

Supply Chain Disruptions and Transparency: The Role of Customer Trust in Building Brand Loyalty

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Abstract

Purpose – This research explores the disruption in supply chain and transparency level impact on brand loyalty, by a mediating factor of customer trust. It responds to the increasing fragility of supply chains under volatile conditions and examines transparency as a strategic tool to maintain consumer relations.

Design/methodology/approach – The cross-sectional survey-based quantitative research design was adopted Simple Random Sampling, a Probability Sampling Technique was used and Data were gathered from 395 consumers who are active digitally through a structured questionnaire and analyzed by Partial PLS-SEM using SmartPLS 3.

Findings – Results indicates both supply chain disruption and customer trust are strong predictors of brand loyalty, and transparency has strong positive impacts on these outcomes. Customer trust is observed is an important driver of brand loyalty and mediates the relational between disruption, transparency and loyalty. The mediation analysis showed significant indirect effects customer trust. The model revealed good explanatory power, with $R^2 = 0.755$ for brand loyalty and $R^2 = 0.738$ for customer trust.

Practical implications – Companies need to focus on transparency and building trust through communication and traceability to help mitigate the impact of disruption and maintain consumer loyalty.

Originality/value – This research fills a theoretical and empirical void by combining disruption, transparency, and trust in one model, which has practical implications for resilience and competitive advantage in volatile markets.

Keywords: Supply Chain Disruption, Supply Chain Transparency, Customer Trust, Brand Loyalty, Commitment-Trust Theory, Expectation Confirmation Theory, PLS-SEM.

1.Introduction

In today's contemporary global economy, supply chains become the backbone of a firm to achieving competitive advantage (A. F.M Fazle Rabbi et al., 2025; Md. Asiful Islam et al., 2025). Nonetheless supply chains are increasingly fragile to disrupted by geopolitical conflicts, pandemics, climate change, and technological volatility (Md. Fahad Hasan Fahim et al., 2024; Saha et al., 2025). Disruptions are the major issues, directly affect operational efficiency also consumer perception of reliability and loyalty, as recent studies point out the instability of consumer brand relationship in volatile environments (Holloway, 2025b; Sharma et al., 2021). Concurrently, supply chain has become prominent by being as a strategic necessity, equipping firms to demonstrate accountability, resilience and ethical responsibility. Transparency is no longer the case to minor concern it has become a core expectation, particularly among young and socially aware consumer prefer brand which are open in operation, transparency, sustainability and ethical behavior (Damberg et al., 2024; Li et al., 2024).

The tension between supply chain disruption and transparency creates a substantial issue for firms: which way follow for sustain consumer trust and loyalty when supply chains collapse. Supply chain disruption brake down confidence which increase dissatisfaction and defection rate (Gehani, 2000; Holloway, 2025a). Evidence suggest that transparent communication can mitigate negative consumer responses during crisis period, also reinforcing loyalty even in trouble times (Kraft et al., 2022). Although research in this area is expanding, there remains a research gap to understand how transparency and disruption engage through playing mediating role of trust to shape brand loyalty. Although trust has been studies extensively in marketing field, but as a mediator in supply chain sector it remains relatively unexplored by leaving both a theoretical and empirical gap (He, 2023; Ji et al., 2020; Jia et al., 2024).

Recent studies have increasingly emphasized the negative relationship between supply chain disruptions and brand loyalty, yet this area remains underdeveloped in consumer-facing contexts (Katsaliaki et al., 2022). Khan et al. (2022) demonstrated that persistent retail supply chain disruptions erode consumer trust, leading to reduced loyalty intentions. Chowdhury et al. (2021) similarly found that disruptions in food and FMCG supply chains triggered dissatisfaction and brand switching, showing that consumers often abandon previously trusted brands when reliability is compromised. More recently, Kamalahmadi et al. (2022) highlighted that supply chain fragility during disruptions undermines consumer confidence, weakening long-term loyalty. These findings confirm that disruptions damage loyalty by undermining trust, but they primarily examine crisis-driven or sector-specific contexts rather than everyday consumer experiences. In contrast, supply chain transparency has been shown to positively influence trust and loyalty, offering a potential counterbalance to disruption effects.

This study seeks to bridge that gap through investigation of how supply chain disruption and transparency influence brand loyalty through customer trust. This investigation is importance in its potential to offer actionable insights for preserving consumer relationship in volatile markets. To ground this investigation, two integrated contemporary theoretical frameworks are applied. The Commitment-Trust Theory of Relationship Marketing expose that trust and commitment are the key mediators in sustaining long-term relational exchange between firms and consumers, which making it highly significant for analyzing loyalty outcomes in supply chain disruption (Morgan & Hunt, 1994). Besides the Expectation Confirmation theory (ECT) describe how consumer satisfaction and loyalty shaped by the confirmation

or disconfirmation of expectations (Oliver, 1980; Bhattacharjee, 2001). In supply chain contexts, transparency play a vital role in shaping expectations, while disruption reveal gap between expectation and firm performance. By integrating both theories, delivers a strong framework for analyzing how strategically managed transparency and disruption to strengthen trust and loyalty.

