

# Role of Structural Assurance Mechanisms in Managing Information Security Concerns and Purchase Intention of Online Customers

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### Abstract

The research addresses the pertinent issue of addressing consumer concerns associated with online purchase. There are several measures adopted by the online sellers to manage consumer insecurities associated with online buying; Legal interventions, display of policy statements on shopping websites, third party seals, standard procedures adopted for delivery, return of products, safe payment gateways etc. are examples of some practices and methods used by online sellers. Some of these methods such as third-party seals, policy statements have been used by online sellers for a long time. However, their objective of assuring customers has not been fully attained. The study addresses the gaps responsible for lack of contributions of structural assurance tools and mechanisms towards convincing and assuring online customers about quality of products and services, ensuring trust in online transactions. The role of structural assurance mechanisms- Web seals, and website infrastructure are instrumental in managing information security concerns of online buying. Customer perception about web seals and web infrastructure in mitigating customer concerns and purchase intention is explored through a proposed model. The statistical tool PLS SEM is employed to test and validate the model. Further, the relationship between structural assurance mechanisms and purchase intention is mediated by information security concerns of product quality and transaction security.

**Keywords:** Web seals, Website Infrastructure, information security concerns, product and service quality, online customer concerns. Structural assurance mechanisms, PLS-SEM

### Introduction

The digital economy and e-commerce play a significant role in accomplishing the sustainable development goals (SDGs), which will give rise to new opportunities for human development and will at the same time surface new challenges for the policy makers and regulating agencies. While others which are not ready to adapt to digitization of economy will have to bear the risk of being left behind (UNCTAD

Report, 2020. Technological advancements like augmented reality, artificial intelligence, virtual reality, and autonomous delivery drones, in app purchases and live streaming facilities will define e-commerce in coming years. (The future of e-commerce-the new trends that will exist in 2030<https://www.futurebusinesstech.com/blog/future-of-ecommerce-9-trends-2030>, Jan 8 2022). The adoption of e-commerce has increased exponentially over past few years in Indian market. Drivers for this change include increasing penetration of internet and smartphones in Indian market, growing digital literacy and exposure among all sections of society, and increased impetus of government for adoption of digital procedures. (Economic Times, Jan 2, 2022).

### **Customer concerns in Online Buying Environment**

E-Commerce involves customers making business transactions over a virtual space. The element of touch and feel that provide satisfaction to customers is missing in online buying. Customers are skeptic about sharing their sensitive information related to finance or other personal details. With the estimation of 95% increase in online purchases by the year 2040, the need for imparting quality methods that can reduce the e-commerce challenges has increased. (<https://www.myadvo.in/blog/5-most-common-problems-faced-by-consumers-while-shopping-online> - Prachi Darji, 14 September, 2018). Product quality concerns, delivery and logistic issues, payment concerns, technical glitches, server failures, data breaches and ambiguous policies are some of the main concerns faced by online consumers. (<https://www.myadvo.in/blog/5-most-common-problems-faced-by-consumers-while-shopping-online>). These concerns make consumers skeptic about using online shopping platforms. (Anil Kumar T V, Dr. Victor Anand Kumar, 2016).

Generating quality enriched content on shopping websites, customized solutions for hurdle free buying process through online platforms, ensuring security with measures like privacy policy statements, SSL certificates, easy to use and understand navigation options on the shopping website, safe payment gateways etc. are the much

demanding part of online shopping platforms (<https://blog.saleslayer.com/challenges-ecommerce>). The following section analyses the existing literature about the research variables used for the study.

### **Conceptual Background and Hypothesis Development**

The present research intends to study the effect of two structural mechanisms on purchase intention mediated through product quality concerns and transaction security concerns. Many researchers have explored the topic in varying regards and dimensions. Some useful and relevant insights are discussed through the following section. The conceptual basis of the research are discussed followed by development of hypothesis statements.

