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**EXTENDED INFORMATION TECHNOLOGY ENABLED SERVICE  
QUALITY MODEL FOR LIFE INSURANCE SERVICES AND ITS  
MANAGERIAL IMPLICATIONS**

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**ABSTRACT**

Globalization and emergence of information technology has changed the customers' socio-economic culture and human interactions are now significantly being replaced by the interactions of human-technology where like any other sector, in life insurance sector also the information technology is playing the most vital role in providing quality services to the customers in order to satisfy them in the competitive market. Observing the significant relationship between the information technology and service quality, information technology and customer satisfaction, service quality and customer satisfaction, and the relationship among information technology, service quality and customer satisfaction in the field of life insurance, the researcher in this paper attempted to develop an extended information technology enabled service quality model for life insurance services especially for the Life Insurance Corporation of India through proper investigation of the dimensional structure of service quality in Burdwan district, West Bengal. In this study, accepted 221 usable responses were considered as the sample size and statistical package SPSS 16 was used to perform the analyses.

**KEYWORDS:** Customer Satisfaction, Dimension, Information Technology, Insurance, Service Quality.

**INTRODUCTION**

In 21<sup>st</sup> century information technology (IT) has become the backbone of every industry, especially for the service industries, all over the world where service quality plays an important role in the customization process of service delivery, improvement of the productivity and profitability of the organizations as well as in the satisfaction process of the

customers of the organizations. Satisfaction of the customers comes only when their needs and wants are fulfilled. Considering the various needs and requirements of customers, organizations are now concerned in providing quality of services to their customers in order to meet the expectations of the customers. Customer satisfaction has now become the most important objective of the firm through which they will be able to retain their own customers as well as will be able to attract the new customers in the global competitive market. After liberalization, while establishing its role in the economic development process of the country, Indian insurance market has undergone a dramatic change and also influenced the financial sector as a whole. There are now many private and foreign life insurance companies performing their operations in Indian insurance market and offering different type of products and services to the customers. In the modern fast life, life insurance customers have not so much of time to spare with the insurer neither to understand the different life insurance policies or schemes nor to perform their different transactional operations rather they are becoming more expecting about the information technology and information technology enabled services (ITES) in their life. Observing the present situation, insurance companies are now trying to change their focus from product orientation to customer orientation and increasing their IT investment in order to provide better quality of services to the customers than before. The largest as well as one and only public sector life insurance company of India namely Life Insurance Corporation of India (LICI) is no exception to this. From the very early age of the business, LICI has not only implemented information technology in their operations and providing various ITES to their customers but also adopted various strategies to modernize their present IT infrastructure. In order to survive in the future and to achieve maximum growth in the present competitive insurance market, life insurance companies are now dedicatedly involved in the development of new strategies for the purpose of the customer satisfaction through the proper improvement of service quality with the help of information technology in the efficient manner. Considering all the aspects, the current study has been conducted to develop an extended information technology enabled service quality model for life insurance services especially for the Life Insurance Corporation of India.

## **REVIEW OF LITERATURE**

Information Technology (IT) is described as any technology that helps to produce, manipulate process, store, communicate, and/or disseminate information (William and Sawyar, 2005). According to Hoffman (1994), information technology can be explained as “an all-inclusive term that encompasses computers and telecommunication in all their forms, whatever their use” (Stewart and Kleiner, 1996). Pitt et al. (1999) expressed that information technology may be considered as a platform that rides on the Internet, a hypermedia information storage system which connects computer-based resources around the world. “A service is a process consisting of a series of more or less intangible activities that normally, but not necessarily always, takes place in interactions between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems” (Gronroos, 2000). Kotler et al. (2002) defined the quality as the totality of features and characteristics of a product or services that bear on its ability to satisfy stated or implied needs. Service quality may be defined as “a global judgement or attitude relating to a particular service; the customer’s overall impression of the relative inferiority or superiority of the organization and its services. Service quality is a cognitive judgement” (Fogli, 2006). Czepiel (1990) defined the service quality as customer perception of how well a service meets or exceeds their expectations. In simple way service quality can be described as “the degree and direction of discrepancy between customers’

service perceptions and expectations” (Parasuraman and Zeithaml, 2006). Service quality dimensions are likely to be industry specific (Asubonteng et al., 1996). Babakus and Boller (1992) stated that dimensionality of service quality may depend on the type of service under study where the importance of different dimensions of the service quality depend on the characteristics of the industry (Brady and Cronin, 2001). As the identification of the determinants of service quality is necessary to be able to specify, measure, control and improve service quality perceived by the customer so it should be a central concern for service management, academics and practitioners (Johnston, 1995). The mostly used service quality measurement tool SERVQUAL (Parasuraman et al., 1988) consists of five dimensions namely tangibles, reliability, responsiveness, assurance and empathy and according to Oliver (1993) customer consider the expectations of performance on these service dimensions. Based on the Parasuraman et al. (1985)’s GAP model and the ten dimensions of the service quality, Zeithaml et al. (1990) developed Customer Assessment of Service Quality through which customer can access the quality of service. The six criteria of good perceived service quality identified by Gronroos (1988) are professionalism and skills, attitudes and behaviors, accessibility and flexibility, reliability and trustworthiness, recovery, and reputation and credibility. Among these professionalism and skills can be referred as technical or outcome-related dimension, attitudes and behaviors, accessibility and flexibility, reliability and trustworthiness and the recovery can be referred as functional or process-related dimensions and reputation and credulity can be referred as image-related dimension. Reeves and Bednar (1994) in their study asserted that excellence, value, conformance to specifications and meeting and/or exceeding expectations are the four dimensions of service quality. According to Brady and Cronin (2001)’s opinion in service marketing literature so far, the most debated and controversial topic is the conceptualization and measurement of the perceptions of service quality. Combining Nordic model (Gronroos, 1984), SERVQUAL (Parasuraman et al., 1988), three component model (Rust and Oliver, 1994) and the multilevel model (Dabholkar et al., 1996) of service quality, Brady and Cronin (2001) developed multi-hierarchical model where service quality includes dimensions and sub-dimensions. To investigate the SERVQUAL structure across the five service industries, Mels et al. (1997) performed the factor analysis and found two dimensions of service quality namely intrinsic and extrinsic which are linked to interactive quality (Lehtinen and Lehtinen, 1985) as well as interaction quality (Gronroos, 1990) and to the technical quality (Gronroos, 1990) respectively. “Therefore, while SERVQUAL can be used in its present form to access and compare quality across a wide variety of firms, appropriate adaptation of the instrument may be desirable when only a single service is investigated” (Parasuraman et al., 1988) and the determinants of service quality should be measured at the item level (Brady and Cronin, 2001).