The purpose of this research is to investigate the interplay of supply chain disruption, transparency, and trust in order to study their joint effect on brand loyalty. This study also poses a question: How do disruption impact on consumers' perception and preference, Transparency strengthen consumers trust and trust mediates the relationship between supply chain practice and brand loyalty. By examining these relationships, this study contributes to not only strengthen the theory but also to link these two and thus inform resilience and competitive advantage.

The paper is organized into a cohesive narrative: which beginning with in-depth literature review on supply chain transparency, disruption, trust, and loyalty; detailed methodology and data collection, then presenting empirical findings; finally discussing their theoretical implications and future research. Through this process transparency and trust not just as abstract ideas also actionable mechanism in an era of uncertainty which help to cope with navigation disruption and sustaining brand loyalty.

2. Literature review

2.1. Literature Insight

The existing literature recognize that the supply chain disruption is not only an operational challenge but also a determinate of consumers loyalty. Kaur (2022) research highlights that supply chain disruption affects the whole networks, lose consumer confidence and weakening brand loyalty. Saad et al. (2022) further argue show that adaptability must be extended more than efficiency to consumer-facing practices, because loyalty is highly sensitive and influenced by how firms manage crises. In retail contexts, when firms fail to transparent communication, disruption can negatively influence consumer satisfaction (Kraft et al., 2022).

Nonetheless, transparency is consistently promoted as a way to regain the confidence of consumers. Supply chain transparency involves sharing verifiable and specific details about operations and products, such as a product's origin and sourcing, its manufacturing processes, costs, and logistics (Bai & Sarkis, 2020; Nanjiba Chowdhury et al., 2023). Nguyen and Nguyen (2025) highlights that transparency of information in sourcing and production practices promote fairness perception among consumes, which strengthens the brand loyalty. Damberg et al. (2024) identify that in retail supply chain context, sustainable transparency considerably improves consumer trust, especially among in younger generations. Similarly, Garcia-Torres et al. (2024) this study also find that through traceability and stakeholders collaboration helps to intensify the transparency, here positioning act as a relational rather than purely informational construct.

Consumer trust act as a critical mediator providing link between supply chain disruption and brand loyalty. Zhao et al. (2025) indicates that transparent communication helps to preserving consumer trust and loyalty by mitigating negative consumer preference during the period of disruption and under turbulent conditions. Yang et al. (2022) this study also demonstrates that trust functions as a shield and it allowing firms to maintain of consumer relationships during operational failures. Recent study by Duan

and Zhu (2025) adds that digital transparency enables using blockchain-based traceability, which increase consumer trust by reducing information disparity.

Brand loyalty is the primary finding of these factors, which influenced by how firms balance supply chain disruption and transparency through trust. Research evidence indicates that how transparency effect expectations and sustainable brand loyalty, that's why consumers reward firms for disclosure information during disruption period (Kraft et al., 2022). Conversely, non-transparent practices intensify dissatisfaction and defection risks, ultimately diminishing consumes loyalty in highly competitive environments. Vazquez Melendez et al. (2024) this finding reinforces the idea that consumer loyalty determined by perceived integrity, where transparency directly strengthen and supports this idea.

In summary, the literature points to a key findings, supply chain disruption and transparency are interrelated factors which influence consumer perceptions, here trust act as a mediator that transforms consumers from vulnerability into resilience.

Nonetheless, after advance discussion, still a research gap remains in together these variables within a single framework that collectively explain impact on brand loyalty. This study aims to fill this research gap by giving a comprehensive understanding of how firms can strategically manage supply chain disruption and transparency to increase consumer trust and brand loyalty in volatile environments.

2.2 Hypothesis Formation

2.2.1 Supply chain disruption and customer trust

Supply chain disruption plays a critical role that diminishes consumes confidence. Geographical instability, pandemics, technological breakdowns, shortages, and reduce service qualities are the main causes in disruption, which weaken consumer trust (Saad et al., 2022). Supply chain disruption evokes a sense of unreliability in consumer minds and weakens to maintain the long-term relationships with brands (Kraft et al., 2022). Recent studies show that poorly managed supply chain disruption leads to consumer trust declines rapidly, which leading to negative word of mouth and ultimately it reduces brand loyalty (Vazquez Melendez et al., 2024). Based on these arguments, it is postulated that:

H1: Supply chain disruption negatively affects customer trust.

