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Web Service Quality and Service Performance of Full Service Airlines

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Abstract**—** *The information technology industry has become an indispensable tool in shaping corporate success in the era of global and hyper competitive market. The success of airline business is considered to be a function of web service quality i.e. content, merchandise, functionality, privacy and customer service that directly influence the online customers.in this study we examined the demographic profile of the online customers and reliability & validity of web service quality and web service performance. We were analysed that the beta values found to be 0.337 (p=0.000) for customer service, 0.155 (p=0.003) for privacy, 0.085 (p=0.043) for merchandise and 0.003 (0.958) for offerings, indicating positive impact on online service quality. The results revealed that customer service has positive and significant impact on online service quality followed by privacy, merchandise and offerings functionality & offerings.*

Keywords**—** *Electronic commerce, full service airline, web service performance, web service quality.*

I. INTRODUCTION

The adoption of Information Technology (IT) applications is no longer a mean for sustaining competitive advantage but an essential weapon for survival of the organizations. The worldwide spread of information technology (IT) is well documented, with diffusion from developed to developing countries in the Newly Industrialized Economies (NIEs) in Asia (Agrawal & Haleem, 2003). Singh [1] has used the term "matured leopard" for countries namely Australia, Japan and New Zealand, "growing tigers" for countries namely Hong Kong, Singapore, South Korea and Taiwan and "young lions" for China, Malaysia Brunei, Philippines, Thailand and Vietnam. In comparison, India is considered as a "baby lion" and also as a "nascent" country because of the late entry of internet applications [2] (Agrawal & Haleem, 2003 and Roy & Sikdar, 2003). The pursuit of IT in these regional countries as such, is found to be quite diversified. With the enactment of New Computer Policy of 1984, the Government of India has aggressively promoted the increased use of IT in business and industry (Agrawal & Haleem, 2003). However, its extent of usage varies from state to state and industry to industry. Many large and medium scale service industries are operating at enriched stage inside across the country. Specifically, both full service and low cost airlines, have adopted e-activities in their business operations for executing variety of operational, tactical and strategic processes (Lewis et al., 2003).

The IT-applications are becoming increasingly important for organizations in their varied business affairs as they provide them with new ways of exchanging information and transacting business [3]. In fact, the use of IT-applications as a vehicle for online business has become standard operating practice in many corporations today. Online business, in general, encompasses buying & selling of products/services, use of technologies to exchange information and the development of electronic business processes to complete order fulfillment cycle [4]. It focuses on four perspectives viz; communication perspective- delivery of information, products/services, or payments over telephone lines, computer networks or any other electronic means; business process perspective- application of technology towards automation of business transactions and workflow; service perspective - tool that addresses the desire of firms, consumers and management to reduce service costs while improving the quality of goods and increasing the speed of service delivery and online perspective- buying and selling products and information on the internet [5], [6]. From narrower perspective, electronic/ online commerce is considered as just one of the aspects of e-business activities. From broader perspective, it is considered as synonym to e-business and is used interchangeably. Per se, e-commerce can be considered as fully integrated information & communication technologies (ICTs) which provides secure, flexible and integrated platform to deliver differentiated business value by combining systems and processes with simplicity using internet technology.

A. Offline Service Quality

Service quality is commonly noted as a critical prerequisite and determinant of competitiveness for establishing and sustaining satisfying relationship with customers. Service delivered traditionally or through physical presence channel, such as customer visiting an airline office for the inquiry relating to flights, tickets, loss of baggage, in- flight services etc. are factors affecting offline service quality. Numerous studies are carried out to conceptualize service quality concept. In the early 1980's Nodic model was proposed by [7], which defined the dimensions of service quality perspective and these dimensions include technical quality, functional quality and image. The most powerful measurement tool SERVQUAL was developed by Parasuraman, Zeithaml & Berry [8]. It initially included ten dimensions namely, tangibility, reliability, responsiveness, communication, access, competence, courtesy, credibility, security and understanding which were later, in 1988, reduced to five dimensions viz. tangibles, reliability, responsiveness, assurance and empathy to measure service quality. To update and innovate Nordic

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model of Gronroos [9] and to incorporate service environment that affects service quality perceptions, another model was proposed by Rust and Oliver [10] which is known as three-component model comprising service product (i.e. technical quality), service delivery (i.e. functional quality), and service environment. Further, Johnston [11] did a detailed study on offline service quality to investigate the significant service quality determinants. The author argued that there are eighteen dimensions that must be focused by service provider to provide maximum satisfaction to the customers. These include attentiveness/helpfulness, responsiveness, care, availability, reliability, integrity, friendliness, courtesy, communication, competence, functionality, commitment access, flexibility, aesthetics, cleanliness/tidiness, comfort and security. Previous studies suggest that service quality is an important indicator of customer satisfaction [12]. Later, [13] defined service quality in terms of three primary dimensions namely interaction quality, physical environment quality and outcome quality. More recently Sardana [14] proposed service quality model based on three important dimensions viz; performance, quality and recipient satisfaction.