In life insurance industry high quality service (defined as exceeding “customers’ expectations”) is rare but increasingly demanded by the customers (Sherden, 1987). Arora and Stoner (1996) asserted that in obtaining insurance perceived service quality has a significant effect on the attitude as well as on the customer satisfaction (Durvasula et al., 2005). In insurance industry, the study on service recovery analysis identified that for the survival of insurers the quality of service and customer satisfaction and loyalty are fundamental (Taylor, 2001). Most of the companies have equivalent offerings and the only way of differentiating itself from the others may be establishing the better service quality in the life insurance sector (Siddiqui and Sharma, 2010). Luarn et al. (2003) stated that in life insurance industry, the degree of success in the implementation of enterprise mobilization is positively correlated to the management performance of external aspects like providing increased customer satisfaction. Though the study of Choudhuri (2013a) pointed out that in

the last visit to the LIC branch almost all the customers were happy about the services offered by the LIC but in the insurance industry, the widespread customer dissatisfaction stemming from poor service design and delivery is confirmed by the studies of Wells and Stafford (1995); Cooper and Frank's (2001) the Chartered Property Casualty Underwriters (CPCU) longitudinal studies and Friedman's (2001a, 2001b) the Quality Insurance Congress (QIC) as well as the Risk and Insurance Management Society (RIMS). Technology is now playing an indispensable role in customers' mind to make them aware about the different life insurance products (Choudhuri, 2014a) where internet has appeared as one of the important influencers to the customers in selection of life insurance product (Choudhuri, 2013b). In the modern age of the society just like a catalyst the information technology has a strong influence in the improvement of the quality of services provided by the life insurers (Choudhuri, 2013c) and convenient transaction of the life insurance customers is very much depends on the modern technology namely information technology (Choudhuri, 2014b). The study of Choudhuri (2012) revealed that information technology enabled convenient services (ITECS) has emerged as the one of the important dimensions of the structure of service quality in life insurance sector and to the life insurance customers, ITECS is the third most important service quality dimension (Choudhuri and Dasgupta, 2013). Observing the role of information technology in fulfillment of the customers' various needs and requirements in life insurance (Choudhuri, 2014c) as well as the dependency of the life insurance customer satisfaction on the information technology (Choudhuri, 2013d) and on the perceived service quality (Choudhuri, 2014d), in life insurance industry, the organizational performance in the office operation of systems technology leaders was linked to the level of information technology investment intensity (Harris and Katz, 1991). Choudhuri (2013e) also affirmed that introduction of information technology by the Life Insurance Corporation of India is strongly related with the entry of private players in the Indian life insurance market. Charles (1993) revealed that service industries have been identified as the biggest buyers of new information technology. That's why Jen-Her and Yu-Min (2006); Leslie and Richard (2006) asserted that managers of the insurance companies are able to process work quickly as well as response to their customers has been faster and prompt using the latest information technology system.

## **METHODOLOGY**

For the purpose of the study, researcher first of all formulated the following null and alternative hypotheses:

- H1<sub>0</sub> : Perceived service quality in life insurance is independent of the information technology.
- H1<sub>a</sub> : Perceived service quality in life insurance is dependent of the information technology.
- H2<sub>0</sub> : Customer satisfaction in life insurance is independent of the information technology.
- H2<sub>a</sub> : Customer satisfaction in life insurance is dependent of the information technology.
- H3<sub>0</sub> : Customer satisfaction in life insurance is independent of the perceived service quality.
- H3<sub>a</sub> : Customer satisfaction in life insurance is dependent of the perceived service quality.
- H4<sub>0</sub> : Integration of information technology with life insurance services has no effect on the each dimension of perceived service quality and customers satisfaction link.
- H4<sub>a</sub> : Integration of information technology with life insurance services has significant effect on the each dimension of perceived service quality and customers satisfaction link.

For the present study PZB's SERVQUAL model was adapted as the backbone of the survey instrument. To develop an extended information technology enabled service quality

model for life insurance services especially for the Life Insurance Corporation of India, at the outset the investigation of the dimensional structure of the service quality for the Life Insurance Corporation of India was carried out where some more items related to information technology were included along with the existing 22 items of SERVQUAL instrument spread over tangibility, reliability, responsiveness, assurance and empathy dimensions. In conjunction with the other items, the importance of having information technology in LIC and the satisfaction of the LIC customers were also included in the initial questionnaire. After proper formation of survey instrument, pilot study was conducted randomly selecting 30 customers for this study where explaining objectives and purpose of the study, researcher tried to get valuable feedback from these customers. Based on this pilot study, the preliminary analysis established the internal consistency of the items within questionnaire especially the items within each dimension and identified three items under Information Technology Enabled Services. The pilot study gave the confirmation of validity and reliability of final survey instrument. Thus, the modified SERVQUAL scale was developed as the survey instrument for the customers. This modified SERVQUAL instrument consists of six dimensions named Tangibility, Reliability, Responsibility, Assurance, Empathy and Information Technology Enabled Services where Tangibility contains 5 items, Reliability contains 5 items, Responsibility contains 4 items, Assurance contains 5 items, Empathy contains 3 items and Information Technology Enabled Services contains 3 items. The questionnaire used for the study included both open-ended and close-ended and consisted seven point Likert scale ranging from 1-strongly disagree to 7-strongly agree. Using random sampling technique a total 350 questionnaires were distributed among the customers of 17 LIC branches in Burdwan district, generating 221 usable responses which were considered as the sample size for this study. According to Hair et al. (1992) for multivariate analysis the sample size should be at least 5 times the number of parameters in the model. As the proposed model of this study consists of 25 parameters, the minimum response necessary would be  $(25*5) = 125$ . Thus, the sample size of this research, i.e., 221 in case of customers is far in excess of the Hair et al.'s (1992) recommendation as well. SPSS 16 software was used for analysis.