2.2.2 Supply chain transparency and customer trust

Transparency preserving consumer trust and reducing inconsistence information, besides not only conveys integrity and but also keeps firm accountable. Supply chain transparency cultivating in different stages such as sourcing, production, and sustainability practices, by using openness firms build trust and ethical responsibility of customers mind (Kaur et al., 2022; Nguyen & Nguyen, 2025). Furthermore, blockchain-based tracking system transparent and providing validate information, which directly strengthening consumer trust about brand (Duan & Zhu, 2025). Garcia-Torres and Rey-Garcia (2024) show that collaboration between transparency and stakeholder strengthens consumer trust, which felt consumers more confident in purchasing decisions. Based on these arguments, it is hypothesized that:

H2: Supply chain transparency positively affects consumer trust.

2.2.3 Supply chain disruption and brand loyalty

Supply chain disruption directly diminishing the brand loyalty, ultimately creating consumer dissatisfaction which pushes consumers to switch competitors if they provide more consistent service (Abir Raihan et al., 2023). Kaur et al. (2022) highlights that consumer defection rate is strongly correlated with disruption, although Saad et al. (2022) argue that more importantly extend resilience strategy beyond firms' efficiency where include consumer-facing practices. Kraft et al. (2022) indicate that when a firms unable to effectively managed supply chain disruption, which sharply declines brand loyalty and consumes turn to more reliable alternatives. Vazquez Melendez et al. (2024) reinforce this by indicating that during the supply chain disruption firms perceived integrity is eroded that weakening brand loyalty. Based on these arguments, it is hypothesized that:

H3: Supply chain disruption negatively affects brand loyalty.

2.2.4 Supply chain transparency and brand loyalty

Supply chain transparency directly enhances consumers perception such as fairness and integrity, which ultimately helps to strengthens brand loyalty. Garcia-Torres and Rey-Garcia (2024) highlights that supply chain traceability and transparency work together for consumer engagements with sustainable brands.

Zhao et al. (2025) show that this supply chain transparency directly influences to consumer, which leading consumer brand loyalty through brand trust. Damberg et al. (2024) highlight that in the retail supply chain, sustainable transparency act as a significant factor to improves consumer loyalty with brand among the younger generations. Vazquez Melendez et al. (2024) add that consumer perceived integrity enhances about firms by practicing transparency in supply chain, which is the main factors leading consumer to brand loyalty. Based on these arguments, it is hypothesized that:

H4: Supply chain transparency positively affects brand loyalty.

2.2.5 Customer trust mediation between transparency and disruption with brand loyalty

Consumer trust is a fundamental factor of firm's brand loyalty, in general sense consumer retain loyal and committed to a brand if they perceive as reliable (Arafat Samir Abir et al., 2025). Yang et al. (2022) show that trust act a protector from negative experiences, during disruption, non- transparency and helps to build long-term customer relationships. According to Zhao et al. (2025) consumer trust is in the supply chain act as a mediator of supply chain transparency and brand loyalty. Another study Duan and Zhu (2025) demonstrates that if firms using digital transparency helps to keep transparent all the activities of supply chain, which directly enhances consumer trust into brand loyalty. When customer trust increases, brand loyalty also increases (Sulima Ievgenii Pavlovich, 2025). A study further argue that transparency facilitates to build trust by perceived integrity, which directly drives loyalty in global supply chains (Vazquez Melendez et al., 2024). Based on these arguments, it is hypothesized that:

H5: Customer trust mediation the relationship between transparency and disruption with brand loyalty.

2.3. Theoretical Underpinnings

This study employs two theoretical perspectives, that explain the relationship between supply chain practices and consumer loyalty. The first theory is the Expectation Confirmation Theory, which is developed by Oliver (1980), later it is extended by Bhattacharjee (2001). ECT theory explains that how consumers compare and evaluate their experiences to prior experiences, then confirmation of expectation leads to consumer satisfaction and brand loyalty, but disconfirmation occurring consumer dissatisfaction. In supply chain context, transparency play an important role in shaping consumer expectations, whereas disruption determine firm ability to which expectations are meet. Recent developments of ECT trust-based model proposed by Conformation of expectation directly influences consumer satisfaction, trust and rebuying intentions. Accordingly, ECT provide an effective theoretical lens which helps to understand how transparency and disruption shape brand loyalty.

The second theory is the Commitment-Trust Theory of Relationship Marketing, which introduced by Morgan and Hunt (1994). This theory holds that consumer trust and commitment are the primary mediators in a long-term relationship between a company and its customers. In the contexts of supply chain, consumer trust is developed when firms uphold transparency and reliability during face of disruption, while commitments influence the consumer's willingness to maintain the relationship in challenging situations. Recent empirical works such as Garcia-Torres and Rey-Garcia (2024), collaboration of transparency and stakeholder work as an amplifier of consumer trust and commitment, which strengthening consumer brand loyalty.

