

## EFFECTS OF SERVICE QUALITY ON PERCEIVED SECURITY AND CUSTOMER TRUST IN E-COMMERCE

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### 1. Introduction:

E-service can be defined precisely as delivering the service to the customers through the use of Internet mentioned by Bitner and Zeithaml (2003). According to Kim et al. (2008) e-service can be understood more accurately as the activities, determinations and performances offered by the providers and received by the customers through the Internet. It is the service based on web offered and delivered through the Internet. In e-service process interaction among service provider and the customer is purely based on Internet with front end internet based system and back end information system (Sheng and Liu, 2010). The whole process includes three components such as service provider, receiver and the means of delivering service. Here in e-service the important component is the channel for delivering service to the customer i.e. Internet which differs e-service from the services offered at the traditional stores (Bitner and Zeithaml, 2003). In traditional stores only employees are engaged in the service encounter with the customers while as in e-retail stores technology or employees are engaged in the service encounter with the customers via Internet. Further while buying online, hearing and viewing limitation is faced by the customer, whereas customer take the advantage to touch and feel the product with their all senses. Jarvenpaa and Todd (1997) studied that traditional stores are constrained by distance and operation timing, while online stores have considerably removed such constraints.

Selling and buying of goods and services through the use of Internet is termed as e-Commerce. Electronic commerce is spreading and increasing at an extraordinary speed (Rasool and Rajmohan, 2015). Further, Corbitt et al. (2003) mentioned that every moment thousands of new internet users are involving themselves in digitally connected business environment. Business has now changed dramatically with the introduction of Internet. As it provides platform and allows seller to provide an online communication environment in which customers can access and evaluate product information, hence can directly purchase products and services from online sellers without leaving their comfort zone (Zeithaml et al., 2002). So, apart from this ease of shopping sub-type of human behavior such as “worry” arises while doing transactions over Internet. Hence, online sellers must focus and develop practices in building e-trust. Internet involved transactions are purely based on trust, also Chen and Barnes (2007) states that high level of trust results in higher online customer retention. Customer e-trust is not static and changes due many factors, service providers can tackle it by utilizing improved e-service quality (Belanger et al., 2002). Service is one of the vital tools and provides remuneration to the organization as well as to the consumers. During delivery, service provides benefit to both parties by interchanging the value between them (Roca et al., 2009). Identifying the need and evaluating various alternatives customer decide to buy the product or service from the service provider and the service provider offers their product or service suggesting solution to the customers problems, further customer also assume some values such as trust, price, time and delivery options in addition of exchanging the ownership (Zeithaml et al., 2002). It is very challenging task to measure the quality of the service due to its characteristics of being intangible and heterogeneity reported by Kantsperger and Kunz (2010). Production and consumption of the service take place at the same time, so its quality can be judged during the dealings at the time of delivery time.

Zeithaml et al. (2000) reveal that customer assessment of the Websites quality includes not only experiences during their interaction with the site but also post-interaction service aspects i.e., fulfillment and return. Developing e-trust will be the outcome of superior e-service quality. Decision of buying products or services online is highly influenced by e-trust, thus e-trust is one of the main component of buying decision process among online buyers in e-commerce (Gefen and Straub, 2004). Also, it is noted by Bahmanziari et al. (2003) that enhanced e-service quality can be treated as one of the major tools for the e-commerce in developing customer trust during e-transaction.

### 2. Review of Literature:

In order to understand the effects of service quality on customer trust, *Al-Nasser et al., (2013)* conducted a study to emphasize the relationships between e-service quality, culture, trust and risk. He found and reveal that service quality has relatively significant impact on consumer trust in online shopping, proving the proposed positive direct impact of perceived service quality upon

customer trust. However, perceived risk was revealed to be linked with consumer trust towards online shopping. Also, the effects of e-service quality on e-trust and e-satisfaction were identified and reported by *Ghalandari (2012)* through a survey by collecting data from 382 online buyers. He performed linear regression model and identified that customer loyalty to e-shops is directly influenced by e-trust and e-satisfaction with e-shops which in turn are determined by e-service quality. Further, the study mentions that situational variables can moderate relationship between e-trust and/or e-satisfaction and e-loyalty. To know the Impact of service quality, trust and customer satisfaction on customer loyalty, *Akbar and Parvez (2009)* made an attempt to probe into it, based on the analysis of the collected data from 304 customers in Bangladesh, the study reveals that trust and customer satisfaction are significantly and positively related to customer loyalty. Also it has been found that customer satisfaction plays a mediator role between perceived service quality and customer loyalty. Hence, study encourages the service providers to find out suitable path of action to gain customers trust by providing better quality in their service to retain existing customers. In an effort to analyze the relationship between service quality, trust and loyalty, *Roostika (2011)* have identified Context quality, Device quality, Privacy quality, Interaction quality, Connection quality, Contextual quality and customer service quality as major factors constituting service quality. Based on the survey generated from 186 Indonesian customers, the result of the study establishes an indirect relationship between service quality and loyalty through trust. Further, the contextual quality was found to be the strongest contributors of service quality, while device quality was the least. Further, an attempt made to examine how e-Service Quality, e-Satisfaction, e-Trust, e-Commitment are related in building customer e-Loyalty, *Romadhoni et al., (2015)* conducted a study by reviewing the available literature. The relationship mentioned in the study is based on relationship marketing theory. The results shows that e-service quality, e-satisfaction, e-trust and e-commitment play an important role while building e-loyalty among online customers.

