

The resulting criteria were used to select excellent respondents included in the research:

- Consumers who have experience watching live e-commerce streaming sessions.
- Consumers who have purchased traditional handicraft products through live e-commerce platforms at least once.
- Respondents aged 18 years and above.
- Consumers who are familiar with online shopping and live-stream commerce platforms.
- Respondents who completed the questionnaire fully without missing responses.

Exclusion Criteria

The following respondents were excluded from the research:

- 30 respondents who had no prior experience purchasing handicrafts through live-stream platforms.
- 18 respondents who provided incomplete or partially filled questionnaires.
- 15 respondents reported no experience watching live e-commerce sessions.
- 12 respondents whose responses showed inconsistent or patterned answers, indicating low response reliability.

### 3.2 Data Collection

Data were gathered with an arranged questionnaire survey designed to measure respondents' perceptions of CI, QA, IQ, SE, TR, PA, CV, PV, CE, and PI in live e-commerce environments. The questionnaire was distributed through online platforms and social media channels to reach consumers who actively participate in live-stream shopping. Participants had the option to voluntarily participate in the research. All data collected from each participant was recorded without the use of personal identifiers. All data has been destructively anonymized, and for academic use only 275 full survey responses were analyzed and the data is represented in Table 2.

**Table 2:** Characteristics of Live E-Commerce Respondents

| ***Construct*** | ***Category*** | ***Frequency*** | ***Percentage*** (%) |
|---|---|---|---|
| ***Gender*** | *Male* | 132 | 48.0 |
| | *Female* | 143 | 52.0 |
| ***Age Group (Years)*** | $18-25$ | 96 | 34.9 |
| | $26-35$ | 104 | 37.8 |
| | $36-45$ | 49 | 17.8 |
| | *46 and above* | 26 | 9.5 |
| ***Education Level*** | *High School* | 41 | 14.9 |
| | *Diploma* | 56 | 20.4 |
| | *Bachelor's Degree* | 112 | 40.7 |
| | *Master's Degree* | 53 | 19.3 |
| | *Doctorate* | 13 | 4.7 |
| ***Occupation*** | *Student* | 72 | 26.2 |
| | *Private Sector Employee* | 98 | 35.6 |
| | *Government Employee* | 41 | 14.9 |
| | *Self − employed / Business* | 39 | 14.2 |
| | *Other* | 25 | 9.1 |
| ***Experience with Live E − Commerce (Years)*** | *Less than* 1 | 74 | 26.9 |
| | $1-2$ | 101 | 36.7 |
| | $3-4$ | 63 | 22.9 |
| | *More than* 4 | 37 | 13.5 |
| ***Frequency of Watching Live Commerce*** | *Rarely* | 38 | 13.8 |
| | *Occasionally* | 89 | 32.4 |
| | *Frequently* | 96 | 34.9 |
| | *Very Frequently* | 52 | 18.9 |
| ***Frequency of Purchasing Handicrafts via Live Commerc (times)*** | *Once* | 47 | 17.1 |
| | $2-3$ | 96 | 34.9 |
| | $4-5$ | 73 | 26.5 |
| | *More than* 5 | 59 | 21.5 |
| ***Preferred Live Commerce Platform*** | *TikTok Live* | 82 | 29.8 |
| | *Facebook Live* | 76 | 27.6 |
| | *Instagram Live* | 58 | 21.1 |
| | *Other Platforms* | 59 | 21.5 |