## **RESULTS AND DISCUSSIONS**

In order to obtain the data for the purpose of the present study, a cross-sectional survey was conducted in Burdwan district among the customers of the Life Insurance Corporation of India where researcher carefully considered the different demographic profile such as gender, age, income status, occupation, educational qualification, locality of living and modern aids accessed by the customers. From the available data, researcher tried to measure the central tendency of the various demographic profiles of the customers. The summarized demographic profile of the customers of the study is now given below:

**Table 1: Demographic profile of the customers**

Demographic Variable	Demographic Characteristics	Frequency	Mean	Median	Mode	Std. Deviation
<b>Gender</b>	Male	192 ( 86.9 )	1.1312	1.0000	1.00	0.33841
	Female	29 ( 13.1 )				
<b>Age</b>	≤ 30 years	51 ( 23.1 )	2.6154	2.0000	2.00	1.26905
	31 - 40 years	66 ( 29.9 )				
	41 - 50 years	38 ( 17.2 )				
	51 - 60 years	49 ( 22.2 )				
	≥ 60 years	17 ( 7.7 )				
<b>Income</b>	≤ Rs.14999.00	30 ( 13.6 )	2.3529	2.0000	2.00	0.82150
	Rs.15000.00 - Rs.24999.00	102 ( 46.2 )				
	Rs.25000.00 - Rs.44999.00	70 ( 31.7 )				
	≥ Rs.45000.00	19 ( 8.6 )				
<b>Occupation</b>	Salaried	174 ( 78.7 )	1.4661	1.0000	1.00	1.00226
	Business	15 ( 6.8 )				
	Professional	11 ( 5.0 )				
	Retired	18 ( 8.1 )				
	Housewife	3 ( 1.4 )				
<b>Educational Qualifications</b>	High school	14 ( 6.3 )	3.1991	4.0000	4.00	1.08970
	Graduate	56 ( 25.3 )				
	Post-graduate	38 ( 17.2 )				
	Professional	98 ( 44.3 )				
	Any other	15 ( 6.8 )				
<b>Locality of Living</b>	Center of the town	144 ( 65.2 )	1.5611	1.0000	1.00	0.82138
	Outskirts of the town	30 ( 13.6 )				
	Rural areas adjoining town	47 ( 21.3 )				
<b>Modern Aids</b>	Mobile Phone	64 ( 29.0 )	1.4208	2.0000	2.00	0.90921
	Combination of mobile & internet	157 ( 71.0 )				

\* *Percentage (%) in parenthesis*

From the available data the Rotated Component Matrix obtained the factor loading or cross-loading of the customers' items along with name of the different dimensions and the commonalities and differences of factor loading or cross loadings of the several items across different dimensions. The detail analysis is presented in Table 2 and 3.

**Table 2: Rotated Component Matrix on Customers' Expectation Variables**

	Component						Dimension Naming
	1	2	3	4	5	6	
Modern Equipments						0.628	<b>Tangibility</b>
Professional Appearance of Employees						0.888	
Accessible and visual display of materials						0.857	
Physical comfort level of customers						0.893	
Convenient business hours						0.923	
Fulfill promise in a timely manner	0.748						<b>Reliability</b>
Error-free records	0.684						
Involvement and interest to solve a customer problem	0.739						
Provide exact information	0.583						
Perform the service right the first time	0.625						<b>Responsibility</b>
Prompt services to the customers			0.590				
Willingness to help customers			0.705				
Not be ever too busy to respond			0.832				
Treat the public situation with care & seriousness			0.720				<b>Assurance</b>
Instill confidence in the customers		0.623					
Safety of transactions		0.641					
Courteous with the customers		0.754					
Knowledge of employees		0.663					
Confidentiality of Records & Information of Customers		0.724					<b>Empathy</b>
Individual attention to the customers					0.605		
Understand customers' specific needs					0.657		
Customers' best interest at heart					0.616		<b>Information Technology Enabled Convenient Services</b>
Electronic network				0.773			
Networking of branches				0.648			
Additional Services				0.822			

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

**Table 3: Commonalities and differences of factor loadings/cross loadings on Customers' Expectation Variables**

	Component					
	1	2	3	4	5	6
	REL	ASU	RES	ITECS	EMP	TAN
<b>Initial Eigenvalues</b>	4.794	3.589	3.232	3.083	2.875	2.431
<b>% of Variance</b>	21.947	15.684	12.153	9.792	5.869	4.497
<b>Cumulative %</b>	21.947	37.631	49.784	59.576	65.445	69.942
<b>Cronbach's <math>\alpha</math></b>	0.873	0.768	0.857	0.732	0.717	0.892
<b>KMO measure of sampling adequacy</b>	0.888					

# **Legends used:** REL- Reliability, ASU- Assurance, RES- Responsibility, ITECS- Information Technology Enabled Convenient Services, EMP- Empathy and TAN- Tangibility

According to Kaiser and Cerny (1979) the high shared variance and relatively low uniqueness in variance are indicated by the KMO measure for sampling adequacy (0.888).

The Barlett’s Sphericity Test where Chi-square value is 3735.553 ( $p < 0.0001$ ) established that distribution is ellipsoid and amenable to data reduction.