#### **Structural Assurance**

Structural assurance was initially defined by Sha, W (2009) as the extent to which consumers want to use institutional components such as regulations, guarantees, legal recourse, and other mechanisms to trust online transactions. It accounts the influence of structural or institutional mechanisms on customer perceptions and beliefs. Previous studies on web assurance mechanisms have found structural assurance to be an important determinant for consumer trust and technological intervention that is helpful for customers. Huang, Chen et al (2022) conducted a study in Taiwan, establishing a positive relationship between website quality antecedents (information quality, service quality and system quality), and PEEM (perceived effectiveness of e-commerce institutional mechanisms) with consumer loyalty. Assurance mechanisms are based on the information provided by e-sellers about products, vendor's detailed profile, contact information and service statements. This information helps in increasing customer understanding and reduces uncertainty in purchase decision making. (Chen et al., 2017):

In the context of e-commerce, the use of structural assurance is more significant due to unfamiliarity between vendors and sellers in online environment. Different structural assurance programs used by B2C sellers include

policy statements, web seals, web site quality and approval seals. According to Jiyoun Kim Sharron J. Lennon, (2013), consumers rely on online resources to analyse online retailers and propositions made by them. The information search prior to purchase decision making, probably due to its convenience and less cost involved in gathering the required information.

S-O-R(K. Stouthuysen, I. Teunis, E. Reusen et al., 2017), technology acceptance model TAM, (Fred Davis, 1986), (Natasia, S. R., Wiranti, Y. T., & Parastika, A. (2021) theory of reasoned action TRA are the main theories contributing to the present research. TAM, TRA have confirmed two behavioural beliefs ease of use and perceived usefulness of the technology enabled mechanisms which affect purchase intention of online consumers. (Lins, S., Schneider, S., Szefer, J., Ibraheem, S., & Ali, A. (2019) Some studies have compared assurance mechanisms to psychological contract between online buyer and seller as it defines the transaction terms between online buyers and sellers. (Sha, W. (2018).

## Web Seals

The effectiveness of web seals in reducing risks perceived by online consumers has been highlighted in several prior studies. (T. C. E., & Teng, C.-I. (2022). The third party certifications also help in privacy and transaction security seals. (Lins, S., and Sunyaev et al., (2017). These are certifications that are obtained by e-sellers to reduce the customers' insecurities and risks of online buying options. (Lins, S., Schneider, et al., (2019). Web assurance seals are significantly important for accomplishing the objectives of both the retailers increasing the adoption of e-commerce and the online consumers by reducing information asymmetry (McCole, P., Ramsey et al., (2019). Web seals have been defined as the signalling cues (Lins, S., Schneider, S., Szefer, J., Ibraheem, S., & Ali, A. (2019), which eliminate the information asymmetry of online buying platforms. The presence of seals and security certificates on online shopping website implies that sellers take the responsibility of the faulty or wrong delivered product. (Alrawad Mahmaod & Lutfi et al., 2023)

Web seals such as SSL, and VeriSign, are displayed in the

form of graphic logos on the webpages of shopping websites. These are certified by third party agencies who can guarantee safe shopping experience. E-commerce assurance seals have been developed by various organizations like American Institute of Certified Public Accountants (AICPA). Some of the well-known third party seals used by the e-commerce companies are McAfee (mcafeesecure.com), Verisign (Daigle and Lampe, 2005), PayPal, Secure socket lock (SSL)(globalsign.com) and Trust-e (Trusted cloud, 2012)

Previous studies have explored the impact of web assurance seals on perceived trust, purchase intention and perceived assurance. (Löbbers, J., Lins, S., Kromat, T. et al. 2022). The factors included to explore the impact of web seals on customers concerns and purchase intention are perceived usefulness, information adequacy, and technical adequacy. Perceived Usefulness refers to perceived information about usefulness of institution based mechanisms such as website infrastructure quality and third-party seals in reducing risks perceived by online customers. (Yi Liu, Xinlin Tang, (2018). Awareness and Knowledge-The awareness about structural assurance tools displayed in the form of web-seals, is essential to realise the objective of managing consumer concerns and fears regarding online purchase decision making. Presence of structural assurance mechanisms on the shopping web site can reduce the perceived risks only when potential customers are aware about the attestation process and technical details incorporated in the seals. (Hu, Xiaorui et al (2010). Information Quality: The complicated technical details about web-seals cause hindrance for consumers to implement them. Technical Adequacy: Structural assurance mechanism display signs such as web-seals which are posted on shopping websites to ensure online consumers that they can safely interact and make transactions with the shopping website. Encryption software, safe networks, fire walls, proxy networks etc. are used by the online vendors along with other legal and procedural requirements to make the seals a symbol of safe and secured website. (Park, Insu & Bhatnagar, Amit & Rao, Raghav. (2010).