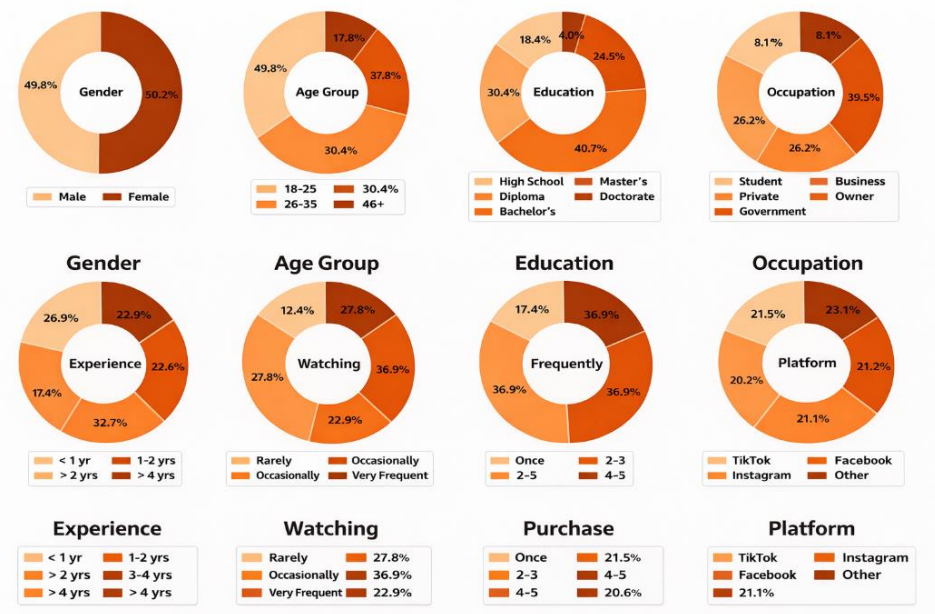


**Figure 3:** Demographic Characteristics of Live Commerce Participants

In Figure 3, the sample consisted of slightly more females (52%) than males (48%) and was in the age range of 26-35 years (37.8%). The majority held a bachelor's degree (40.7%) and worked in the private sector (35.6%). Most had 1-2 years of live commerce experience and actively engaged with platforms such as TikTok Live. This method is appropriate for predictive research and complex structural models involving multiple latent variables.

The measurement items were adapted from prior validated studies in e-commerce and marketing literature. A pilot study was conducted with a small group of respondents to ensure clarity and relevance of the items. Based on feedback, minor modifications were made to improve wording and contextual fit. Content validity was further ensured through expert review.

### 3.3 Measurement of Constructs

The research measured all constructs through multi-item scales based on previously established literature in e-commerce and marketing. The questionnaire items were marginally adjusted to the situation of live e-commerce markets of handicrafts. A five-point Likert scale was used to estimate all the measurement items, Table 3.

CI: It means the capability of sellers to track the strategies, prices, and customer responses of competitors to make marketing decisions in real-time commerce via live-stream.

QA: It is the ability of sellers to show authenticity, craftsmanship, reliability, and transparency when using products in live-streams to gain consumer trust.

IQ: It is defined as the accuracy, completeness, relevance, and clarity of product information given by sellers in the course of live-streaming commerce sessions.

SE: The knowledge, experience, and professional competence that sellers show in discussing the product features and responding to questions asked by consumers.

TR: It describes the TR that consumers have in the reliability, honesty, and credibility of sellers and the product information shared in live-stream commerce.

PA: It is based on the perception of the consumers that handicraft goods are authentic, traditionally made, culturally significant, and not manufactured high-volume products.

CV: Respects the heritage value, symbolic value, and cultural identity of handicraft products, which shape consumer appreciation and involvement.

PV: This is the general assessment of the benefits of products, such as quality, uniqueness, usefulness, and cultural meanings, at the cost to the consumers.

CE: CE is the active involvement of consumers in the live-stream sessions in the form of interactions: commenting, questioning, sharing content, and discussing products.

PI: The intention and probability of consumers to purchase handicraft products after seeing demonstrations and interactions in live-stream commerce sessions.