Together these theories, the Expectation Confirmation Theory (ECT) and the Commitment-Trust Theory of Relationship Marketing Provide a strong framework for analyzing the relation among disruption, transparency, trust and loyalty. ECT explains the evaluating process of consumers satisfaction and loyalty based on conformation of expectation. On the other hand, Commitment-Trust Theory highlights the long-term relational factors that sustain brand loyalty through trust and commitment. Combining these points of view allows this study examine both the psychological and relational aspect of consumer loyalty during supply chain disruption.

Based in the theory and literature support the following conceptual model has been build

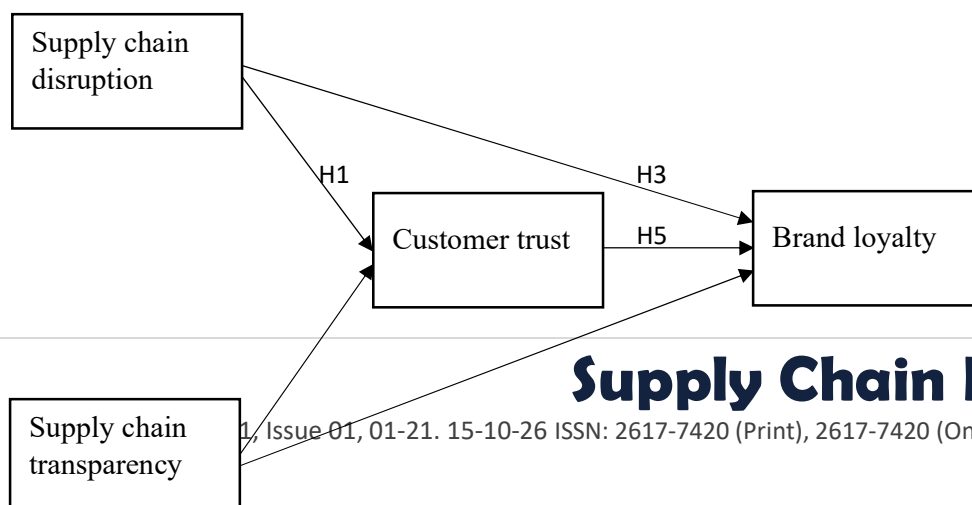


Figure 1: Conceptual Framework

3. Methodology

3.1. Research design

This paper examines supply chain disruptions and transparency with a quantitative and survey-based cross-sectional research design. A structured questionnaire was used with a Likert scale of five points, making it clear and appropriate for the analysis using the statistical package. Based on “The Commitment-Trust Theory and the Expectation Confirmation theory (ECT)” framework, the study uses deductive reasoning going from theory to testing (Bhattacharjee, 2001; Morgan & Hunt, 1994). The analysis of complicated relationships and mediating effects was performed using SmartPLS 3 software (Hair et al., 2019). The cross-sectional design was deemed appropriate to understand the supply chain disruptions and transparency for the role of customer trust in building brand loyalty. Aligned with the positivist paradigm, the research postulates an objective reality which can be observed through data, leading to hypothesis testing and causal investigation.

3.2. Constructs and Indicators

The research model proposed in this study consists of two exogenous constructs: Supply Chain Disruption (SCD), Supply Chain Transparency (SCT) and one endogenous construct: Brand Loyalty (BL) and Customer Trust (CT) act as a mediating construct. All constructs were measured using a number of observed variables with response on a 5-point Likert scale where 1 = Strongly Disagree and 5 = Strongly Agree. The following table contains the constructs, item code, measurement statements and references.

Table 1: Items and statement's

Construct	Item code	Item statement	References
Supply Chain Disruption (IV1)	SCD1	I often face product unavailability due to global supply chain disruptions.	(Hossain et al., 2025)
	SCD2	Delivery delays caused by disruptions reduce my satisfaction with brands.	(Paluzzi et al., 2026)
	SCD3	Rising logistics costs from disruptions affect my perception of brand reliability.	(Hossain et al., 2025)

	SCD4	Political or environmental crises disrupt my confidence in product availability.	(Kareem et al., 2025)
Supply Chain Transparency (IV2)	SCT1	I trust brands that disclose sourcing and production details.	(Garcia-Torres et al., 2024)
	SCT2	Transparency in supply chain practices increases my willingness to buy.	(Liu et al., 2024)
	SCT3	I prefer companies that report environmental and social impacts of their supply chains.	(Garcia-Torres et al., 2024)
	SCT4	Clear communication about supply chain risks enhances brand credibility.	(Liu et al., 2024)
Customer Trust (MV)	CT1	I trust brands that consistently deliver on promises.	(Alsaied et al., 2023)
	CT2	My trust increases when brands meet my expectations in online purchases.	(AlSokkar et al., 2024)
	CT3	Transparent communication strengthens my trust in a brand.	(Alsaied et al., 2023)
	CT4	Trust reduces my perceived risk in buying from a brand.	(AlSokkar et al., 2024)
Brand Loyalty (DV)	BL1	I prefer to repurchase from the same brand even if alternatives exist.	(Kato et al., 2025)
	BL2	I recommend my preferred brand to friends and family.	(Höfling et al., 2025)
	BL3	I resist switching to competitors even when offered lower prices.	(Kato et al., 2025)
	BL4	My emotional attachment to a brand influences my repeat purchases.	(Höfling et al., 2025)