H1a: Web Seals significantly influence product quality

concerns of online consumers

H2b: Web Seals significantly influence transaction concerns of online consumers

### Website Infrastructure

A website is the main interface between buyers and sellers in online buying space; e-sellers like Amazon, Flipkart, Myntra, have included several security functions and navigational features such as escrow payment system, on site verification methods, product catalogues and description in multiple languages, payment platforms in multiple currencies, on their shopping websites. The websites are made more interactive to grant a better buying experience to the users. (Amponsah, R. K., & Antwi, S. (2021). Information quality, system quality and service quality and are the main dimensions used to study website quality. System quality is comprised of features such as system usefulness, reliability, suitability and consumer reaction. (Amponsah, R. K., & Antwi, S. (2021). A well framed website positively influence customer trust and intention to make online purchase decision. (Huang, T.-L., Chen, C.-H., Liao, (2022).

Structural framework and content quality are stated as the main attributes of the shopping websites that help in reducing risks of online buying. (Adedaja, Omololu, Hussin, Siti et al (2022). The reduced uncertainty increases consumer satisfaction and positive perception of consumers. (Thabang Excellent Mofokeng (2021). Website helps in enhancing the total experience of the website. Service failure on part of the online retailer leads to the avoidance of that retailer by the consumers. (Cohen, A. H., Fresneda, J. E., & Anderson, R. E. (2020 ). High quality digital interventions in the form of usable and exciting websites provide memorable experience to the users. High quality refers to the sensory and structural characteristics which helps in building a positive attitude towards the appearance of the website. Visual design and aesthetics of the shopping website are other important attributes of website quality. Along with visual design, information design, and navigation design. (Shaouf, Abubaker & Lu, Kevin. (2022). Another study done by Thabang Excellent Mofokeng (2021). has explored the relation between

website infrastructure quality and customer satisfaction and loyalty towards e retail. Ease of use associated with website infrastructure positively influence purchase intention of online customers. (Nasution, Muhammad & Rossanty, Yossie & Ariffin, Ku & Zaini, Nurliyana. (2019). The dimensions of website infrastructure used for the study are: Technical adequacy refers to the extent of technological difficulty associated with the features of shopping website. level of ease with which customers can use the technological features. These features include navigation links, web page loading features, ease and timing of accessing the different web features. Content quality refers to the quality of the information on the webpage of shopping website, accuracy of this information affect consumer perception about the buying process. website features, privacy, accuracy etc. Layout refers to website features like colors and fonts used for the user interface. Jongmans, Eline & Jeannot, et al., (2022).

H2a: Website infrastructure significantly influence product quality concerns of online concerns

H2b: Website infrastructure significantly influence transaction concerns of online consumers

### Customer Security Concerns and Purchase Intention

The full potential of e-commerce can be realized only after addressing the information security concerns of online customers. Some researchers have considered perceived risks of e-commerce consumers as a multidimensional concept. It includes different dimensions like functional risks, financial risks, transactional risks and physical risks, information uncertainty, delivery risks, product risks, technology related risks (Amirtha et al., 2020) Information misuse, internet fraud, unethical trade practices, privacy risk, lack of integrity and security are some of the threats faced by online consumers. (Aishwarya Pandey (2022). Distributed denial of services, phishing, social engineering malware, threat to personal information are some other cyber security challenges discussed in some studies (Liu X, Ahmad SF, et al., (2022). Fragmented customer knowledge is cited as one of the main cause of the problems associated with e-commerce technologies. (Kalia, P., Arora et al., (2016).