**Table 3:** Measurement Items and Questionnaire Constructs for Live-Streaming Handicraft Commerce Study

| Construct | Code | Questionnaire Item |
|---|---|---|
| **CI** | CI1 | The seller demonstrates awareness of competitors' pricing strategies during live-stream sessions. |
| | CI2 | The seller adapts promotional strategies based on market competition. |
| | CI3 | The seller responds effectively to competitor offers during live-stream commerce. |
| | CI4 | The seller compares products with similar offerings available in the market. |
| **QA** | QA1 | The seller clearly demonstrates the quality of handicraft products during live streaming. |
| | QA2 | The seller provides reliable information about product materials and craftsmanship. |
| | QA3 | The seller ensures that the handicraft products presented are authentic and genuine. |
| | QA4 | The seller assures the durability and reliability of the products. |
| **IQ** | IQ1 | The information provided during live-stream sessions is clear and easy to understand. |
| | IQ2 | The seller provides complete information about the handicraft products. |
| | IQ3 | The information presented during live streaming is accurate and reliable. |
| | IQ4 | The live-stream session provides sufficient details to evaluate the product. |
| **SE** | SE1 | The seller demonstrates strong knowledge about handicraft products. |
| | SE2 | The seller provides professional explanations about product features. |
| | SE3 | The seller effectively answers customer questions during live sessions. |
| | SE4 | The seller appears experienced in presenting handicraft products. |
| **TR** | TR1 | I TR the seller presenting handicraft products during live-stream sessions. |
| | TR2 | The seller appears honest when presenting product information. |
| | TR3 | I believe the seller provides reliable and truthful information. |
| | TR4 | I feel confident purchasing handicraft products from this seller. |
| **PA** | PA1 | The handicraft products presented during live streaming appear authentic. |
| | PA2 | The products reflect genuine traditional craftsmanship. |
| | PA3 | The products seem handmade rather than mass-produced. |
| | PA4 | The seller effectively demonstrates the authenticity of the products. |

| | | |
|---|---|---|
| **CV** | CV1 | The handicraft products represent important cultural traditions. |
| | CV2 | The products reflect cultural heritage and artistic value. |
| | CV3 | Purchasing these handicrafts helps preserve traditional culture. |
| | CV4 | The products carry meaningful cultural significance. |
| **PV** | PV1 | The handicraft products provide good value for money. |
| | PV2 | The products offer unique benefits compared with ordinary products. |
| | PV3 | The handicrafts are worth purchasing because of their quality and uniqueness. |
| | PV4 | Overall, the handicraft products presented during live streaming offer high value. |
| **CE** | CE1 | I actively interact with the seller during live-stream sessions. |
| | CE2 | I often comment or ask questions during live-stream events. |
| | CE3 | I enjoy participating in discussions during live-stream shopping sessions. |
| | CE4 | I feel highly involved when watching live-stream commerce events. |
| **PI** | PI1 | I am likely to purchase handicraft products presented during live-stream sessions. |
| | PI2 | I would consider buying handicraft products recommended in live-stream commerce. |
| | PI3 | I intend to purchase handicraft products from live-stream sellers in the future. |
| | PI4 | I am willing to buy handicraft products during live-stream shopping events. |
| ***Scale***: $1 = Strongly\ Disagree \mid 2 = Disagree \mid 3 = Neutral \mid 4 = Agree \mid 5 = Strongly\ Agree$ | | |

### 3.4 Data Analysis Technique

The data gathered was investigated through PLS-SEM, utilizing SmartPLS software. The approach is appropriate in predictive research designs and intricate correlations between a number of constructs. The analysis was divided into two parts: a measurement model was employed to assess reliability and validity, while a structural model was used to evaluate the proposed hypotheses.

#### 3.4.1 Measurement Model Evaluation

Reliability and validity of the constructs were evaluated by analyzing factor loadings (0.70) for indicator reliability. Cronbach's alpha (CA) and composite reliability (CR) 0.70 for internal consistency, Average Variance Extracted (AVE) 0.50 for convergent validity, and Fornell-Larcker along with Heterotrait-Monotrait (HTMT) ratios for discriminant validity. Reliability was assessed using Cronbach's alpha and composite reliability (threshold > 0.70). Convergent validity was evaluated using Average Variance Extracted (AVE > 0.50), while discriminant validity was assessed using the Fornell–Larcker criterion and HTMT ratio.

#### 3.4.2Structural Method Valuation

It was tested after ensuring the measurement model was valid to ascertain the proposed hypotheses. Relationship significance was identified using t-statistics, path coefficients (β), and p-values attained via bootstrapping. R2 was used to measure model explanatory power, and f2 and Q2 were used to determine the contribution and predictive capability of constructs.