B. Web Service Quality

With the increase in growth of online services on the web, the companies have become more proactive to offer customized information to deliver more benefits to them. Zeithaml et al. [15] provided a comprehensive concept of online service quality based on pre and post service aspects. According to them, e-service "is the extent to which a website facilitates efficient and effective shopping, purchasing and delivery of products and services to users and customers". Santos [16] defined e-service quality as overall customer evaluations and judgements of excellence e-service delivery in the virtual market place. He identified major dimensions of online service quality that include website design, website usability information quality, service reliability, assurance and personalization.

Lociacono, Walson and Goodhue [17] established a scale called WEBQUAL with twelve dimensions viz. informational fit to task, interaction, trust, response time, design, intuitiveness, visual appeal, innovativeness, flow, integrated communication, business process and substitutability. Later, Yang, Peterson and Huang [18] expressed online service quality to be the function of six elements namely eases of use, content, accuracy of content, timeliness of response, aesthetics and privacy. On the basis of extensive literature review, Madu & Madu [19] provided comprehensive overview of online service quality. They classified online service quality characteristics into fifteen dimensions related with performance, features, structure, aesthetics, reliability, storage capacity, serviceability, security and system integrity, trust, responsiveness, product/service differentiations and customization, web store policies, reputation, assurance and empathy.

C. Dimensions of Web Service Quality

The varied indicators affecting web service quality, identified on the basis of literature review, have been categorized into five dimensions namely, content, functionality, merchandise, privacy and customer service. These are briefly discussed as under:-

a) Content: Content is considered to be the core dimension that affects online service quality (Wolfinbarger & Gilly, 2002 and [18]). Content is related with information about the company, its product, offers, help/search, facility etc. The quality of content in general is associated with relevance, level of information detail, accuracy and appropriateness of format. Besides the information content, design of the webpage i.e. clear and concise texts, attractive title page etc. are also part of the content dimension [6].

b) Functionality: The functionality is another significant indicator contributing to the online service quality. Site's search functions, its download speed and overall design are considered as the key elements that affect web functionality [20]. Further, navigation efficiency i.e. accurate meaningful links, customer's ease of use, instant confirmation, online response etc. also relate to the functionality dimension of online service quality [6], [15], [21].

c) Merchandise: Merchandise is considered as the third dimension of online service quality. It refers to the product information which is considered crucial as customers cannot see or touch the actual product at the time of purchase [22]. Product quality, selection of the product, guarantee/offerings and pricing are consistently used by the customers to evaluate the overall online shopping experience [23]. This ultimately impact the online service quality

d) Privacy: Another significant dimension of online service quality is privacy (Wolfinbarger & Gillly, 2002) [15]. Privacy is becoming increasingly important in the digital world because of the increasing frauds such as online threats in the form of online trackers, spammers, snoops, hackers etc. taking place an online medium. Thus, online customers have serious concerns about the security of online credit card transactions and the interceptions of their personal information [19]. Therefore, it is essential for all the online companies to provide privacy to customers in terms of protection of personal information, web shopping behavior, credit card and digital cash information.

e) Customer service: Customer service is another equally significant parameter of online service quality (Wolfinbarger & Gillly, 2002). Customer service means figuring out what each customer needs and then keeping them satisfied and happy. Customer service can be as simple as answering questions and providing information and it can be as complex as tracking customer habits and anticipating his needs [24] and also remarked that easy to contact the service provider and easy to return the goods are important criteria in online shopping buying decision, that, subsequently affects quality of customer services.

II. REVIEW OF LITERATURE

Fodness and Murray [25] in their paper entitled passenger expectation of airport service quality focused on the contribution to the development of conceptual model of service quality based on three dimensions-servicescape, interaction and service. The data was collected from 1765

frequent flyers selected from 65 airports (nationwide in scope). Out of which 753 have responded. The hypotheses of the study was analyzed using both exploratory and confirmatory factor analysis. Cronbach alpha value for all three dimensions was ranged from 0.80 to 0.61, indicating reliability of the instrument used. Discriminant validity was also used for all possible pairs of dimensions indicating statistical distinct dimensions and standard errors values ranged between 0.75 to 0.98.