## Product Quality Concerns

Insecurity and insufficient information regarding the products is considered the main problem associated with online shopping. Lack of touch of the products before buying increase the insecurity in the mind of consumers about the products to be purchase through shopping websites specially in case of apparels and accessories. (Daroch, Bindia&Nagrath, Gitika& Gupta, Ashutosh. (2021). Besides these issues, some other problems perceived by online consumers are privacy, perceived service quality, and perceived risk(Sikandar Ali Qalati ,Esthela Galvan Vela et al;2021). Product concerns relate to the perceived risks when the e- seller does not provide accurate and genuine product information. Consumers are concerned that the received products will not adhere to the committed standard of quality and delivery. Product related notifications should be updated, genuine and easy for users to understand and interpret. Clarity and honesty of website information are the main factors of positive purchase intention in online buying.(L. Abdullah, R. Ramli, H. O. Bakodah et al., 2019).

H3a: Product Quality concerns significantly affect the purchase intention of online consumers.

## Transaction Security Concerns

Transactions risks are defined as the risks associated with payment and transaction while making purchase decision. It is the responsibility of online sellers to disclose the information related to product delivery, payment procedures, return policies for return of defective products.(Mohammadreza Mousavizadeh et al.,2017). Institutional assurance tools such like third party seals, and privacy policy statements are employed by many online firms like Swiggy, Zomato to employ certifications such as Paypal, VeriSign to provide secured payment gateways to consumers. Flipkart has Flipkart assured, an assurance badge or mark posted on its webpage to enthuse consumer confidence in online transaction process. Amazon has its own security logo displayed on its web page and mobile app assuring customers of safe transactions. Online vendors associate themselves with the third party institutional

methods like payments to indicate a safe transaction platform (Huang, T.-L., Chen, C.-H., et al., (2022). Some shopping websites make it mandatory to share the personal details of consumers before completion of shopping process, this makes the consumers leave the shopping cart just before making the payment or finalizing the purchase(Daroch, Bindia& Nagrath, Gitika& Gupta, Ashutosh. (2021),Kumar, 2016). Delayed product delivery is another problem faced by online buyers.(Muthumani et al., 2017).

H3b Transaction concerns significantly affect the purchase intention of online consumers

## Mediating Role of security concerns

### Purchase Intention

Purchase intention refers to the willingness on part of consumers to engage in purchase decision making. It is the assumption of actual buying behavior. Purchase intention depends on different internal and external variables like customer expectations, consumers' emotional response towards products and services to be purchased and a rational value of purchase.(Chauhan, S., Banerjee, R., & Banerjee, S. (2019). Information security concerns have been stated to be the main reason for reducing purchase willingness among online consumers. ( Sha, W. (2018). Prior studies have indicated websites having positive impact on consumer emotions which leads to positive purchase intention.( Shaifali Chauhan,2019). Web assurance seals influence purchase intention of online consumers as they are employed as tools of negotiation and settlement. The quality of product and online transaction related information influence the consumer willingness to engage in a particular online platform. This makes website infrastructure an important determinant for purchase intention of online consumers.( m Ali, U. A., & Aziz, A. (2022)

H4a: Web Seals significantly influence purchase intention of online consumers.

H4b: Website infrastructure significantly influence purchase intention of online consumers.

H5a: Product Quality Concerns mediate the relationship of website infrastructure and purchase intention.

H5b: Transaction Quality Concerns mediate the relationship of website infrastructure and purchase intention.

H5c: Product Quality Concerns mediate the relationship of web seals and purchase intention

H5d: Transaction Quality Concerns mediates the relationship of web seals and purchase intention

### Research Methodology

Findings from prior research studies and identification of research gaps have helped in development of the research model used for the study. Research variables used in the proposed model are partially adopted from existing research contributions and rest are based on the novel insights obtained from practical observation. The model establishes the relationship between structural assurance tools (web-seals and website infrastructure), product quality, transaction concern and purchase intention. The contribution of existing literature has been described in the section of literature review.