## 4 RESULTS AND DISCUSSION

The research examined the Constructs that affected CE and PI in live-stream commerce. PLS-SEM, bootstrapping, EFA, model fit indices, HTMT discriminant validity, predictive relevance ($Q^2$), and effect size ($f^2$) were employed. All tests showed significant relationships ($p < 0.001$), confirming hypothesized effects.

4.1 Measurement Method Assessment

It was assessed to determine the constructs' reliability, convergent validity, and discriminant validity. The assessment included:

• Factor Loadings - To assess whether each questionnaire item adequately represents its intended construct.

• CA - To estimate the internal consistency of each construct.

• CR - To determine the overall reliability of a construct, accounting for varying item loadings.

•AVE - To quantify the volume of alteration captured by a concept relative to measurement error, ensuring convergent validity.

### 4.1.1 Reliability and Convergent Validity

Figure 4 shows that all constructs were found to be highly internally consistent with CA (0.87-0.91) and CR (0.90-0.94), growing beyond thresholds and AVE values (0.69-0.80), indicating sufficient convergent validity.

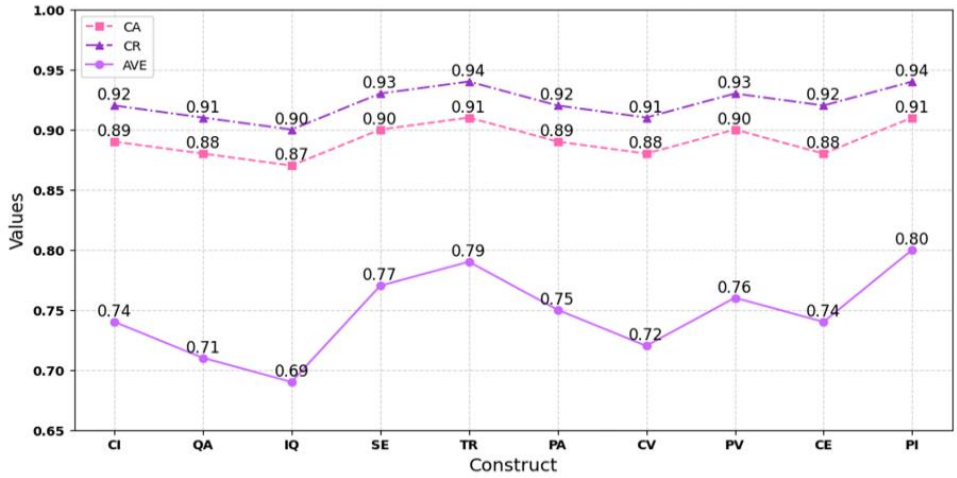


**Figure 4:** Reliability and Convergent Validity

### 4.2 HTMT Discriminant Validity

Figure 5 shows all HTMT values were below 0.90, which supported the adequate discriminant validity of constructs. The highest level of association was found between PV and PI (0.74), which depicts similar but different constructs.