3.3. Data collection and Analysis:

This paper focuses on general customer respondents who were selected based on their high digital involvement and the primary data was collected by way of an online structured questionnaire. The questionnaire included questions on demographics, supply chain disruption, supply chain transparency, customer trust, brand loyalty. In this regard, an attempt was made to select the respondents with as much randomness as possible. The study used Simple Random Sampling, a Probability Sampling Techniques where every respondent has an equal chance of being selected. This makes sample fair and unbiased. The sample size was calculated on the basis of the Cochran's formula (1977) to be 385 however the 395 valid responses were gathered thus reliability of the study was enhanced. The sample size with this characteristic corresponds to 95% of confidence level with 5% of margin of error which allows generalizing the findings of this study. Data analysis was performed with Structural Equation Modelling (SEM) using SmartPLS 3 (Hair et al., 2019), this method is appropriate for complex model testing with mediators.

4. Discussion and Findings

4.1 Demographics information

Table 2: Demographic Profile of Respondents (N = 395)

Variable	Category	Frequency	Percentage
Gender	Female	189	47.8
	Male	206	52.2
	Total	395	100.0
Age	18–24 years	279	70.6
	25–34 years	56	14.2
	35–45 years	26	6.6
	Above 45 years	14	3.5
	Below 18 years	20	5.1
	Total	395	100.0
Monthly Income (BDT)	Less than 10,000	207	52.4
	10,000–30,000	121	30.6
	30,001–50,000	37	9.4
	Above 50,000	30	7.6
	Total	395	100.0
Frequency of Online Purchase	Frequently	303	76.7
	Occasionally	56	14.2
	Rarely	22	5.6
	Never	14	3.5
	Total	395	100.0

The demographic data for all 395 participants in the study is shown in Table 2. In this regard, there is a gender balance, since 52.2% (206) of the participants are male and 47.8% (189) are female. That sort of near parity can lead to gender neutral data, and it can also reduce gender bias in results.

Regarding age, 70.06% (279) of the participants were from 18 to 24 years old, followed by 14.2% (56) from 25 to 34 years and 6.6% (26) from 35 to 45 years. In addition, 5.1% (20) of the respondents are in the age group of below 18 and 3.5% (14) are in the age group of above 45 years. Overall, the result suggests that the study primarily captures the perspectives of general customers and it's 100%.

Looking at the respondents' monthly income, we find that 30.6% (121) respondents reported earning within 10,000–30,000 BDT. Followed by 52.4% (207) respondents earning is less than 10,000 BDT. A smaller portion 9.4% (37), earned in the range of 30,001–50,000 BDT. Only 7.6% (30) earned above 50,000 BDT.

Finally, the frequency of online purchase was highly visible among respondents. A large portion of respondents 76.7% (303) reported that they make online purchase frequently, while 14.2% (56) made it occasionally. Only a small portion engaged in online purchase rarely (5.6%, $n = 22$) and never is 3.5%, which respondents were 14. Thus, sample is particularly relevant for analyzing supply chain disruptions and transparency to examine the role of customer trust in building brand loyalty.

4.2 Analysis Results Interpretation

4.2.1 Reliability and Convergent Validity

Table 3: Results of Reliability and Convergent validity

Construct	Cronbach's alpha	Composite reliability (ρ_a)	Composite reliability (ρ_c)	Average variance extracted (AVE)
Brand loyalty	0.916	0.916	0.941	0.799
Customer trust	0.897	0.898	0.929	0.766
Supply chain disruption	0.888	0.888	0.922	0.748
Supply chain transparency	0.912	0.912	0.938	

Reliability and convergent validity for all the constructs as listed in the table 3 was evaluated by using Cronbach's α , CR and AVE. The findings indicate that brand loyalty, customer trust, supply chain disruption, supply chain transparency are reliable and valid constructs, thus the measurement model can be examined further. The acceptable level of Cronbach's Alpha ranges from 0.70 to 0.79 (Hair et al., 2019). As can be seen, the values of Cronbach's Alpha for each construct range from 0.888 to 0.912, which indicates that the items have relatively high internal consistency in measuring the same latent variable. Meanwhile, CR values were also observed within the range of 0.922 and 0.941, being higher than the suggested threshold of 0.70 (Hair et al., 2019). The high values of CR can be regarded as evidence for good internal consistency among the items and no considerable measurement error within all the constructs. The AVE values ranged from 0.748 to 0.799 which are greater than the threshold value of 0.50 (Fornell & Larcker, 1981). This shows that your indicators are very strongly related to the latent construct, and that the latent construct can account for more than half of the variance of its indicators.