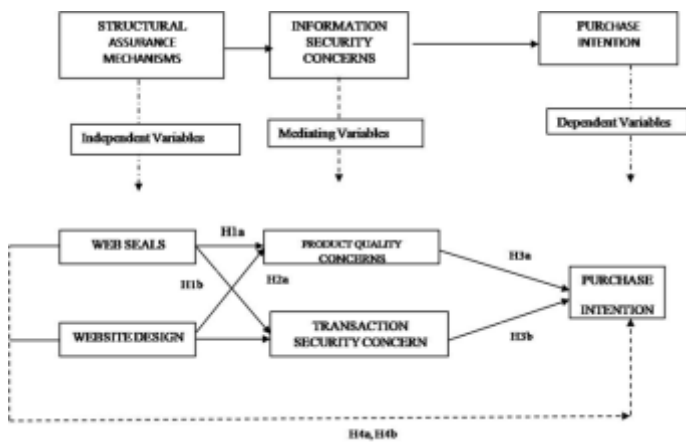


Fig1: Proposed Research Model

Present study use exploratory and descriptive research methods to accomplish the main objectives which include

- Study of relationship between web seals and website infrastructure with security concerns of online consumers

- Explore the impact of security concerns on purchase intention of online consumers.
- Investigate the mediating effect of customer security concerns in impact of web seals and website infrastructure on purchase intention of online consumers.

### Data Collection

A structured questionnaire has been used to collect data from the respondents. The sample is selected through multistage sampling method. Selection is based on the high the internet usage rates( compiled by Statista in the year 2020.) Further, five urban areas have been selected on the basis of high internet adoption rates. Among the selected areas any individual above the age of 18 years who has experienced online shopping in last six months is eligible for data collection. Data has been collected through Google forms. 680 responses were received out of which 631 deemed fit for present study. SPSS (Statistical Package for Social Sciences) and Smart PLS-SEM (Partial Least Square- Structural Equation Modeling) has been employe for data analysis order hypotheses testing.

### Survey Instrument and Measures

Five-point Likert scale (1= “strongly disagree”; 5 = “strongly agree”) has been used to gather the responses of respondents. The survey instrument includes a total of 24 statements,( 4 for web seals, 4 for website infrastructure, 3 for product quality concerns, 5 for transaction security concerns and 8 for purchase intention. The source is already mentioned in the literature review section.

### Data Analysis

The analysis includes the demographic profile of respondents, relationship between structural assurance mechanism and information security concerns, and the impact of web assurance mechanism and customer concerns on purchase intention of customers. Futher, the mediating effect (Matthews et al., 2018) of customer concerns on the relationship of web assurance mechanism and purchase intention has been discussed.

### Demographic Profile

The demographic profile of the respondents is presented in

four variables age, gender, education and occupation of the respondents is presented in Table 1. As seen from the table 1, majority of respondents 475 are in the age group of 18 to 40 years. 68% were males. Around 48% of the respondents were found to be post graduate and almost 46 % were in

private or government service. In terms of location, majority respondents were from Chandigarh followed by Mohali. The detailed demographic analysis is depicted in the Table 1.

**Table 1: Demographic Analysis**

Demographic variables	Parameters	Frequency(%)
AGE	Below 30 years	288(45)
	30-40 years	197(31.2)
	40-50 years	85(13.5)
	Above 50 years	46(7.3)
GENDER	Male	429(68)
	Female	202(32)
EDUCATION QUALIFICATION	Senior Secondary or Lower	52(8.2)
	Undergraduate	63(10)
	Graduate	129(20.4)
	Post-graduate or higher	300(47.5)
	Professional Qualification	87(13.8)
OCCUPATION OF THE RESPONDENTS	Service	269(42.6)
	Professional/Self-employed	71(11.3)
	Retired Employees	69(10.9)
	Student	37(5.9)
	Unemployed	54(8.6)
GEOGRAPHIC LOCATION	Shimla	104(16.5)
	Chandigarh	155(24.6)
	Mohali	122(19.3)
	Gurgaon	112(17.7)
	Delhi	138(21.9)

### Structural Equation Modelling (SEM)

PLS-SEM is used for analyzing the results because PLS can simultaneously evaluate the measurement and structural model with minimal error variance (Hair et al., 2013). Factor loadings of all the indicators are shown in table-2.

For all the indicators, loadings are greater than 0.70 (0.65) except for two security seal statements and one transaction security concerns. Thus, these indicators were removed from the model and again the SEM was run on the revised model.