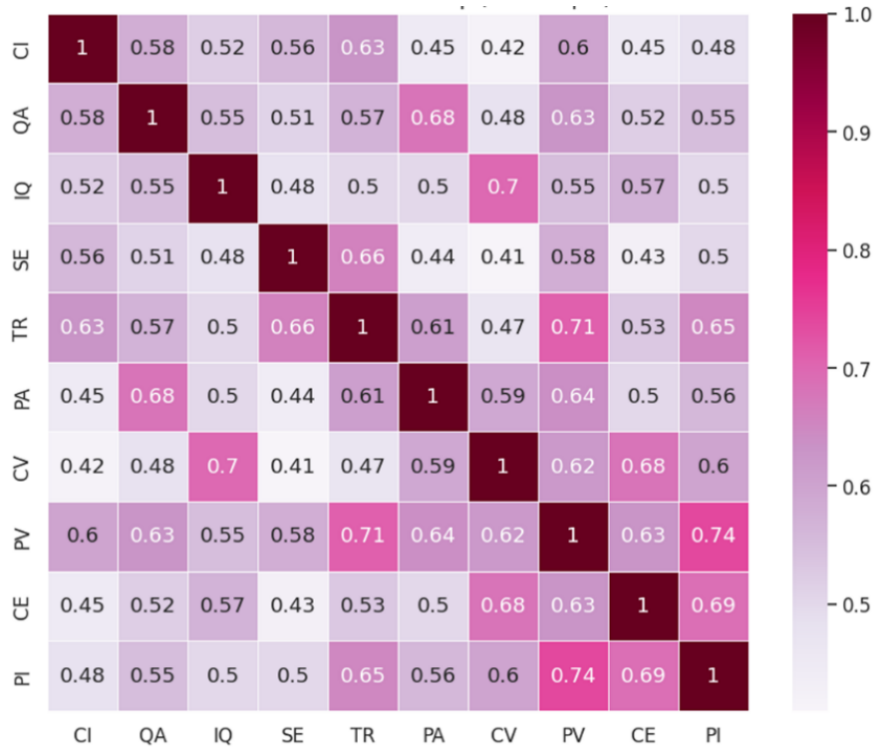


**Figure 5:** HTMT Discriminant Validity

### 4.3 Predictive Relevance ($Q^2$) and Effect Size ($f^2$)

Table 4 shows that no predictors had insignificant effects on the outcomes of f2 and Q2. The greatest effect was observed in PV to PI (f2 = 0.41, Q2 = 0.47), CV to CE (f2 = 0.29, Q2 = 0.36), and an intermediate effect was CI to TR (f2 = 0.12, Q2 = 0.28).

**Table 4:** $f^2$ and $Q^2$ of Structural Model Paths

| Predictor → Outcome | $f^2$ | $Q^2$ | Predictive Relevance |
|---|---|---|---|
| $CI \rightarrow TR$ | 0.12 | 0.28 | Yes |
| $QA \rightarrow PA$ | 0.21 | 0.31 | |
| $IQ \rightarrow CV$ | 0.18 | 0.26 | |
| $SE \rightarrow TR$ | 0.16 | 0.28 | |
| $TR \rightarrow PV$ | 0.19 | 0.33 | |
| $PA \rightarrow PV$ | 0.14 | 0.33 | |
| $CV \rightarrow CE$ | 0.29 | 0.36 | |
| $PV \rightarrow PI$ | 0.41 | 0.47 | |

### 4.4 Coefficient of Determination ($R^2$)

Table 5 provided with the $R^2$ values shows that the model explains a significant amount of variance, the highest being PI ($R^2 = 0.63$) and PV ($R^2 = 0.56$), but they also exhibited a high predictive ability of the model (TR, $R^2 = 0.52$) and CE ($R^2 = 0.48$).

**Table 5:** Coefficient of Determination

| Endogenous Construct | $R^2$ |
|---|---|
| TR | 0.52 |
| PA | 0.44 |
| CV | 0.41 |
| PV | 0.56 |
| CE | 0.48 |
| PI | 0.63 |

### 4.5 Model Fit Analysis

The model fit of each construct was assessed using $Root\ Mean\ Square\ Error\ of\ Approximation\ (RMSEA)$, $Goodness-of-Fit\ Index\ (GFI)$, $Adjusted-GFI\ (AGFI)$, $Comparative\ Fit\ Index\ (CFI)$, $Root\ Mean\ Square\ Residual\ (RMR)$, $Chi-square\ (\chi^2)$, and $Parsimony-GFI\ (PGFI)$.