The impact of satisfaction and trust on loyalty of e-Commerce customers were examined by *Brillant and Achyar (2013)*, in which factors were identified that influence customer satisfaction. The result of the study shows that the factor Information quality affects customer trust, which in turn affects customer loyalty. Further, the above study recommends that e-Commerce websites should focus on delivering trust information about product quality which will improve customer trust resulting in greater loyalty towards e-Commerce websites. Hence, to explore the factors that affect customer trust while shopping online, *Dolatabadi and Ebrahimi (2010)* conducted a study and collected data from 625 respondents in Iran. The results of the study mentions that perceived risks have the strongest projecting value in terms of the formation of consumers' trust in online shopping. Also, the result confirms that perceived security protection and perceived reputation acts as important predictors of consumer trust in online buying. Further, the above study reveals that Propensity to trust has a moderating effect on the relationship between trust in online buying and the respondents' perceptions of the experience to trust. So to find the factors which motivate and protect buyers for and from online shopping, *Prajapati and Thakor (2011)* conducted a survey in Ahmadabad and finds that security and lack of time plays a major impact over customer decision making. The result of the study also mentions that customers prefer to get the product related information from the Internet and shows interest to visit the physical store to purchase that product. Therefore *Ahmed and Hawedi (2012)* conducted a study in Libya to explore and identify the challenges regarding perceived security and trust among Online buyers in e-Commerce, The findings of this work identifies that effect of security, protection and trust towards consumers as well as attitudes plays a key role in e-commerce implementation. Further, it also places few drawback related to e-commerce transactions and also provides some means to overcome such drawbacks.

### 3. Methodology

#### 3.1 Objectives

Based on nature of the study and identified problem following objectives were framed for the present study:

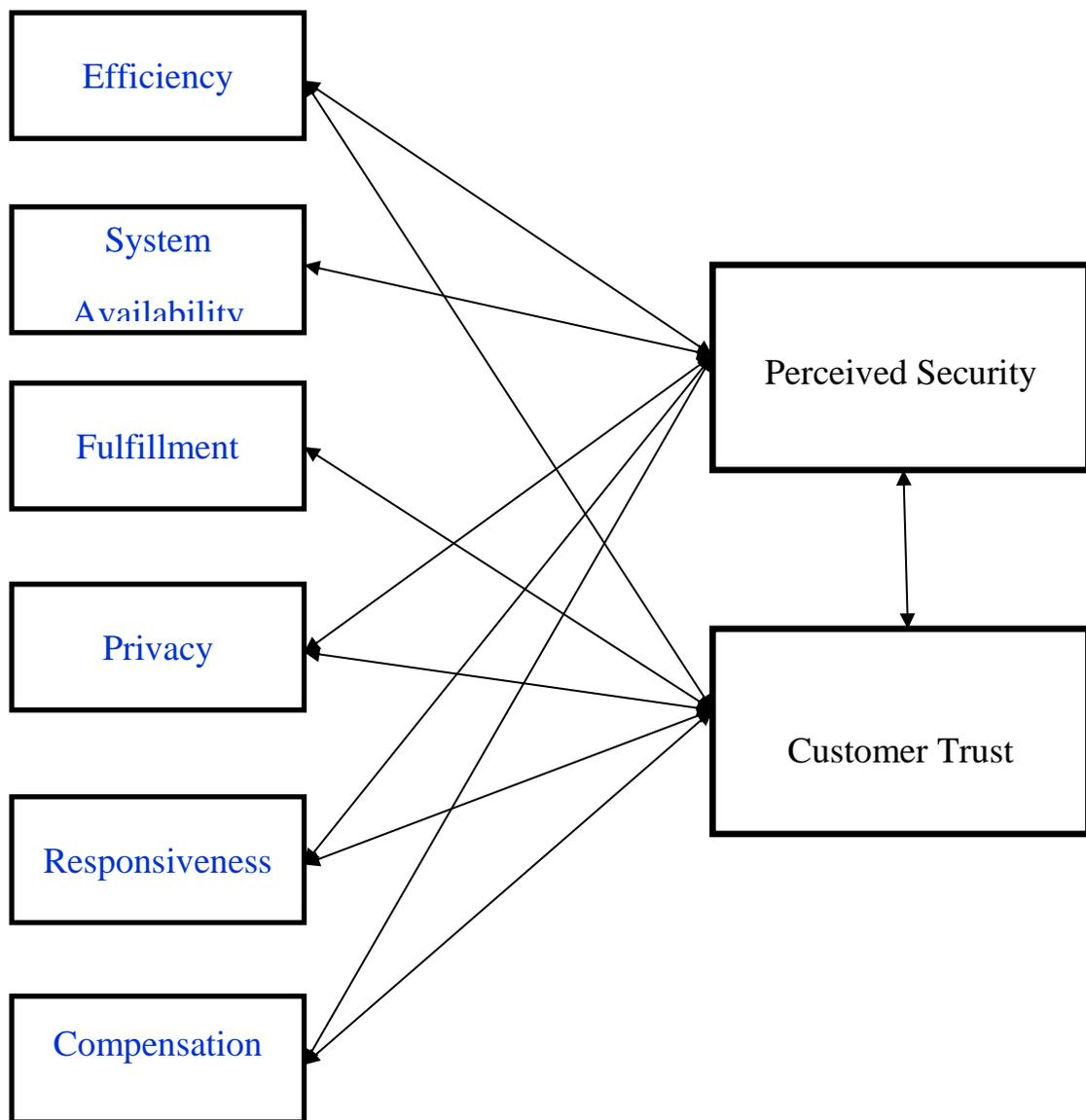
<b>Objective-1:</b>	To identify the effects of perceived security and customer trust on overall Service Quality in e-Commerce. (H1)
<b>Objective-2:</b>	To find the effects of Service Quality dimensions on perceived security among Online Buyers in e-Commerce.(H2)
<b>Objective-3:</b>	To measure the effects of Service Quality dimensions on customer trust among Online Buyers in e-Commerce.(H3)
<b>Objective-4:</b>	To know the effect of perceived security on customer trust among Online Buyers in e-Commerce.(H4)