**Table 2: Indicator Loadings**

Construct	Indicators	Statements	Indicator Loadings
Web Seals	SS1	WEB SEALS are useful in reducing the product quality concerns of online shopping	0.78
	SS2	I know how WEB SEALS can provide safe payment and transaction platforms	0.818

Construct	Indicators	Statements	Indicator Loadings
	SS3	I know presence of WEB SEALS can reduce information security of online buying	0.809
	SS5	Presence of web seals increase my willingness to make online purchase decision	0.87
Website Infrastructure Quality	WI1	Technical features of a website are useful in reducing the product quality concerns of online shopping	0.723
	WI2	Information quality of website reduce my risk about transaction risks	0.79
	WI4	A well trusted website increase my willingness to make online purchase	0.845
	WI5	A well designed website increase my confidence in online buying	0.81
Product Quality Concern	PQ1	I am worried about the quality of products and services purchased through online sellers	0.877
	PQ2	The products received are not same as displayed on shopping website.	0.858
	PQ3	I am not sure about the quality of the products bought online	0.919
Transaction Security	TS1	I feel that payment options provided by the shopping website are not safe.	0.775
	TS2	I feel concerned about managing issues like delivery delay, return, and refund.	0.796
	TS3	I am worried that the online seller will not adopt proper measures to protect the transactional information during online transaction.	0.814
	TS4	The issues faced during transactions reduce my willingness to purchase from online websites	0.793
	TS5	Payment and transaction issues are important for making online purchase	0.884
Purchase Intention	PI1	I am willing to purchase from a website provide safe access to my important information	0.792
	PI2	I am willing to purchase from a website which promise to deliver good quality products and services	0.755
	PI3	I am willing to purchase from a shopping website which provide safe transaction and payment platforms	0.740
	PI4	I am willing to purchase from a shopping website which post well defined policy statements on its shopping website	0.741
	PI5	I am willing to purchase from a shopping website which post web seals (rupay, verisign) on its shopping website	0.775
	PI6	I am willing to purchase from a shopping website which has a clear design	0.791
	PI7	I am willing to buy from a trusted shopping website	0.815
	PI8	I am willing to purchase from a shopping website which posts online reviews	0.767

### Measurement Model Assessment

Evaluation of measurement model includes the reliability and validity tests of constructs included in the model. Since, all the values are greater than 0.07 which indicate high level of composite reliability of the data. Also, the Henseler's rho\_Alpha for 'Purchase Intention' is 0.904, 'Product Quality' is 0.864, 'Web Security Seals' is 0.842, and 'Transaction Information Security' is 0.894 and of 'Website Infrastructure' is 0.918, which lies between Cronbach's alpha value and composite reliability score respectively (Dijkstra and Henseler, 2015)..

The convergent validity is also calculated to investigate whether the items of each construct have high proportion of shared variance. The AVE values for 'Purchase Intention' is 0.596, 'Product Quality' is 0.783, 'Security Seals' is 0.673, 'Transaction Information Security' is 0.645 and of 'Website Infrastructure' is 0.697, which are greater than 0.5 proves convergent validity (Fornell and Larcker, 1981; Marcoulides, 1998).



**Table 3: Reliability and Validity Test Result**

S.No	Construct	Cronbach's alpha	(rho_a)	Composite reliability	Average variance extracted (AVE)
1.	Product Quality Concern	0.862	0.864	0.916	0.783
2.	Purchase Intention	0.903	0.905	0.922	0.596
3.	Transaction Security	0.871	0.874	0.907	0.661
4.	Web Seals	0.837	0.842	0.891	0.672
5.	Website Infrastructure	0.802	0.808	0.871	0.629

### Discriminant Validity

Discriminant validity refers to the degree to which a construct is empirically distinct from other constructs used in the SEM model. Past literature has employed Fornell and Larcker method and cross loadings approach to prove the discriminant validity. However, researchers like Henseler et al. (2015) revealed the limitations of using Fornell and

Larcker criterion and recommended a new method Heterotrait-Monotrait (HTMT) Ratio of correlations to establish the discriminant validity of the constructs. The values should be less than .85 for conceptually distinct constructs and .90 for conceptually similar constructs. (Henseler et al. (2015). Values in Table 4 fulfill this condition.