**Table 6:** Model Fit Analysis

| $Construct$ | $\chi^2$ | $df$ | $GFI$ | $AGFI$ | $CFI$ | $PGFI$ | $RMR$ | $RMSEA$ |
|---|---|---|---|---|---|---|---|---|
| $CI$ | 4.26 | 2 | 0.98 | 0.94 | 0.99 | 0.52 | 0.021 | 0.049 |
| $QA$ | 5.11 | 2 | 0.97 | 0.93 | 0.99 | 0.54 | 0.024 | 0.052 |
| $IQ$ | 4.89 | 2 | 0.97 | 0.92 | 0.99 | 0.53 | 0.026 | 0.051 |
| $SE$ | 5.34 | 2 | 0.96 | 0.91 | 0.98 | 0.55 | 0.028 | 0.054 |
| $TR$ | 6.02 | 2 | 0.96 | 0.90 | 0.98 | 0.56 | 0.029 | 0.057 |
| $PA$ | 5.47 | 2 | 0.96 | 0.91 | 0.98 | 0.55 | 0.027 | 0.055 |
| $CV$ | 4.98 | 2 | 0.97 | 0.92 | 0.99 | 0.53 | 0.025 | 0.052 |
| $PV$ | 5.66 | 2 | 0.96 | 0.91 | 0.98 | 0.56 | 0.028 | 0.056 |
| $CE$ | 5.12 | 2 | 0.97 | 0.92 | 0.99 | 0.54 | 0.024 | 0.053 |
| $PI$ | 4.73 | 2 | 0.97 | 0.93 | 0.99 | 0.52 | 0.022 | 0.050 |

Table 6 indicates that all constructs displayed excellent model fit with $\chi^2$/df marks lower than 3, GFI, AGFI, and CFI higher than 0.90, and RMR and RMSEA lower than 0.06, which represent excellent and reliable measures of constructs. The best fit of all the constructs was PI (CFI = 0.99; RMSEA = 0.050) and CI (GFI = 0.98; RMR = 0.021).

### 4.6 Exploratory Factor Analysis (EFA)

EFA is used to measure the aspect structure of the measurement items. Table 7 reveals that all items of the research had strong factor loading ranging between 0.79 and 0.90 and low standard errors, which confirms well indicator reliability among constructs. The explained variance ranged between 66.57% and 72.4%, with PI (72.41%) and TR (71.63%) having the highest construct validity.

**Table 7:** Exploratory Factor Analysis (EFA) Results

| *Construct* | *Item Code* | *Factor Loading* | *Standard Error* | Percentage of Variance (%) |
|---|---|---|---|---|
| ***CI*** | *CI*1 | 0.83 | 0.041 | 68.24 |
| | *CI*2 | 0.86 | 0.038 | |
| | *CI*3 | 0.81 | 0.044 | |
| | *CI*4 | 0.79 | 0.046 | |
| ***QA*** | *QA*1 | 0.85 | 0.039 | 69.12 |
| | *QA*2 | 0.88 | 0.036 | |
| | *QA*3 | 0.84 | 0.041 | |
| | *QA*4 | 0.80 | 0.045 | |
| ***IQ*** | *IQ*1 | 0.82 | 0.043 | 66.57 |
| | *IQ*2 | 0.85 | 0.040 | |
| | *IQ*3 | 0.83 | 0.042 | |
| | *IQ*4 | 0.79 | 0.047 | |
| ***SE*** | *SE*1 | 0.87 | 0.036 | 70.48 |
| | *SE*2 | 0.89 | 0.034 | |
| | *SE*3 | 0.85 | 0.039 | |
| | *SE*4 | 0.82 | 0.042 | |
| ***TR*** | *TR*1 | 0.88 | 0.035 | 71.63 |
| | *TR*2 | 0.90 | 0.032 | |
| | *TR*3 | 0.86 | 0.037 | |
| | *TR*4 | 0.84 | 0.040 | |
| ***PA*** | *PA*1 | 0.86 | 0.038 | 69.75 |
| | *PA*2 | 0.88 | 0.035 | |
| | *PA*3 | 0.84 | 0.041 | |
| | *PA*4 | 0.82 | 0.043 | |
| ***CV*** | *CV*1 | 0.83 | 0.041 | 67.92 |
| | *CV*2 | 0.87 | 0.036 | |
| | *CV*3 | 0.85 | 0.039 | |
| | *CV*4 | 0.80 | 0.044 | |
| ***PV*** | *PV*1 | 0.86 | 0.037 | 70.14 |
| | *PV*2 | 0.88 | 0.034 | |
| | *PV*3 | 0.87 | 0.036 | |
| | *PV*4 | 0.83 | 0.041 | |

| | | | | |
|---|---|---|---|---|
| ***CE*** | *CE1* | 0.84 | 0.039 | 68.37 |
| | *CE2* | 0.86 | 0.037 | |
| | *CE3* | 0.83 | 0.041 | |
| | *CE4* | 0.81 | 0.043 | |
| ***PI*** | *PI1* | 0.88 | 0.034 | 72.41 |
| | *PI2* | 0.90 | 0.031 | |
| | *PI3* | 0.87 | 0.036 | |
| | *PI4* | 0.85 | 0.039 | |