The Rotated Component Matrix table, Table 2, shows that the values of all 25 items of the modified SERVQUAL instrument are greater than 0.5 which strongly support the recommendation of Nunnally and Bernstein (1994) about the factor loading and cross-loading. So, Table 2 established that all items of the questionnaire are properly loaded under six components. It is clear to understand that under the first component 5 items are properly loaded, 5 items are loaded under the second component, 4 items are loaded under the third component, 3 items are loaded under the fourth component, 3 items are loaded under the fifth component and 5 items are loaded under the sixth component and the names given for the dimensions of above mentioned group of items loaded under the components of 1, 2, 3, 4, 5 and 6 are respectively Reliability, Assurance, Responsibility, Information Technology Enabled Convenient Services, Empathy and Tangibility.

Table 3, shows that Initial Eigen values of Reliability, Assurance, Responsibility, Information Technology Enabled Convenient Services, Empathy and Tangibility are 4.794, 3.589, 3.232, 3.083, 2.875 and 2.431 respectively, i.e., all Initial Eigen values are greater than 1 which proves the significance of the factors. Whilst the corresponding Cronbach’s  $\alpha$  values are found to be 0.873, 0.768, 0.857, 0.732, 0.717 and 0.892 respectively establishing the reliability of the survey instrument of the study.

Parasuraman et al. (1988) suggested SERVQUAL model which consists of five dimensions namely Tangibles, Reliability, Responsiveness, Assurance and Empathy. In the present study researcher included few additional items related to the information technology enabled services in the existing SERVQUAL instrument. The above discussions establish the modification of SERVQUAL instrument for life insurance services that has six dimensions namely Reliability, Assurance, Responsibility, Information Technology Enabled Convenient Services, Empathy and Tangibility, i.e., existing among five dimensions the new dimension Information Technology Enabled Convenient Services is included in the PZB’s SERVQUAL instrument.

To realize the strength of the relationship of perceived service quality and information technology, simple regression analysis was performed to predict the dependent variable from the independent variable (predictor) where perceived service quality (which is the mean score of all the customers’ perception of service quality) was considered as a dependent variable and the information technology was considered as an independent variable for the study. The results of first simple regression analysis are given below in the following tables:

**Table 4: Result of Regression Analysis 1  
Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	INFORMATION TECHNOLOGY <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: PERCEIVED SERVICE QUALITY

**Table 5: Model Summary<sup>b</sup> (IT vs. PSQ)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.542 <sup>a</sup>	.293	.281	.72351

a. Predictors: (Constant), INFORMATION TECHNOLOGY

b. Dependent Variable: PERCEIVED SERVICE QUALITY



**Table 6: Result of ANOVA (IT vs. PSQ)**  
**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.648	1	.648	10.238	.005 <sup>a</sup>
	Residual	59.152	219	.270		
	Total	59.800	220			

a. Predictors: (Constant), INFORMATION TECHNOLOGY

b. Dependent Variable: PERCEIVED SERVICE QUALITY

**Table 7: Regression Coefficients (IT vs. PSQ)**  
**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.623	.168		27.552	.000
	INFORMATION TECHNOLOGY	.128	.115	.304	9.113	.005

a. Dependent Variable: PERCEIVED SERVICE QUALITY

The result of simple regression analysis indicates that dependent variable perceived service quality has a strong relationship with the independent variable information technology, i.e., prediction of dependent variable has successfully been done by the independent variable. In ANOVA result of Table 6, the value of  $F = 10.238$ ,  $p \leq 0.001$  established the significance of the relationship between perceived service quality and information technology. The result of regression coefficients in Table 7 shows that the standardized coefficient  $\beta$  and corresponding  $t$ -values of information technology are  $\beta = 0.304$ ,  $t = 9.113$ ,  $p < 0.001$  which also proved that there exists positive and strong relationship between dependent variable perceived service quality and the independent variable information technology in the present study. So, the first null hypothesis is rejected here and alternative hypothesis “*Perceived service quality in life insurance is dependent of the information technology*” is accepted.

To understand the strength of the relationship between customer satisfaction and information technology, the following second simple regression analysis was performed to predict the dependent variable from the independent variable (predictor) where customer satisfaction was considered as a dependent variable and information technology was considered as the independent variable:

**Table 8: Result of Regression Analysis 2**  
**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	INFORMATION TECHNOLOGY <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: CUSTOMER SATISFACTION

**Table 9: Model Summary<sup>b</sup> (IT vs. CS)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.261 <sup>a</sup>	.068	.060	1.01524

a. Predictors: (Constant), INFORMATION TECHNOLOGY

b. Dependent Variable: CUSTOMER SATISFACTION

**Table 10: Result of ANOVA (IT vs. CS)**  
ANOVA<sup>b</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.502	1	8.502	8.249	.005 <sup>a</sup>
	Residual	116.469	219	.532		
	Total	124.972	220			

- a. Predictors: (Constant), INFORMATION TECHNOLOGY  
b. Dependent Variable: CUSTOMER SATISFACTION

**Table 11: Regression Coefficients (IT vs. CS)**  
Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.803	.235		24.649	.000
	INFORMATION TECHNOLOGY	.462	.161	.261	2.872	.005

- a. Dependent Variable: CUSTOMER SATISFACTION

The simple regression analysis results established that the dependent variable customer satisfaction has a strong relationship with the independent variable information technology. In ANOVA result of Table 10, the value of  $F = 8.249$ ,  $p \leq 0.001$  established the significance of the relationship between the customer satisfaction and information technology in life insurance. In Table 11, the regression coefficients' result shows that the standardized coefficient  $\beta$  and corresponding t-value of information technology are  $\beta = 0.261$ ,  $t = 2.872$ ,  $p < 0.001$  which also established that in the present study, a positive and strong relationship exists in between dependent variable customer satisfaction and independent variable information technology. So, the second null hypothesis is rejected and the alternative hypothesis "Customer satisfaction in life insurance is dependent of the information technology" is accepted.