**Table 4-Discriminant validity Test Results**

	Product Quality Concern	Intention Purchase	Transaction Security	Web Seals	Infrastructure Website
Product Quality Concern					
Purchase Intention	0.515				
Transaction Security Concern	0.692	0.623			
Web Seals	0.307	0.633	0.48		
Website Infrastructure	0.468	0.482	0.534	0.534	

### Multi-collinearity check

The problem of multi-collinearity is examined from the VIF values. VIF (Variance Inflation Factor) greater than 10 as an indicator of multi collinearity (Jongh et al., 2015). All the VIF values less than 3.3, indicating no multi-collinearity issue in the data.

### PLS SEM Model

Fig 2. represents the PLS Model and establish the path between different constructs used in the study. Web seals and website infrastructure are the exogenous variables which impact the endogenous variable purchase intention. Product quality concerns and transaction security concerns

are the mediating variables which impact the relationship of web seals, website infrastructure and purchase intention of online consumers. The model determines the impact of independent variables on the dependent variables through path coefficient values  $\beta$ . Value of  $\beta$  should range between 0 to 1. (Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2022). As seen from the fig 2, web seals and website infrastructure exert more influence on transaction concerns ( $\beta=0.337, 0.336$  for web seals and website infrastructure respectively) as compared to product quality concerns. Transaction security concerns exert more influence ( $\beta=0.272$ ) on purchase intention as compared to the product quality concerns ( $\beta=0.171$ ).

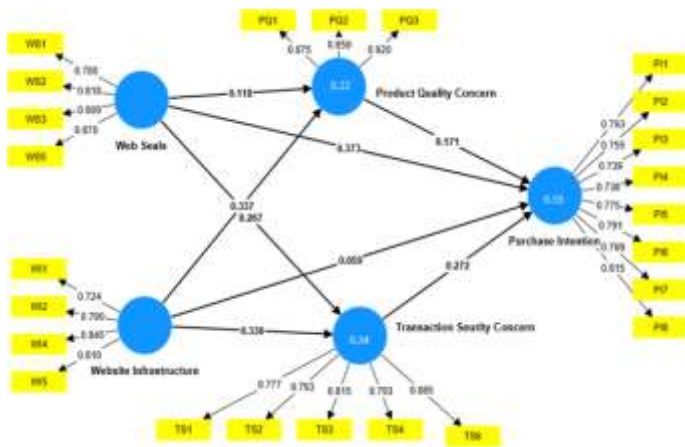


Fig 2: PLS SEM MODEL

### Hypothesis Testing

The PLS SEM model has been evaluated with the help of bootstrapping method run with 5000 bootstrap samples. Proposed hypothesis are tested through the path coefficient values, p-values, coefficient of determination-R2. In present research paper, R2 of endogenous variable purchase intention is 0.55, indicating that 55% of purchase intention variation can be explained through dependent variables in the model which are web seals, website

infrastructure, product quality concern and transaction security concern. R2 value >.050 indicates medium strength of the model(Haer et al., 2011).As seen from Table IV.5, all the hypothesis are supported by the model evaluation. The values from PLS SEM are significant at 95% confidence level at P<0.05

### Mediation Analysis

Mediation analysis has been included in the study to explore the effect of information security concerns ( product quality concerns and transaction security concerns) on impact of structural assurance mechanisms and purchase intention of online consumers. According to Mathews et al.(2018)and Sikandar Ali Qalati, Esthela Galvan Vela (2021)the mediation analysis can be partial when direct and indirect impact effects are significant. And mediation is referred as full mediation when direct impact is not significant but indirect effect is significant. As seen from the Table 5. Both the direct and indirect impacts are significant, hence information security concerns have partial mediation effect on the impact of structural assurance mechanisms on purchase intention.