## 4.7 Partial Least Squares Structural Equation Modeling (PLS-SEM)

Figure 6 shows the complex relationships that were further analyzed using PLS-SEM to regulate the reliability and validity of extent, and test the hypothesized structural path among constructs used in the research.

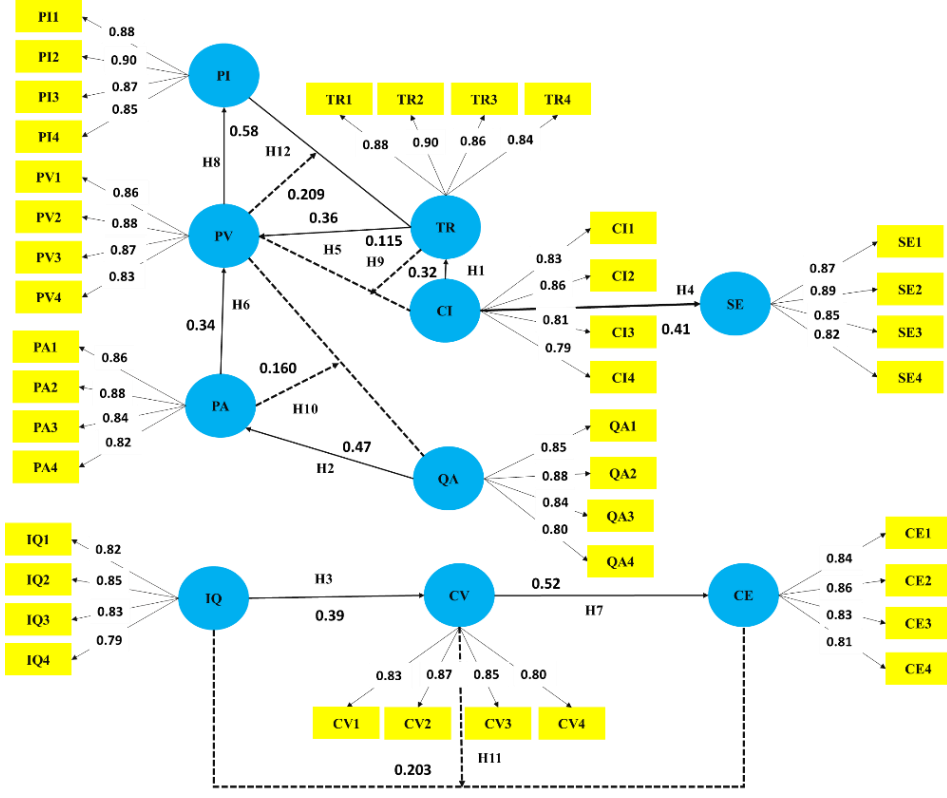


**Figure 6:** SEM of Live Commerce Constructs

### 4.7.1 Direct path

Table 8 confirmed that all the structural paths were statistically important (p = 0.001), and t-values of 5.41 to 10.34 have strong model relations. PV → PI (β =0.58, t = 10.34) and CV

→ CE (β =0.52, t = 9.01) were found to have the highest effect, thus, with considerable predictive power. Also, the significance of QA to PA (β = 0.47) and SE to TR (β = 0.41) indicated significant effects, which confirms the strength of the structural model.