To test the strength of the relationship between customer satisfaction and perceived service quality as well as to predict the dependent variable from the independent variable (predictor), the following third simple regression analysis was performed where mean score of the customer satisfaction of all the life insurance customers of the study was considered as dependent variable and perceived service quality, i.e., mean score of all the customers' perception of service quality was considered as the independent variable:

**Table 12: Result of Regression Analysis 3**  
Variables Entered/Removed<sup>b</sup>

Model	Variables Entered	Variables Removed	Method
1	PERCEIVED SERVICE QUALITY <sup>a</sup>	.	Enter

- a. All requested variables entered.  
b. Dependent Variable: CUSTOMER SATISFACTION

**Table 13: Model Summary<sup>b</sup> (PSQ vs. CS)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.555 <sup>a</sup>	.308	.302	.87490

- a. Predictors: (Constant), PERCEIVED SERVICE QUALITY  
b. Dependent Variable: CUSTOMER SATISFACTION

**Table 14: Result of ANOVA (PSQ vs. CS)**  
ANOVA<sup>b</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.476	1	38.476	50.266	.000 <sup>a</sup>
	Residual	86.496	219	.395		
	Total	124.972	220			

a. Predictors: (Constant), PERCEIVED SERVICE QUALITY

b. Dependent Variable: CUSTOMER SATISFACTION

**Table 15: Regression Coefficients (PSQ vs. CS)**  
Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.613	.510		3.162	.002
	PERCEIVED SERVICE QUALITY	.802	.113	.555	7.090	.000

a. Dependent Variable: CUSTOMER SATISFACTION

From the result of the simple regression analysis it can be stated that the dependent variable customer satisfaction is strongly related with the independent variable perceived service quality and the prediction of dependent variable (customer satisfaction) has successfully been done by the independent variable (perceived service quality). In Table 13, the value of R Square = 0.308 indicates significance of the study. In Table 14, the result of ANOVA, the value of F = 50.266,  $p \leq 0.001$  established the significance of the relationship between the customer satisfaction and quality of service perceived by the life insurance customers. In Table 15, the result of regression coefficients illustrates that the standardized coefficient  $\beta$  and corresponding t-value of perceived service quality are  $\beta = 0.555$ ,  $t = 7.090$ ,  $p < 0.001$  which again explained that there exists positive and strong relationship between the customer satisfaction (dependent variable) and perceived service quality (independent variables). So, the third null hypothesis is rejected and alternative hypothesis “*Customer satisfaction in life insurance is dependent of the perceived service quality*” is accepted here.

To study the dimension wise impact of perceived service quality on customers satisfaction without the integration of information technology with the life insurance services as well as the impact of perceived service quality’s each dimension on customers satisfaction after the integration of information technology with the life insurance services, the researcher performed the hierarchical multiple regression analysis. The basic objective was to examine the information technology’s mediating effect on the every dimension of the perceived service quality and customers satisfaction link in life insurance services in detailed. In this analysis the customer satisfaction was considered as a dependent variable where information technology and each dimension of the perceived service quality, i.e., Tangibility, Reliability, Responsibility, Assurance, Empathy and ITECS were considered as the independent variables. The results of the Hierarchical Multiple Regression analysis in this context are given below in the following tables:

**Table 16: Result of Hierarchical Multiple Regression Analysis Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	PSQ1, PSQ2, PSQ3, PSQ4, PSQ5, PSQ6 <sup>a</sup>	.	Enter
2	INFORMATION TECHNOLOGY <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: CUSTOMER SATISFACTION

**Table 17: Model Summary<sup>c</sup> (Dimension wise)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.656 <sup>a</sup>	.431	.399	.81163
2	.692 <sup>b</sup>	.478	.444	.78060

a. Predictors: (Constant), PSQ1, PSQ2, PSQ3, PSQ4, PSQ5, PSQ6

b. Predictors: (Constant), PSQ1, PSQ2, PSQ3, PSQ4, PSQ5, PSQ6,  
INFORMATION TECHNOLOGY

c. Dependent Variable: CUSTOMER SATISFACTION

**Table 18: Result of ANOVA (Dimension wise)**

**ANOVA<sup>c</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	53.827	6	8.971	13.619	.000 <sup>a</sup>
	Residual	71.144	214	.332		
	Total	124.972	220			
2	Regression	59.773	7	8.539	14.014	.000 <sup>b</sup>
	Residual	65.199	213	.306		
	Total	124.972	220			

a. Predictors: (Constant), PSQ1, PSQ2, PSQ3, PSQ4, PSQ5, PSQ6

b. Predictors: (Constant), PSQ1, PSQ2, PSQ3, PSQ4, PSQ5, PSQ6,  
INFORMATION TECHNOLOGY