### 3.2 Hypotheses

To work out the objectives of the study, the following Hypotheses were framed for testing.

<b>Hypothesis-1:</b>	Overall Service Quality does not depend on perceived security and customer trust among Online Buyers.
<b>Hypothesis-2:</b>	Perceived security among online buyers does not depend on Service Quality dimensions.
<b>Hypothesis-3:</b>	Customer trust among online buyers does not depend on Service Quality dimensions.
<b>Hypothesis-4:</b>	E-commerce customer trust does not depend on perceived security.

**Figure-1: Diagrammatic representation of Conceptual framework**



### 3.3 Conceptual framework

The details of the conceptual framework taken up for the present work is shown in Figure-1, where the details like components of Service Quality dimensions, perceived security and Customer trust in e-Commerce were shown in schematic representation. This was framed taking into considerations the nature of the topic and subsequent objectives taken up for the present work.

The different patterns of connectivity lines shown in the conceptual framework give scope for testing various assumptions on the kind of dependencies that might exist with the study variables such as Service Quality dimensions, perceived security and customer trust in e-Commerce. For instance, the connectivity lines between perceived security, customer trust and Service Quality dimensions give scope for testing various kinds of dependencies in the present work.

### 3.4 Details of Items used in Questionnaire

The questionnaire framed and used in the present work consists of three sections for measuring the variables like demographic profile, security and trust concerns and Service Quality dimensions in e-Commerce. The details of these sections were provided in the following exhibit-1, 2, &3.

**Exhibit-1: Details of items in the Questionnaire corresponding to demographic profile**

S. no	Demographic profile	Measurement Scale
1	Name	Open ended
2	Gender	Assigned 2 point scale
3	Age	Assigned 5 point scale
4	Educational status	Assigned 5 point scale
6	Marital status	Assigned 2 point scale

**Exhibit-2: Details of items in the Questionnaire corresponding to perceived security and e-Commerce customer trust**

Perceived security (Kolsaker and Payne, 2002; Dong-Her, 2004; Eid, 2011)		Measurement Scale
1	The Web site has mechanism to ensure the safe transmission of its users' information.	5 point Likert scale
2	The Web site has sufficient technical capacity to ensure that the data I send cannot be modified by hackers.	5 point Likert scale
3	Purchasing on the Web site will not cause financial risk.	5 point Likert scale
4	The electronic payment on the Web site is safe.	5 point Likert scale
e-Commerce customer trust (Kolsaker and Payne, 2002; Eid, 2011; Moorman et al., (1993); Merrilees and Fry, 2003)		Measurement Scale
1	E-product/service provider is trustworthy and honest.	5 point Likert scale
2	E-product/service provider instills the confidence in his customers.	5 point Likert scale
3	E-product/service provider does not usually fulfill the promises and commitments he assumes.	5 point Likert scale
4	It is a problem to give the private information and the credit card number to the E-product/service provider.	5 point Likert scale

**Exhibit-3: Details of items in the Questionnaire corresponding to Service Quality in e-Commerce**

Efficiency (Parasuraman et al., 2005)		Measurement Scale
1	The e-retailer website makes it easy to find what I need.	5 point Likert scale
2	It makes it easy to get anywhere on the e-retailer website.	5 point Likert scale
3	It enables me to complete a transaction quickly on the e-retailer website.	5 point Likert scale
4	Information at the e-retailer website is well organized.	5 point Likert scale
5	It loads its pages fast.	5 point Likert scale
6	The e-retailer website is simple to use	5 point Likert scale
7	The e-retailer website enables me to get on to it quickly.	5 point Likert scale
8	This site is well organized.	5 point Likert scale
System Availability(Parasuraman et al., 2005)		Measurement Scale
9	The e-retailer website is always available for business.	5 point Likert scale
10	The e-retailer website launches and runs right away.	5 point Likert scale