Table 5. Hypothesis Test Results

Hypothesis	Relationship	Sample mean (M)	Standard deviation (STDEV)	T statistics	Remarks
<b>Direct Effect</b>					
H1a	Web Seals -> Product quality	0.119	0.042	2.793**	Supported
H1b	Web Seals -> Transaction Concern	0.252	0.041	6.177**	Supported
H2a	Website Infrastructure -> Product quality	0.337	0.039	8.661**	Supported
H2b	Website Infrastructure -> Transaction Concern	0.329	0.038	8.704**	Supported
H3a	Product quality -> Purchase Intention	0.172	0.038	4.556**	Supported
H3b	Transaction Concern -> Purchase Intention	0.274	0.038	7.274**	Supported
H4a	Web Seals -> Purchase Intention	0.466	0.033	13.991**	Supported
H4b	Website Infrastrucure -> Purchase Intention	0.209	0.035	6.013**	Supported
<b>Indirect Effects</b>					
H5a	Website Infrastructure -> Product quality -> Purchase Intention	0.058	0.058	0.015**	Supported
H5b	Website Infrastructure -> Transaction Concern -> Purchase Intention	0.09	0.09	0.016**	Supported
H5c	Web Seals -> Product quality -> Purchase Intention	0.02	0.021	0.009**	Supported
H5d	Web Seals -> Transaction Concern -> Purchase Intention	0.069	0.069	0.014**	Supported

\*\* Significant with P<0.05

## Predictive Analysis

Predictive strength of the model is analysed with the help of  $Q^2$ , which is used to find the predictive accuracy of research path model (Geisser, 1974; Stone, 1974), and this value is

derived through PLS predict in software Smart PLS4.. As shown in Table IV.6, all the values for  $Q^2$ predict are greater than 0.25 representing medium predictive power (Hair et al., 2014).

**Table 6: Predictive Strength Analysis**

Constructs	Q2 Predict	RMSE	MAE
Product Quality Concerns	0.255	0.688	0.749
Transaction security Concern	0.351	0.731	0.641
Purchase Intention	0.263	0.704	0.645

## Findings and Discussion

Data analysis results indicate that web seals and website infrastructure quality affect product quality concerns, transactions concerns and purchase intention of online consumers. Present study show a significant effect of product quality concerns on purchase intention. ( Table 5). Quality of the products delivered through online shopping platforms is a major concern for online consumers as the feel of touch and see is unavailable trough e-commerce sites.( Ts, N. (2022).Data analysis further indicate that web seals and website infrastructure quality play an important role in mitigating security concerns of online consumers. The results are consistent with prior studies.( Alrawd, Mahmaod & Lutfi, Abdalwali & Al-Yatama, Sundus & Khattab (2023), Mohammadreza Mousavizadeh, Dan J. Kim, Rui Chen,(2017).Web seals can be employed as an effective trust building mechanism as it helps in reducing security concerns of online consumers. (Michael Lang, Manuel Wiesche, Helmut Krmar(2017). Presence of web seals on web sites at as a signalling cue for consumers and stimulate positive perception of consumers.(Lobbers.,lins et al.,(2022).Trust has been used as a mediating variable in many studies(utama, d.r., fikri, m.a., & rini, p.l. (2022).While some other studies like Indiani, N. L. P., & Fahik, G. A. (2020),have studied the impact of customer relation as a mediating variable.On the contrary present study relates transaction security concerns and product quality concerns with purchase intention and structural assurance mechanisms. The findings are consistent with some other researches like Wicaksono, Aditya & Ishak, Asmai. (2022).The presence of structural assurance

mechanisms such as web seals and website infrastructure affect purchase intention by affecting security concerns.

## Conclusion and Future Scope

The results of the study proved the significant positive impact of structural assurance mechanism and customer concerns on the purchase intention of the customers in online shopping.The customer concerns are assessed through- product quality, and transaction information security, which have a significant positive influence on purchase intention of the customers in online shopping.Web seals and website infrastructure should not be used as mere technological elements but can be employed as effective mechanisms to increase consumer satisfaction with online shopping. Adoption of quality assurance mechanisms like structural assurance mechanisms can contribute in making e-commerce transactions as sustainable transactions.( Tandon, A., Aakash, A., & Aggarwal, A. G. (2020). With the substantial increase in number of online consumers it is responsibility of online sellers to adopt measures which increase consumer trust and confidence in online buying.Although, the present paper incorporates all the parameters and dimensions required for the scope of topic,some limitations could not be avoided. First, The construct structural assurance has a wide scope and include other dimentions like policy statements, brand image, product guarantees.But, the study includes two main factors like web seals and website infrastructure, due to limited time and other resources. The study of these aspects can be included in future research of the topic. Online sellers

should focus on increase customer adoption and understanding of eb seals and website infrastructure features to improve quality standards associated with online buying.

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