c. Dependent Variable: CUSTOMER SATISFACTION

**Table 19: Hierarchical Multiple Regression Coefficients (Dimension wise)  
Coefficients<sup>a</sup>**

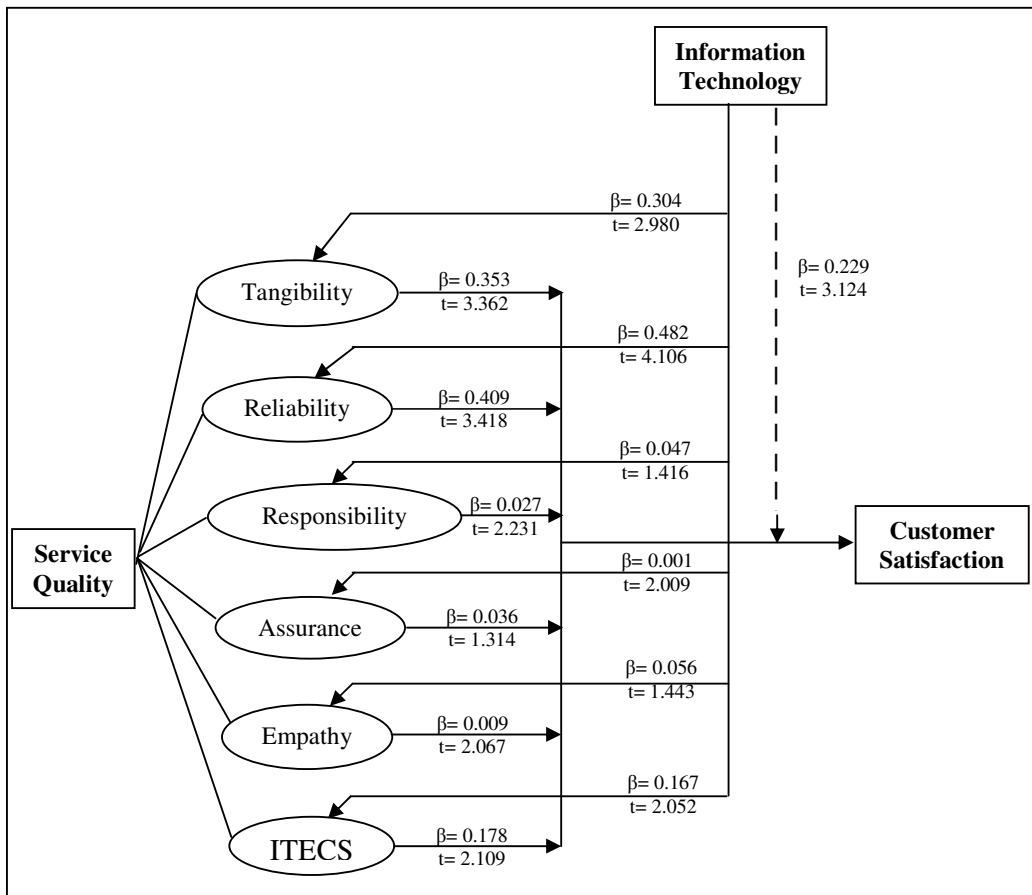
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.702	.513		3.316	.001
	PSQ1	.399	.119	.353	3.362	.001
	PSQ2	.453	.132	.409	3.418	.001
	PSQ3	.477	.151	.027	2.231	.018
	PSQ4	.676	.149	.036	1.314	.034
	PSQ5	.621	.145	.009	2.067	.047
	PSQ6	.179	.085	.178	2.109	.037
2	(Constant)	2.371	.538		4.407	.000
	PSQ1	.344	.115	.304	2.980	.004
	PSQ2	.534	.130	.482	4.106	.000
	PSQ3	.312	.145	.047	1.416	.029
	PSQ4	.266	.144	.001	2.009	.023
	PSQ5	.202	.140	.056	1.443	.039
	PSQ6	.168	.082	.167	2.052	.043
	INFORMATION TECHNOLOGY	.406	.130	.229	3.124	.002

a. Dependent Variable: CUSTOMER SATISFACTION

# **Legends used:** PSQ1- Tangibility, PSQ2- Reliability, PSQ3- Responsibility, PSQ4- Assurance, PSQ5- Empathy and PSQ6- ITECS.

The result of the hierarchical multiple regression analysis indicates that the dependent variable customers satisfaction is strongly related with the independent variables information technology and each dimension of perceived service quality, i.e., prediction of dependent variable has successfully been done by the independent variables. The Table 17 shows that the value of R Square = 0.431 without information technology and with information technology the value of R Square = 0.478. Thus, R Square change is equivalent to 4.7%, i.e., with the addition of information technology as a variable, the predictive power of each dimension of the independent variable perceived service quality increases to predict the dependent variable customers satisfaction. In ANOVA result of Table 18, the value of  $F = 13.619$ ,  $p \leq 0.001$  without information technology and with information technology the value of  $F = 14.014$ ,  $p \leq 0.001$  which established the significance of the relationship among the information technology, perceived service quality's all six dimensions and customers satisfaction. The result of Hierarchical Multiple Regression Coefficients are shown in Table 19 where in case of Tangibility dimension the standardized coefficient  $\beta$  and corresponding t-value without information technology are  $\beta = 0.353$ ,  $t = 3.362$ ,  $p < 0.001$  and with information technology the value of  $\beta = 0.304$ ,  $t = 2.980$ ,  $p < 0.001$ ; in case of Reliability dimension the standardized coefficient  $\beta$  and corresponding t-value without information technology are  $\beta = 0.409$ ,  $t = 3.418$ ,  $p < 0.001$  and with information technology the value of  $\beta = 0.482$ ,  $t = 4.106$ ,  $p < 0.001$ ; in case of Responsibility dimension the standardized coefficient  $\beta$  and corresponding t-value without information technology are  $\beta = 0.027$ ,  $t = 2.231$ ,  $p < 0.001$  and with information technology the value of  $\beta = 0.047$ ,  $t = 1.416$ ,  $p < 0.001$ ; in case of Assurance dimension the standardized coefficient  $\beta$  and corresponding t-value without information technology are  $\beta = 0.036$ ,  $t = 1.314$ ,  $p < 0.001$  and with information technology the value of  $\beta = 0.001$ ,  $t = 2.009$ ,  $p < 0.001$ ; in case of Empathy dimension the standardized coefficient  $\beta$  and corresponding t-value without information technology are  $\beta = 0.009$ ,  $t = 2.067$ ,  $p < 0.001$  and with information technology the value of  $\beta = 0.056$ ,  $t = 1.443$ ,  $p < 0.001$  and in case of ITECS dimension the standardized coefficient  $\beta$  and corresponding t-value without information technology are  $\beta = 0.178$ ,  $t = 2.109$ ,  $p < 0.001$  and with information technology the value of  $\beta = 0.167$ ,  $t = 2.052$ ,  $p < 0.001$  which also proved that information technology has a significant mediating effect on the each dimension of perceived service quality and customers satisfaction link in life insurance services ( $\beta = 0.229$ ,  $t = 3.124$ ,  $p < 0.001$ ). So, the fourth null hypothesis is rejected and the alternative hypothesis "*Integration of information technology with life insurance services has significant effect on the each dimension of perceived service quality and customers satisfaction link*" is accepted.