11	The e-retailer website does not crash.	5 point Likert scale
12	Pages at this site do not freeze after I enter my order information.	5 point Likert scale
<b>Fulfillment</b> (Parasuraman et al., 2005)		
13	E-retailer website delivers orders when promised.	5 point Likert scale
14	E-retailer website makes items available for delivery within a suitable time frame.	5 point Likert scale
15	E-retailer website quickly delivers what I order.	5 point Likert scale
16	E-retailer website sends out the items ordered.	5 point Likert scale
17	E-retailer website has in stock the items the company claims to have.	5 point Likert scale
18	E-retailer website is truthful about its offerings	5 point Likert scale
19	E-retailer website makes accurate promises about delivery of products.	5 point Likert scale
<b>Privacy</b> (Parasuraman et al., 2005)		
20	E-retailer website protects information about my Web-shopping behavior.	5 point Likert scale
21	E-retailer website does not share my personal information with other websites.	5 point Likert scale
22	E-retailer website protects information about my credit card.	5 point Likert scale
<b>Responsiveness</b> (Parasuraman et al., 2005)		
23	E-retailer website provides me with convenient options for returning items.	5 point Likert scale
24	E-retailer website handles product returns well.	5 point Likert scale
25	E-retailer website offers a meaningful guarantee.	5 point Likert scale
26	E-retailer website tells me what to do if my transaction is not processed.	5 point Likert scale
27	E-retailer website takes care of problems promptly.	5 point Likert scale
<b>Compensation</b> (Parasuraman et al., 2005)		
28	E-retailer website compensates me for problems it creates.	5 point Likert scale
29	E-retailer website compensates me when what I ordered doesn't arrive on time.	5 point Likert scale
30	E-retailer website picks up items I want to return from my home or business.	5 point Likert scale
<b>Contact</b> (Parasuraman et al., 2005)		
31	E-retailer website provides a telephone number to reach the company.	5 point Likert scale
32	E-retailer website has customer service representatives available online.	5 point Likert scale
33	E-retailer website offers the ability to speak to a live person if there is a problem.	5 point Likert scale

### 3.5 Sampling Detail

The importance of e-Commerce is increasing presently. Almost, everyone is connected with e-Commerce either directly or indirectly. As e-Commerce is growing significantly, Jammu division of J&K state is not so much on the go as compared to major divisions of other nearby states. To the superlative of author's understanding, the present work tries to investigate dependency effects among Service Quality, perceived security and trust in e-Commerce. For this a survey questionnaire was circulated and primary data were collected among the online buyers and such online buyers were identified on random basis from the Jammu area of J&K state by short listing the profiles obtained from courier companies which act as logistic partners for different e-Commerce sites in India. Out of total 300 profiles 152 responses were collected successfully through stratified random sampling method. Thus, sample size for the present work comprises of 152 online buyers. The data collected were coded and transferred in to Statistical package for social science (SPSS) and AMOS for the purpose of statistical analysis.

### 4. Validation of the Study Variables

The major study variables constituting the presents work were proved reliable on the basis of Cronbach value. However, the construct validity of the survey instrument is something that is viewed with importance in recent times. Hence, to establish construct validity for the study variables Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted and the details of the results obtained are reported in the following Sections.

#### 4.1. Exploratory Factor Analysis

The details of all the items comprising to e-Service Quality, perceived security and e-Commerce Customer Trust considered for measuring the variables is shown in the table-1. All the items were measured with 5 point Likert scale comprising the quantified values ranging between 1 and 5 following the standard approach and the factorability of these items was examined. Several well-recognized criteria for the factorability on the basis of item correlations were used. The reasonable factorability could be ensured with the pattern of correlations obtained among the items, where all the items of respective variable is correlated at a

minimum value 0.3 with at least one other item. Also, the Kaiser-Meyer-Olkin measure of sampling adequacy for all above mentioned variables was above the recommended value of 0.60 (Nunnally and Bernstein, 1994). Further, the support for inclusion of each items considered could be obtained through the values on the diagonals of the anti-image correlation matrix that were all above the suggested value of 0.5 (Bagozzi and Yi, 1988). The existence of the common variance among the items taken up is confirmed through the values of communalities which are well above the suggested value 0.3 as shown in table-1. Thus, the justification for conducting factor analysis could be ensured and hence, factor analysis was conducted with all items originally considered.