These results verify that all constructs meet the reliability and validity requirements as recommended by the PLS approach (Hair et al., 2019). So, the measurement model was started to be considered to fit for moving on to testing the structural model (Spickard, 2017).

4.2.3 Factors Loadings

Table 5: Factor Loadings of Constructs and Items

Item	Brand loyalty	Customer trust	Social Influence	Supply chain disruption	Supply chain transparency
BL1	0.899				
BL2	0.909				
BL3	0.887				
BL4	0.880				
CT1		0.819			
CT2		0.896			
CT3		0.889			
CT4		0.894			
SCD1				0.854	
SCD2				0.878	
SCD3				0.859	
SCD4				0.868	
SCT1					0.894
SCT2					0.876
SCT3					0.884
SCT4					0.902

Factor Loadings in this table 5 represents the correlation between an observed variable and a latent factor to the construct being measured. In PLS-SME, which is used to measuring the reliability and quality of indicators, you must focus on factor loadings(Hair et al., 2019). All constructs- brand loyalty, customer

trust, supply chain disruption, supply chain transparency exhibited strong loadings above 0.70 that means the items are good measure of the construct. Brand loyalty ranged from 0.880 to 0.909, customer trust from 0.819 to 0.896, supply chain disruption from 0.854 to 0.878, supply chain transparency from 0.876 to 0.902, all indicating a consistent representation of their latent variables. As a matter of standard value, factor loadings more than 0.70 towards any indicator are considered as acceptable and it's called strong loadings(Hair et al., 2019).

4.2.4. Structural Model Evaluation

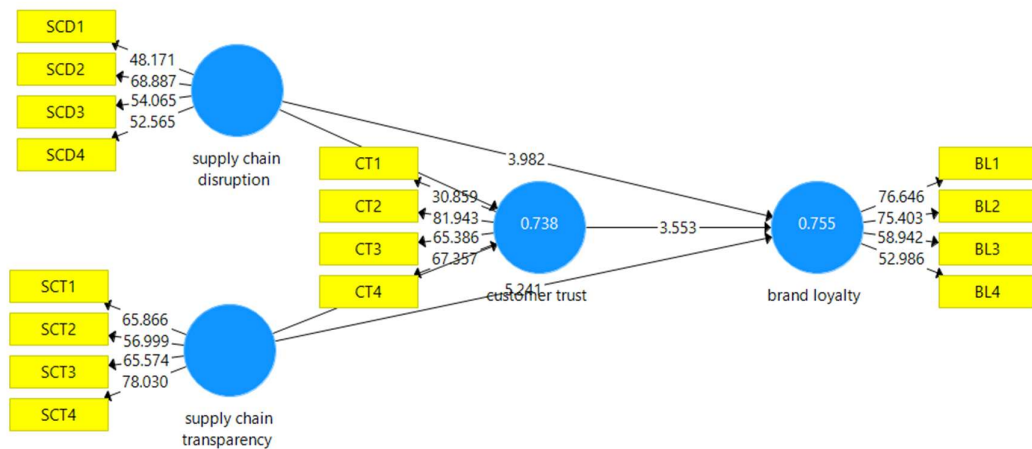


Figure 2: PLS Structural Model Assessment

This figure presents significant relationship among key constructs and these constructs are- brand loyalty, customer trust, supply chain disruption, supply chain transparency. Path coefficients show that Brand loyalty ($\beta = 3.982$), Customer trust ($\beta = 0.140$), and supply chain transparency ($\beta = 0.238$) positively affect Sustainable Purchase Intention, while both Perceived Product Quality ($\beta = 0.315$) and Purchase Intention ($\beta = 0.246$) significantly influence Brand Engagement. In summary, the model provides evidence for reliable constructs and valid structural relationships. These findings validate the theoretical integration and support the predictive strength of the model, aligning with (Hair et al., 2019) who recommend assessing path significance and construct reliability in PLS-SEM.

4.2.5 VIF Values for Latent Variables

Table 6: VIF Test Values for Latent variables

	VIF
BL1	3.195
BL2	3.403

BL3	2.709
BL4	2.659
CT1	1.961
CT2	3.036
CT3	2.808
CT4	3.189
SCD1	2.249
SCD2	2.502
SCD3	2.229
SCD4	2.339
SCT1	2.820
SCT2	2.605
SCT3	2.753
SCT4	3.059

We examine all indicator's VIF values in table 6 to confirm that there is no multicollinearity among measurement items. When two or more measurement items of a construct are highly correlated to each other, it is said to be an indication of the presence of multicollinearity, which might inflate the standard errors and reduce the path coefficients in the PLS-SEM (Hair et al., 2019). Such concerns are quantified through VIF, which tells us by how much the variance of a regression coefficient is inflated due to multicollinearity. As it can be seen in the results, all of the items have a VIF between 1.961 and 3.403, which is significantly lower than the recommended thresholds of 5.0 (Hair et al., 2019) and even the more conservative 3.3 proposed by Kock, (2015). The above results are a clear indication that in this model, multicollinearity is not a problem. None of the indicators redundantly or overly overlaps with their respective latent constructs.