Based on the above discussion, the Extended Information Technology Enabled Convenient Service Quality Model (Ex-ITECSQM) has been developed for the life insurance services in the present context which is presented below:



**Model 1: Extended Information Technology Enabled Convenient Service Quality Model (Ex-ITECSQM)**

## CONCLUSIONS

The basic objective of the study was to develop an extended information technology enabled service quality model for life insurance services especially for the Life Insurance Corporation of India and for this purpose the researcher initially established the new concept of six dimensions of the service quality structure for the Life Insurance Corporation of India. Then along with the other items of the questionnaire, the data about the customers' perception and expectation of the quality of services were collected against all the 25 items spread over six service quality dimensions namely Reliability, Assurance, Responsibility, Information Technology Enabled Convenient Services, Empathy and Tangibility. The acceptance of first, second and third alternative hypotheses not only described the perfect positive linear relationship of dependent and independent variables of the study but also established the dependency of perceived service quality on the information technology, dependency of customer satisfaction on the information technology and the dependency of customer satisfaction on the perceived service quality in the present context of the study. The fourth hypothesis testing revealed that in the life insurance services, information technology has a significant mediating effect on each dimension of the perceived service quality and customers satisfaction link. Based on these fruitful results, researcher has developed an information technology enabled service quality models for the life insurance services namely

Extended Information Technology Enabled Convenient Service Quality Model (Ex-ITECSQM). In life insurance service sector, as customers are directly related with their insurers and in the modern age of the society they always want to get better quality of services through information technology enabled services so it is expected that this newly developed model might have a significant impact on the management information system as well as on the decision support system of the top level management of the life insurance organization, especially to the Life Insurance Corporation of India (LIC). Thus, it may be concluded that as information technology is the key instrument for the insurers to improve their quality of services to satisfy the customers so its proper implementation and use is very much necessary in the life insurance organization in the competitive market for their own interest.

## **REFERENCES**

1. Arora, R. & Stoner, C. (1996). The effect of perceived service quality and name familiarity on the service selection decision. *Journal of Services Marketing* 10 (1): 22-34.
2. Asubonteng, P., McCleary, K. J., & Swan, J. E. (1996). SERVQUAL, revisited: A critical review of service quality. *Journal of Services Marketing*, 10, 62-81.
3. Babakus, E., & Boller, G. W. (1992). "An empirical assessment of the SERVQUAL scale". *Journal of Business Research*, Vol. 24, pp. 253-268.
4. Brady, M. K., & Cronin, J. J. (2001). "Some new thoughts on conceptualizing perceived service quality: A hierarchical approach". *Journal of Marketing*, 65, 34-50.
5. Charles, S. (1993). "Conceptualizing services sector productivity", *Social and Economic Studies*, Vol. 42 No. 4, pp. 95-113.
6. Choudhuri, P. S. & Dasgupta, T. (2013). "Relative Importance of Service Quality Dimensions from Life Insurance Customers' Perspective: A Study on Life Insurance Corporation of India, Burdwan", *SIT Journal of Management*, Vol. 3, No. 1 (June), pp. 258-272.
7. Choudhuri, P. S. (2012). "Dimensional Structure of Service Quality for Life Insurance: A Study of Life Insurance Corporation of India in Burdwan", *Journal of Business Management, Commerce & Research*, Vol. 1, No. 3 (December), pp. 60-70.
8. Choudhuri, P. S. (2013a). "Study on the usage behavior and overall satisfaction of the life insurance customers with special reference to the Life Insurance Corporation of India in Burdwan", *JIS Management Vista*, Vol. 7, No. 1 (January-June), pp. 79-91.
9. Choudhuri, P. S. (2013b). "Study on the identification of the role of different influencers in selection of life insurance product with special reference to the Life Insurance Corporation of India in Burdwan", *Asian Journal of Research in Social Sciences and Humanities*, Vol. 3, No. 9 (September), pp. 17-22.
10. Choudhuri, P. S. (2013c). "Dependency of perceived service quality on the information technology in Life Insurance Corporation of India in Burdwan", *International Journal of Scientific Research*, Vol. 2, No. 11 (November), pp. 59-61.
11. Choudhuri, P. S. (2013d). "Dependency of customer satisfaction on the information technology in Life Insurance Corporation of India", *International Journal of Research in Management & Technology*, Vol. 3, No. 6 (December), pp. 153-159.
12. Choudhuri, P. S. (2013e). "Introduction of information technology in Life Insurance Corporation of India vis-à-vis entry of private insurers in Indian life insurance market", *SIT Journal of Management*, Vol. 3, No. Special (November), pp. 64-74.