**Table-1: Results of the Exploratory Factor Analysis (EFA)**

Variable	Item Details	Factor Loading	Communalities	KMO Value	Variance Explained	Cronbach Alpha
Efficiency	The e-retailer website makes it easy to find what I need.	0.756	0.617	0.671	62%	0.903
	It makes it easy to get anywhere on the e-retailer website.	0.657	0.681			
	It enables me to complete a transaction quickly on the e-retailer website.	0.599	0.621			
	Information at the e-retailer website is well organized.	0.783	0.748			
	It loads its pages fast.	0.629	0.752			
	The e-retailer website is simple to use	0.614	0.806			
	The e-retailer website enables me to get on to it quickly.	0.832	0.746			
The e-retailer website makes it easy to find what I need.	0.653	0.808				
System Availability	The e-retailer website is always available for business.	0.593	0.623	0.703	65%	0.873
	The e-retailer website launches and runs right away.	0.744	0.731			
	The e-retailer website does not crash.	0.781	0.851			
	Pages at this site do not freeze after I enter my order information.	0.901	0.663			
Fulfillment	E-retailer website delivers orders when promised.	0.661	0.598	0.675	67%	0.735
	E-retailer website makes items available for delivery within a suitable time frame.	0.622	0.621			
	E-retailer website quickly delivers what I order.	0.768	0.635			
	E-retailer website sends out the items ordered.	0.801	0.535			
	E-retailer website has in stock the items the company claims to have.	0.831	0.514			
	E-retailer website is truthful about its offerings	0.594	0.552			
E-retailer website makes accurate promises about delivery of products.	0.691	0.691				
Privacy	E-retailer website protects information about my Web-shopping behaviour.	0.685	0.814	0.762	70%	0.671
	E-retailer website does not share my personal information with other websites.	0.672	0.622			
	E-retailer website protects information about my credit card.	0.665	0.599			
Responsiveness	E-retailer website provides me with convenient options for returning items.	0.787	0.571	0.648	59%	0.627
	E-retailer website handles product returns well.	0.756	0.596			
	E-retailer website offers a meaningful guarantee.	0.629	0.620			

	E-retailer website tells me what to do if my transaction is not processed.	0.603	0.527			
	E-retailer website takes care of problems promptly.	0.757	0.586			
Compensation	E-retailer website compensates me for problems it creates.	0.571	0.542	0.655	66%	0.710
	E-retailer website compensates me when what I ordered doesn't arrive on time.	0.892	0.504			
	E-retailer website picks up items I want to return from my home or business.	0.615	0.539			
Contact	E-retailer website provides a telephone number to reach the company.	0.813	0.644	0.751	69%	0.746
	E-retailer website has customer service representatives available online.	0.841	0.672			
	E-retailer website offers the ability to speak to a live person if there is a problem.	0.663	0.671			
Perceived security	The Web site has mechanism to ensure the safe transmission of its users' information.	0.825	0.703	0.674	63%	0.685
	The Web site has sufficient technical capacity to ensure that the data I send cannot be modified by hackers.	0.643	0.611			
	Purchasing on the Web site will not cause financial risk.	0.630	0.762			
	The electronic payment on the Web site is safe.	0.620	0.631			
E-Commerce Customer trust	E-product/service provider is trustworthy and honest.	0.773	0.588	0.783	67%	0.686
	E-product/service provider instills the confidence in his customers.	0.669	0.618			
	E-product/service provider does not usually fulfill the promises and commitments he assumes.	0.693	0.592			
	It is a problem to give the private information and the credit card number to the E-product/service provider.	0.654	0.574			

In order to compute scores for these variables, Principle components analysis was used and the initial Eigen values showed that all these factors explained satisfactory percent of the variance with single factor existence suggested through screen plot. Hence, further examinations were made with varimax and oblimin rotations and little difference could be established between these two rotation procedures on these factors which explained satisfactory percent variance.

During the repeated procedures of factor analysis on the basis of Principal Component Analysis, all items got loaded with the value of above 0.5. Thus, analyses were made with all these items resulting in single factor extraction with corresponding primary loadings over 0.5 and the factor loading matrix for this final solution is also presented in table-1. Further, the Cronbach Alpha values of 0.903, 0.873, 0.735, 0.671, 0.627, 0.710, 0.746, 0.685 and 0.686 corresponding to the factors such as Efficiency, System Availability, Fulfillment, Privacy, Responsiveness, Compensation, Contact, Perceived security and e-Commerce Customer Trust confirms the reliability of the Scale (Nunnally, 1978).

#### 4.2 Confirmatory Factor Analysis

The measurement for all the study variables were further assessed using Confirmatory Factor Analysis (CFA) and the corresponding metrics of the model fit is provided in table-2. The value of CMIN/DF obtained for this model is 3.191 and this value is well below the suggested maximum value of 5.0 for a good model fit (Bagozzi and Yi, 1988). Further, the CFI value of 0.962 and the AGFI value of 0.981 are well above the suggested value of 0.95. Also, the RMSEA value of 0.030 is below the suggested maximum value of 0.07 (Baumgartner and Homburg, 1996). Thus, the Confirmatory Factor Analysis procedure through a Model fit Process establishes a strong construct validity and reliability for the scale.