4.2.6 Path Coefficients and Significance

Table 7: Hypothesis Test Results through Path Coefficients and significance

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Results
Customer trust-> Brand loyalty	0.284	0.290	0.080	3.553	0.000	Supported
Supply chain disruption-> Brand loyalty	0.283	0.275	0.071	3.982	0.000	Supported
Supply chain disruption-> Customer trust	0.377	0.380	0.058	6.508	0.000	Supported
Supply chain transparency-> Brand loyalty	0.363	0.364	0.069	5.241	0.000	Supported
Supply chain transparency-> Customer trust	0.528	0.525	0.058	9.053	0.000	Supported

The proposed causal relationships of the structural model were examined by using the Smart PLS bootstrapping and the results in table 7 indicated that all relationships among the variables were significantly supported at $P < 0.05$. Customer trust had a positive effect on Brand loyalty ($\beta = 0.284$, $t = 3.553$, $p = 0.000$), highlighting the role of consumer trust is in the supply chain act as a mediator of supply chain transparency and brand loyalty (Zhao et al., 2025). Supply chain disruption had the negative effect on both Brand loyalty ($\beta = 0.283$, $t = 3.982$, $p = 0.000$) and Customer trust ($\beta = 0.377$, $t = 6.508$, $p = 0.000$), ultimately creating consumer dissatisfaction which pushes consumers to switch another brand (Kaur et al., 2022). Supply chain transparency had also a significant effect on both Brand loyalty ($\beta = 0.363$, $t = 5.241$, $p = 0.000$) and Customer trust ($\beta = 0.528$, $t = 9.053$, $p = 0.000$), that means sustainable transparency is a significant factor to improves consumer loyalty with brand among the younger generations. (Vazquez Melendez et al., 2024). Since all t-values exceed the critical threshold of 1.96 and p-values are below 0.05(Hair et al., 2019), the structural model demonstrates strong predictive validity.

4.2.7 Coefficient of determination

Table 8: Coefficient of Determination (R^2)

	R-square	R-square adjusted
Brand loyalty	0.755	0.753

Customer trust	0.738	0.736
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The R-square in table 8 represents the variance of endogenous constructs explained by exogenous variables in the structural model(Hair et al., 2019). The R^2 for brand loyalty is 0.755 (adjusted = 0.753), while the R^2 for Customer trust is 0.738 (adjusted = 0.736). According to Hair et al. (2019), R^2 values of 0.75 or higher are considered substantial in PLS-SEM. These results illustrate that the model is highly reliable in capturing the behavioral in a developing nation context.

4.2.8 Mediation Analysis

Table 9: Results of Mediation Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Results
Supply chain disruption-> Customer trust -> Brand loyalty	0.107	0.111	0.039	2.715	0.007	Supported
supply chain transparency -> customer trust -> brand loyalty	0.150	0.151	0.042	3.579	0.000	Supported

The mediation analysis results shown in Table 9 strongly supported the hypothesized indirect effects. The supply chain disruption → customer trust → brand loyalty path was significant (original sample = 0.107, $t = 2.715$, $p = 0.007$). Since the t-value is greater than the critical value of 1.96 and the p-value (i.e., 0.05) is less than 5%, this indirect effect is accepted, thus the hypothesis is supported. Mediation is established when an indirect effect is statistically significant (Rucker & Preacher, 2019.) and the values are within the suggested values. Also, the supply chain transparency → customer trust → brand loyalty path was stronger (original sample = 0.150, $t = 3.579$, $p = 0.000$). These figures are clearly above the cut offs for significance and as a result the second hypothesis is accepted as well. Hair et al. (2021) have highlighted that high t-values, and extremely low p-values, are indicative of a strong mediation effect; current results corroborate this advisement. In sum, results provide support for the mediation model and highlight the importance of customer trust as a mediator in the relationship between supply chain and brand loyalty.

5. Findings

The descriptive statistics indicated that most of the respondents were 18-24 years and there was a more or less balanced gender distribution (47.8% female and 52.2% male). 52.4% people's monthly income were less than 10,000. 76.7% respondents reported that they make online purchase frequently that means they are highly engaged with internet and modern market. This demographic profile significantly enhanced the credibility of the result.