13. Choudhuri, P. S. (2014a). "Identification of the significant factors influencing customers' awareness about the products of Life Insurance Corporation of India", *Journal of Management and Social Science*, Vol. 1, No. 1 (February), pp. 48-57.
14. Choudhuri, P. S. (2014b). "Information technology in convenient transaction of the LIC customers", *International Journal of Management, IT and Engineering*, Vol. 4, No. 2 (February), pp. 388-395.
15. Choudhuri, P. S. (2014c). "Information technology in fulfillment of the various needs of the LIC customers", *Zenith International Journal of Business Economics & Management Research*, Vol. 4, No. 2 (February), pp. 203-210.
16. Choudhuri, P. S. (2014d). "Dependency of customer satisfaction on the perceived service quality in Life Insurance Corporation of India", *Research Revolution*, Vol. 2, No. 4 (January), pp. 7-9.
17. Cooper, R. W. & Frank, G. L. (2001). Key ethical issues facing the property and casualty insurance: has a decade made a difference? *CPCU Journal*, 54 (2), 99-111.
18. Czepiel, J. A. (1990). Service encounters and service relationships: Implications for research. *Journal of Business Research*, Vol. 20 No. 1, pp. 13-21.
19. Dabholkar, P., Thorpe, D., & Rentz, J. (1996). A measure of service quality for retail stores: Scale development and validation. *Journal of the Academy of Marketing Science*, 24, 3-16.
20. Durvasula, S., Lysonski, S., Mehta, S.C. & Peng, T.B. (2005). Relationship quality vs. service quality: An investigation of their impact on value, satisfaction and behavioral intentions in the life insurance industry. *Asian Journal of Marketing*, 92-103.
21. Fogli, L. (2006). *Customer Service Delivery*. San Francisco: Jossey-Bass.
22. Friedman, S. (2001a). RIMS plans to have third quality scorecard published in 2002. *National Underwriter*, 105(18), 3-22.
23. Friedman, S. (2001b). RIMS launches quality process. *National Underwriter*, 105(19), 3-29.
24. Gronroos, C. (1984). "A Service Quality Model and Its Marketing Implications," *European Journal of Marketing*, (18), 36-44.
25. Gronroos, C. (1988). Service quality: The six criteria of good perceived service. *Review of Business*, 9, 10-13.
26. Gronroos, C. (1990). *Service Management and Marketing*, Lexington Books, Lexington, MA.
27. Gronroos, C. (2000). *Service Management and Marketing: A Customer Relationship Management Approach*. 2<sup>nd</sup> ed. West Sussex: John Wiley & Sons, Ltd.
28. Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1992). 'Multivariate Data Analysis with Readings', 6<sup>th</sup> edition, Macmillan Publishing Company, New York.
29. Harris S. E. & Katz J. L. (1991). Firm size and Information Technology Investment Intensity of Life Insurers. Special Issue: Strategic use of Information Systems, *MIS Quarterly*, 15(3), 333-352.
30. Hoffman, G. M. (1994). *The Technology Payoff: How to Profit with Empowered Workers in the Information Age*. New York, NY: Irwin, Burr Ridge.
31. Jen-Her Wu. & Yu-Min Wang. (2006). Measuring ERP success: the ultimate users' view. *International Journal of Operations & Production Management*, 26, 8, 882-903.
32. Johnston, R. (1995). The determinants of service quality: Satisfiers and dissatisfies. *International Journal of Service Industry Management*, 6, 53-71.
33. Kaiser, H.F. & Cerny, B.A. (1979). "Factor analysis of the image correlation matrix". *Educational and psychological measurement*, Vol. 39 No. 4, pp. 711-714.



34. Kotler P., Armstrong G., Saunders J. & Wong V. (2002). Principle of Marketing, 3<sup>rd</sup> edition, Pretence Hall \$Europe.
35. Lehtinen, U., & Lehtinen, J. R. (1985). "Service Quality: A Study of Quality Dimensions", paper read at Second World Marketing Congress, University of Stirling, Scotland.
36. Leslie P. W. & Richard S. (2006). The role of the CIO and IT function in ERP. Communications of the ACM, 43, 4, 32-38.
37. Luarn, P., Lin, T. M. Y. & Lo, P. K. Y. (2003). An exploratory study of advancing mobilization in the life insurance industry: The case of Taiwan's Nan Shan Life Insurance Corporation. Internet research: Electronic Networking Applications and Policy 13 (4): 297-310.
38. Mels, G., Boshoff, C., & Nel, D. (1997). The dimensions of service quality: The original European perspective revisited. Service Industries Journal, 17, 173-189.
39. Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric Theory (3<sup>rd</sup> ed.). New York: McGraw-Hill, Inc.
40. Oliver, R. L. (1993). "A conceptual model of service quality and service satisfaction: compatible goals, different concepts", Advances in Service Marketing and Management, Vol. 2, pp. 65-85.
41. Parasuraman, A., & Zeithaml, V.A. (2006). Understanding and improving service quality: A literature review and research agenda in B. Weitz and R. Wensley (Ed.), Handbook of Marketing, London: Sage Publications.
42. Parasuraman, A., Zeithaml, V.A. & Berry, L.L. (1985). "A Conceptual Model of Service Quality and Its Implications for Future Research," Journal of Marketing 49 (Fall), 41-50.
43. Parasuraman, A., Zeithaml, V.A. & Berry, L.L. (1988). "SERVQUAL: A Multiple-Item Scale for Measuring Customer Perceptions of Service Quality," Journal of Retailing, 64 (Spring), 12-40.
44. Pitt L., Berthon, P. & Watson, R.T. (1999). "Cyber service: taming service marketing problems with the World Wide Web", Business Horizons, Vol. 42 No. 1, pp. 11-18.
45. Reeves, C.A. & Bednar, D.A. (1994). Defining quality: Alternatives and implications. Academy of Management Review, 19(3), 419-446.
46. Rust, R. T., & Oliver, R. L. (1994). Service Quality: New directions in theory and practice. Thousand Oaks, CA: SAGE Publications.
47. Sherden, W. (1987). The erosion of service quality. Best's Review, 88 (5), pp. 22.
48. Siddiqui, M.H., & Sharma, T.G. (2010). "Measuring the customer perceived service quality for life insurance services: An empirical investigation". International Business Research, Vol. 3 No. 3, pp. 171-186.
49. Stewart, G. R., & Kleiner, B. H. (1996). "The enabling power of teams and information technology". Team Performance Management, 2 (2), pp. 13-18.
50. Taylor, S.A. (2001). Assessing the use of regression analysis in examining service recovery in the insurance industry: relating service quality, customer satisfaction and customer trust. Journal of Insurance Issues, 24 (1/2), 30-57.
51. Wells, B. P. & Stafford, M. R. (1995). Service quality in the insurance industry: Consumer perceptions versus regulatory perceptions. Journal of Insurance Regulation, 13, 462-477.
52. William, B.K., & Sawyer S.C. (2005). "Using Information Technology". 6<sup>th</sup> edition, McGraHill Publishing Co. U.S.A, pp. 3, 4, 147.
53. Zeithaml, V.A., Parasuraman, A., & Berry, L.L. (1990). Delivering quality service: Balancing customer perceptions and expectations. New York, NY: The Free Press.