**Table-2: Model Fit Summary**

S. No	Goodness-of-Fit Statistics	Good Fitness	Model
1	CMIN/DF	< 5.0	3.19
2	CFI (Comparative Fit Index)	≥ 0.95	0.96
3	AGFI (Adjusted Goodness-of-Fit-Index)	≥ 0.95	0.98

4	RMSEA (Root Mean Square Error of Approximation)	< 0.07	0.03
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Source: Computed from Primary data

## 5. Findings & Discussion

### 5.1 Service Quality dependency on perceived security and e-Commerce customer trust

The dependency effects of Perceived overall Service Quality on factors like perceived security and e-Commerce customer trust among Online Buyers in e-Commerce is defined in hypothesis-1, taken up and its results are shown in the table-3, as an outcome of regression model conceptualized. From the results, it can be inferred that the F value of 45.381 is found to be significant at 5 percent level and hence, the hypothesis-1 is rejected. These results suggest that Perceived overall Service Quality depends on factors such as perceived security and e-Commerce customer trust among Online Buyers. This finding is in concord with the findings of previous studies, which proved that significant positive relation between e-Service Quality and customer trust among online buyers in e-Commerce (Chen, 2006; Zhou, 2011). Also, Chuang and Fan (2011) found that Service Quality plays an essential role in determining trust and belief among online buyers in e-Commerce. However, the finding is not in agreement with the findings of Shu-Chieung et al. 2011, shows that positive significant relation does not found between e-service quality and customer trust among online buyers. Further, the adjusted R square value of 0.653 from the table-20 indicates that 65 percent of Perceived overall Service Quality among Online Buyers in e-Commerce is significantly dependent on these factors. Also the 't' values of 5.437 and 3.019 corresponding to the factors perceived security and e-Commerce customer trust are found to be having significant effects on the model conceived.

More specifically, perceived security among Online Buyers in e-Commerce is found to be having significant superior effect on Perceived overall Service Quality with highest 't' value of 5.437. The 't' value of 3.019 obtained for the e-Commerce customer trust among Online Buyers in e-Commerce significantly causes considerable dependency effect on the Perceived overall Service Quality.

**Table-3:Result of regression for hypothesis-1**

Model	Unstandardized Coefficients		Standardized Coefficients	t	F	Adjusted R square
	B	Std. Error	Beta			
(Constant)	0.778	0.197		3.942*	45.381*	0.653
Perceived security	0.431	0.079	0.391	5.437*		
e-Commerce customer trust	0.204	0.067	0.217	3.019*		

**Dependent Variable: Overall Service Quality; \*Significant at 5 percent level;**

Source: Computed from Primary data

Further, the above results confirm that higher perceived security and higher trust among Online Buyers in e-Commerce contribute to higher Perceived overall Service Quality levels in e-Commerce. Hence, it becomes important to understand the effects of Service Quality dimensions in those significant factors such as perceived security and e-Commerce customer trust. Thus, two more independent multiple regression models relating each of those significant factors with all the dimensions of Service Quality were conceived and tested. The result of both these independent multiple regression models were observed significant and were provided in table-4 and table-5. After that, it is also important to understand the dependency effect of e-Commerce customer trust on perceived security risk, so one more independent multiple regression model were tested and provided in table-6.

### 5.2 Perceived security dependency with Service Quality dimensions

The dependency effects of perceived security on Service Quality dimensions like Service Quality Efficiency, Service Quality System Availability, Service Quality Fulfillment, Service Quality Privacy, Service Quality Responsiveness, Service Quality Compensation and Service Quality Contact among Online Buyers in e-Commerce is defined in hypothesis-2, taken up and its results are shown in the table-4, as an outcome of multiple regression model conceptualized. From the results, it can be inferred that the F value of 52.067 is found to be significant at 5 percent level and hence, the hypothesis-2 is rejected. These results suggest that perceived security depends on the group of Service Quality dimensions in e-Commerce. Further, the adjusted R square value of 0.581 from the table-21 indicates that 58 percent of perceived security among Online Buyers significantly depends on these groups of dimensions of Service Quality in e-Commerce. Also the 't' values of 4.792, 3.551, -1.351 and 1.240 corresponding to

Service Quality dimensions such as Service Quality Privacy, Service Quality System Availability, Service Quality Responsiveness and Service Quality Contact are found to be having significant effects on the model conceived.

**Table-4:Result of regression for hypothesis-2**

Model	Unstandardized Coefficients		Standardized Coefficients	t	F	Adjusted R square
	B	Std. Error	Beta			
(Constant)	0.029	0.363		0.081	52.067*	0.581
Efficiency	0.071	0.086	0.068	0.822		
System Availability	0.318	0.066	0.373	3.551*		
Fulfillment	0.100	0.072	0.110	1.395		
Privacy	0.437	0.123	0.269	4.792*		
Responsiveness	-0.087	-0.065	-0.099	-1.351*		
Compensation	0.119	0.096	0.097	0.760		
Contact	0.058	0.077	0.062	1.240*		

**Dependent Variable: perceived security; \*Significant at 5 percent level;**

*Source: Computed from Primary data*

More specifically Service Quality Privacy among Online Buyers is found to be having significant superior effect on perceived security with highest 't' value of 4.729. This clearly confirms the positive effects of e-Commerce websites through information protection like web shopping behavior, personal and credit card information causative towards superior perceived security in e-Commerce.

Similarly, Service Quality System Availability among Online Buyers causes significantly good effect on perceived security in e-Commerce with the next higher t value of 3.551. This clearly confirms the positive effects of e-Commerce websites built through the features that can ensure availability of business round the clock with advanced and innovative website design guarantees proper working and loading of web portals in order to avoid crashing and freezing during online transaction contributing towards enhanced perceived security in e-Commerce format.