The results indicated that the measurement and structural models were acceptable. Tests of reliability and convergent validity showed that all constructs, namely supply chain disruption, supply chain transparency, customer trust, brand loyalty, demonstrated high levels of internal consistency and met the recommended cutoff values for Cronbach's Alpha, composite reliability, and average variance extracted (Hair et al., 2019; Fornell & Larcker, 1981). This suggests that these were good measures of their respective latent variables and could be used for further analysis.

With respect to the predictor variables, the results of the coefficient of determination indicated that the exogenous constructs accounted for a higher percentage of variance in both customer trust, brand loyalty, which implies good predictability of the research model (Hair et al., 2019). Mediation analysis also supported that customer trust significantly mediates between supply chain disruption, supply chain transparency and brand loyalty. This highlights the importance of customer trust as a psychological process that affects brand loyalty, aligned with the theoretical perspectives of the Expectation Confirmation Theory (Bhattacharjee, 2001) and Commitment-Trust Theory (Morgan & Hunt, 1994).

The structural model analysis displayed acceptable reliability and convergent validity for all the constructs as the CR and AVE values were greater than the recommended values (Hair et al., 2019). As for path coefficient and bootstrapping results, the effects of independent variables on customer trust and brand loyalty were evidently pointed out. The finding suggests that supply chain disruption and supply chain transparency had the largest positive impact on both customer trust and brand loyalty. These results support recent investigations on the supply chain that reported if firms using digital transparency helps to keep transparent all the activities of supply chain, which directly enhances consumer trust into brand loyalty (Duan & Zhu, 2025). Altogether, the findings validate the integration of the Expectation Confirmation Theory (Bhattacharjee, 2001) and Commitment-Trust Theory (Morgan & Hunt, 1994), highlighting the long-term relational that sustain brand loyalty through customer trust & commitment and also consumers satisfaction & loyalty based on conformation of expectation. The analysis of the study helped clarify how the different factors relate to each other. It showed that customer trust plays a partial role in connecting supply chain disruption, supply chain transparency to brand loyalty.

6. Conclusion

The aim of this research was to explore the influence of supply chain disruption and supply chain transparency on brand loyalty through customer trust. Based on the Commitment-Trust Theory (Morgan & Hunt, 1994) and Expectation Confirmation Theory (Bhattacharjee, 2001), the study adopted a quantitative, survey-based design with 395 valid responses and was analyzed using SmartPLS 3. The model was demonstrated to be reliable and valid, indicating the constructs of supply chain disruption, supply chain transparency, customer trust and brand loyalty were adequately measured. This degree of rigor in method was appropriate for testing the hypotheses and the mediational role of trust.

Results showed that supply disruption had a negative impact on both customer trust and brand loyalty, and supply transparency had strong positive effects on these constructs. Customer trust emerged as a significant predictor of brand loyalty, and the mediating effect of trust in the relations of both disruption and transparency with loyalty outcomes was confirmed. These results support the hypotheses and are consistent with prior research indicating that transparency enhances consumer trust and that disruption

diminishes consumer trust. The model exhibited high explanatory power as all R^2 values were above 0.73, indicating that this framework can provide a useful insight of consumer behavior in turbulent times.

All in all, this study advances theory and practice by identifying customer trust as the linchpin for maintaining brand loyalty in a fragile supply chain. Theoretically, it fills a gap in the literature by combining disruption, transparency, and trust in one integrated model, and revealing the interplay effects of these constructs on consumer loyalty. From a practical perspective, the results indicate that organizations should give greater attention to maintaining transparency and trust-building practices in the face of disruption to minimize its detrimental influence on consumer relationships. In an age of geopolitical flux, climate challenges and technological volatility, transparency is not a marginal issue but a strategic imperative for sustainable business and competitive advantage. Future studies may build upon this research to investigate industry-specific scenarios, longitudinal findings, or even how digital technologies, such as blockchain technology, can enhance transparency and trust.

7. Recommendations and Future Research Scope

Based on the results of this study, supply chain transparency should be considered as a strategic instrument for customers' trust and brand loyalty enhancement in an unstable environment for companies to focus on. Openness in communication about sourcing, production and risks reduces the impact of disruption on consumers and builds consumer trust. Managers are encouraged to combine mechanisms to build trust, e.g., traceability based on blockchain technology, sustainability reporting, and disclosure of disruptions in advance. These approaches may enable businesses to sustain resilience, minimize consumer churn, and capture lasting competitive advantage.

For future research, scholars should investigate sector-related contexts (e.g. As for future research. scholars could also explore sector-specific contexts, such as FMCG, retail or tourism, to investigate if transparency and disruption have different impacts on loyalty in different sectors. Such investigations would enrich the literature on trust and loyalty in a service context. It could be also interesting to investigate how digital technologies such as AI and block-chains could support transparency and consumer trust. To provide greater insight into how supply chain practices influence retail loyalty across different consumer markets, future research could extend the framework to examine cultural or generational or regional variances in this regard.

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