**Table 8:** Hypothesis Testing Results

| ***Hypothesis*** | ***Path*** | ***β*** | ***SE*** | ***t − value*** | ***p − value*** | ***Result*** |
|---|---|---|---|---|---|---|
| *H1* | *CI → TR* | 0.32 | 0.059 | 5.41 | 0.001 | Supported |
| *H2* | *QA → PA* | 0.47 | 0.058 | 8.12 | | |
| *H3* | *IQ → CV* | 0.39 | 0.058 | 6.75 | | |
| *H4* | *SE → TR* | 0.41 | 0.057 | 7.23 | | |
| *H5* | *TR → PV* | 0.36 | 0.059 | 6.11 | | |
| *H6* | *PA → PV* | 0.34 | 0.058 | 5.87 | | |
| *H7* | *CV → CE* | 0.52 | 0.058 | 9.01 | | |
| *H8* | *PV → PI* | 0.58 | 0.056 | 10.34 | | |

### 4.7.2 Mediation Analysis

All the indirect effects were statistically significant β, with 0.115 to 0.209 of beta and bootstrap confidence intervals (LLCI-ULCI) not equal to zero, which supported the mediation effects by utilizing Table 9. TR→PV→PI was found to have the strongest mediation (β = 0.209; 0.145 -0.288), followed by IQ→CV→CE (β = 0.203; 0.132 -0.279), which shows that they significantly mediate.

**Table 9:** Mediation Analysis

| ***Hypothesis*** | ***Mediating Path*** | ***Indirect Effect (β)*** | **Bootstrap 95% CI** | | **Result** |
|---|---|---|---|---|---|
| | | | **LLCI** | **ULCI** | |
| *H9* | *CI → TR → PV* | 0.115 | 0.062 | 0.171 | Supported |
| *H10* | *QA → PA → PV* | 0.160 | 0.098 | 0.224 | |
| *H11* | *IQ → CV → CE* | 0.203 | 0.132 | 0.279 | |
| *H12* | *TR → PV → PI* | 0.209 | 0.145 | 0.288 | |
| ***Notes***: *CI − Confidence Interval, LLCI − Lower − Level Confidence Interval, ULCI − Upper − Level Confidence Interval* | | | | | |

Investigated the effect of competitive information and proven product credibility on PV and enhanced CE and purchasing intentions in the context of live-stream marketing platforms in conventional handicraft markets. Limitations of the previous research were that Wu et al. (2023) studied CI in SMEs and only general business settings and could not be applied in live-streaming e-commerce, *Barata et al.* (2023) studied determinants of AI and agile methods, but could not explore CE behaviors, Nair et al. (2024) did not perform empirical research of the consumer purchase behavior or engagement metrics in the context of a handloom e-commerce platform. Restrictions associated with ambiguous engagement factors in live-stream handicraft markets were addressed by demystifying mechanisms that enhanced consumer involvement and spending interest among artisans and digital sellers.The results influenced artists, vendors, and

sites to enhance the artifact display, establish legitimacy, maximize marketing efforts, and increase the CE.

## 5 FINAL CONSIDERATIONS

Explored the impact of market knowledge and product dependability on PV and enhanced CE in the context of live-stream handicraft sales. A structured questionnaire was utilized in the collection of data from 275 consumers. Multi-item scales were used to measure ten constructs, and the data were evaluated with PLS-SEM. There were eight direct and four mediating hypotheses to test the connection among independent, mediating, and dependent Constructs. The measurement model evaluation revealed a high reliability level ($CA = 0.87 - 0.91, CR = 0.90 - 0.94, AVE = 0.69 - 0.80$) and a satisfactory level of discriminant validity ($HTMT < 0.90$). The findings of the structural model revealed strong direct effects such as $CI \rightarrow TR$ ($\beta = 0.32, t = 5.41, p = 0.001$) and $PV \rightarrow PI$ ($\beta = 0.58, t = 10.34, p = 0.001$). The mediation analysis indicated that there are significant indirect effects ($TR \rightarrow PV \rightarrow PI$ ($\beta = 0.209$). Findings revealed that quality demonstration, credible information, and CV increased engagement and buying intention, which offered practical information regarding the use of live-commerce strategies. The sample size was only a single market, which restricted the generalization of the data; cross-sectional research did not allow drawing the cause-and-effect relationships; also, the research did not rule out the bias in responses. To improve predictive analytics and engagement strategies, longitudinal studies and multi-market studies may explore other Constructs, advanced analytics, and new live-commerce tools.

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