The 't' value of 1.240 obtained for the Service Quality Contact significantly causes considerable effect on the perceived security in e-Commerce. This confirms the positive effects of e-Commerce websites with availability of contact numbers to reach the company. Also, the option to talk with the live representative while facing inconvenience during online transaction are found to be very essential in contributing towards enhanced perceived security in e-Commerce format.

The 't' value of -1.351 obtained for the Service Quality Responsiveness significantly causes considerable effect on the perceived security. The negative 't' value obtained indicates the existence of inverse relationship between Service Quality Responsiveness and perceived security. Specifically, higher the Service Quality Responsiveness, lesser is perceived security risk. The enhanced and smooth procedure in dealing while returning the product contributes to maximum levels of Service Quality Responsiveness. As such procedure deviates due to service provider incapability results significant negative effects on perceived security and it is confirmed through the negative 't' value obtained for the Service Quality Responsiveness in e-Commerce format.

The remaining 't' values of 0.822, 1.395 and 0.760 corresponding to the dimension of Service Quality such as Service Quality Efficiency, Service Quality Fulfillment and Service Quality Compensation are not found to be significant at 5 percent level. Hence, it can be inferred that the perceived security in e-Commerce does not depend significantly on these Service Quality dimensions.

### **5.3 E-Commerce customer trust dependency with Service Quality dimensions**

The dependency effects of e-Commerce customer trust on Service Quality dimensions like Service Quality Efficiency, Service Quality System Availability, Service Quality Fulfillment, Service Quality Privacy, Service Quality Responsiveness, Service Quality Compensation and Service Quality Contact among Online Buyers in e-Commerce is defined in hypothesis-3, taken up and its results are shown in the table-5, as an outcome of multiple regression model conceptualized. From the results, it can be inferred that the F value of 14.726 is found to be significant at 5 percent level and hence, the hypothesis-3 is rejected. These results suggest that e-Commerce customer trust depends on the group of Service Quality dimensions in e-Commerce. However, Ghalandari (2012) show that information quality, system quality and web-service quality from e-service quality influences positively on trust among online buyers. Further, the adjusted R square value of 0.658 from the table-5 indicates that 65 percent of e-Commerce customer trust among Online Buyers significantly depends on these groups of dimensions of Service Quality in e-Commerce. Also the 't'

values of 2.534, 2.370, 8.271 and 0.082 corresponding to Service Quality dimensions such as Service Quality System Availability, Service Quality Fulfillment, Service Quality Privacy and Service Quality Responsiveness are found to be having significant effects on the model conceived.

**Table-5:Result of regression for hypothesis-3**

Model	Unstandardized Coefficients		Standardized Coefficients	t	F	Adjusted R square
	B	Std. Error	Beta			
(Constant)	0.482	0.388		1.241	14.726*	0.658
Efficiency	0.046	0.092	0.038	0.503		
System Availability	0.180	0.071	0.180	2.534*		
Fulfillment	0.028	0.077	0.027	2.370*		
Privacy	1.088	0.132	0.570	8.271*		
Responsiveness	0.006	0.069	0.005	0.082*		
Compensation	0.153	0.103	0.106	1.485		
Contact	0.006	0.082	0.006	0.072		

**Dependent Variable: e-Commerce customer trust; \*Significant at 5 percent level;**

*Source: Computed from Primary data*

More specifically Service Quality Privacy among Online Buyers is found to be having significant superior effect on e-Commerce customer trust with highest 't' value of 8.271. This clearly confirms the positive effects of e-Commerce websites through information protection like web shopping behavior, personal and credit card information causative towards superior customer trust in e-Commerce.

Similarly, Service Quality System Availability among Online Buyers causes significantly good effect on e-Commerce customer trust in e-Commerce with the next higher t value of 2.534. This clearly confirms the positive effects of e-Commerce websites built through the features that can ensure availability of business round the clock with advanced and innovative website design guarantees proper working and loading of web portals in order to avoid crashing and freezing during online transaction contributing towards enhanced customer trust in e-Commerce format.

The 't' value of 2.370 obtained for the Service Quality Fulfillment significantly causes considerable effect on the customer trust in e-Commerce. This confirms the positive effects of e-Commerce websites with promised delivery of products ordered and makes product available to the customers within a suitable timeframe. They deliver the exact product ordered and moreover displays the list of items available in the stock gives the sense of trustworthiness. Such features contribute towards enhanced customer trust in e-Commerce transactions.

The 't' value of 0.082 obtained for the Service Quality Responsiveness significantly causes considerable effect on the customer trust in e-Commerce. This confirms the positive effects of e-Commerce websites with availability of convenient options for returning the products in a hassle free manner. Such features are found to playing as important role in contributing towards enhanced customer trust in e-Commerce.

The remaining 't' values of 0.503, 1.485 and 0.072 corresponding to the dimension of Service Quality such as Service Quality Efficiency, Service Quality Compensation and Service Quality Contact are not found to be significant at 5 percent level. Hence, it can be inferred that the customer trust in e-Commerce does not depend significantly on these Service Quality dimensions

#### **5.4 E-Commerce customer trust dependency with Perceived security**

The dependency effect of customer trust on perceived security among Online Buyers in e-Commerce is defined in hypothesis-4, taken up and its results are shown in the table-6, as an outcome of multiple regression model conceptualized. From the results, it can be inferred that the F value of 77.371 is found to be significant at 5 percent level and hence, the hypothesis-4 is rejected. These results suggest that customer trust depends on the perceived security in e-Commerce. Such results indicate that building customer trust should be focused by the operating e-commerce players in India to maintain surveillance business in the competitive market. E-commerce players must provide trusted and dependence information about the product available in the stock item lists. Hence, these activities will boost the customer trust over e-commerce web portals, ultimately express customer loyalty to the web-portals. This result goes to some extent in line with the findings of the Ghalandari (2012), showed that e-trust influences positively both e-satisfaction and e-loyalty. Also Brillent and Achyar (2013) shows that satisfaction does not affect loyalty but customer trust affects customer loyalty and that trust is affected by information quality. Further, the adjusted R square value of 0.752 from the table-6

indicates that 75 percent of customer trust among Online Buyers significantly depends on perceived security in e-Commerce. Also the 't' values of 2.112 corresponding to customer trust is found to be having significant effect on the model conceived.

**Table-6:Result of regression for hypothesis-4**

Model	Unstandardized Coefficients		Standardized Coefficients	t	F	Adjusted R square
	B	Std. Error	Beta			
(Constant)	1.721	0.190		9.062*	77.371*	0.752
Perceived security	0.197	0.093	0.167	2.112*		

**Dependent Variable: e-Commerce customer trust; \*Significant at 5 percent level;**

**Source: Computed from Primary data**

This clearly confirms the positive effects of e-Commerce websites built through the mechanism to ensure the safe transmission of its buyer information, sufficient technical capacity to ensure that the buyer's data cannot be modified during online transaction by hackers and moreover updated security system to protect the buyer's financial e-transactions. Such features are contributing towards higher customer trust in e-Commerce format. However, perceived security is an important component that can ensure higher level of trust especially in e-transactions. Hence, online customers may show high concern towards security and payment in e-transactions, so they must have high level of trust while purchasing online goods and services (Singh and Sirdeshmukh, 2002). However, looking towards the preferred payment options by online buyer, cash on delivery (COD) is widely opted by the online customers in India. Such options are the strategic tools to capture more customer base, the willingness of the Online Buyers to pay online before receiving the product is a matter of trust on the part of the e-Commerce (Garbarino and Johnson, 1999). Hence, it becomes the responsibility of the e-Commerce players to ensure better trust among the Online Buyers.

## 6. Conclusion and Limitations

The conceptual framework present in the work provides the relationship between e-Service Quality, perceived security and e-commerce customer trust. For simple understanding the investigation made through this work indicates that perceived security and customer trust depends significantly on overall Service Quality among online buyers in e-Commerce. Service Quality, perceived security and trust are major dimensions in service industry mostly in e-commerce. Hence, Service Quality and perceived security plays key role in building e-commerce customer trust. The present work underlined the importance and contribution of these dimensions in e-commerce dealings. Even though perceived security and customer trust has superior dependency effect on overall Service Quality, also perceived security has stronger dependency effect on customer trust among online buyer in e-Commerce.

More specifically, out of seven Service Quality dimension such as Service Quality Efficiency, Service Quality System Availability, Service Quality Fulfillment, Service Quality Privacy, Service Quality Responsiveness, Service Quality Compensation and Service Quality Contact, Service Quality dimension Privacy among online buyers in e-Commerce is found to be having elevated effect on both perceived security and customer trust. This clearly confirms the positive effects of e-Commerce websites through information protection like web shopping behavior, personal and credit card information causative towards superior customer trust in e-Commerce. Also, Service Quality dimension System Availability and Service Quality dimension Responsiveness are found to be having superior effect on both perceived security and customer trust with negative relationship between dimension Responsiveness and Perceived security. Further, Service Quality dimension Contact is found to be having significant effect on perceived security only and Service Quality dimension Fulfillment is found to be having significant effect only on customer trust in e-Commerce. On the other hand Service Quality dimensions such as Efficiency Compensation are not found to be having significant effect neither on perceived security nor on customer trust.

Further, the results suggests that perceived security is found to be having significant prominent effect on customer trust among online buyers. This clearly confirms the positive effects of e-Commerce websites built through the mechanism to ensure the safe transmission of its buyer information, sufficient technical capacity to ensure that the buyer's data cannot be modified during online transaction by hackers and moreover updated security system to protect the buyer's financial e-transactions. So it confirms that perceived security is an important component that can ensure higher level of trust especially in e-transactions. Hence, for future works customer trust can be prominent component that can act most important and essential makeup in satisfying and retaining loyal customers. The limitations of the study can be converted into useful works in future, as the reality is that the sampling area for the present work is the major part of Jammu city, which may not be the envoy of the total population of online buyers in Jammu division of J&K state. This indicates that the sample size adopted for the present work is not sufficient as much as necessary. Hence, for future studies sample size could be increased in order to improve the validity and soundness of the study.

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