The study on perceived risk and the consumer buying process: "Internet Airline Reservation" by Cunningham et al. [26] hypothesized that the use of internet airline reservation is perceived to be riskier than traditional airline shopping. The research model is based on two factors i.e. perceived risk delivery method (financial, performance, physical, psychological, social and time risk) and five stages of consumer buying process (need recognition, information search, alternatives evaluation, purchase decision and post purchase behavior).

The purpose of the study entitled "Internet Ticketing in a not for profit, Service Organization" carried out by Olson and Boyer [27] identified the factors how to build customer loyalty in the e-ticketing process. The study is based on two factors i.e. patron factor (cost, order service, speed, comfort & ease of interaction) and technological factors (accuracy, ease of navigation, transaction difficulties & overall system effectiveness) that influence the patron loyalty for the e-ticketing process for an established not for profit organization.

The objective of the study entitled 'e-service and offline fulfillment: how e-loyalty is created by Semeijn et al. [28] focused on the contribution of online quality and offline fulfillment in creating overall customer satisfaction and loyalty. The authors found that the design of the e-scape have a strong positive impact on both navigation and accuracy. It was also found that e-quality perception with regard to assurance directly influence overall satisfaction and loyalty. The importance of offline fulfillment in effecting customer satisfaction and loyalty levels for different online services need further investigation.

The research paper entitled Customer perception of online retailing service quality and their satisfaction by Yun, Yang and Kim [29] examined the relationship between six service quality dimensions viz reliable/prompt responses, access, ease of use, attentiveness, security and credibility and online customer overall satisfaction. The study found that four online service quality dimensions namely reliable/prompt responses, ease of use, attentiveness and access had statistically significant and positive relationship with overall service quality whereas security and credibility turned out to be statistically insignificant at $p<0.05$.

Singh [20] advocated the role of e-services in B2C e-commerce and their application to enhance the online shopping experience with respect to search support, e-responses to customer queries, orders and transactions, e-payment, e-transaction record management, e-assurance and trust, e-help and other online support. The study is based on two research projects-the first project was an exploratory study investigating e-commerce initiatives, opportunities and trends with the early adopters of e-commerce in Australia.

Caruna and Ewing [30] in their research paper entitled "The psychometric properties of e-tail quality" established the link between quality and customer satisfaction, retention and loyalty in online retail settings across three product categories in three countries (shares in Australia, groceries in Malta, books in South Africa). The study hypothesized that structural relationship and pattern of factor-loadings among four e-tail Q dimensions namely website design, privacy, reliability and customer service for all the three product categories are equivalent.

The objective of the study entitled "Developing customer loyalty from e-tail store image attributes conducted by Yun and Good [21] was to examine the contribution of e-store attributes, e-store image and e-patronage intentions in creating e-loyalty with respect to various dimensions such as e-merchandise, e-service and e-shopping atmosphere attributes. The results indicated that positive relationship exists between e-patronage intention and e-loyalty behaviors and also found that favorable e-tail store image was dependent upon e-merchandise, e-service and e-shopping atmosphere attributes. This study needs to be examined product categories with a broad range of targets consumers and also examine personal factors such as product involvement, variety-seeking behavior or impulsiveness in the further research.

III. Research Methodology

A. *Generalization of Scale Items*

To determine online service quality, certain dimensions such as content, functionality, merchandise, privacy and customer service are identified on the basis of review of literature and discussions with the experts. The usefulness of the website is primarily function of information available on the website. The quality of content is in general associated with relevance, level of information detail, accuracy and appropriateness of format. The richness in search quality information increases satisfaction with both the experience and product/services purchased and improves intentions to revisit and repurchase from a website [31]. The dimension 'content' in this context, is concerned with the varied information on websites. The second dimension 'functionality' is related with web functions. Site's search functions, its download speed and overall design are considered as the key elements that affect web usability [32], [33]. The success of the website depends on the design of the pages as they appear on the screen, customer's ease of use accessing and navigating between pages [34]. Merchandise, the third dimension consists of product information which is considered as crucial, as customers cannot see or touch the actual merchandise at the time of purchase [22]. Merchandise related aspects such as product quality, selection, guarantees/offerings and pricing are consistently used by the customer to evaluate the overall online shopping quality [23], [35]. Privacy, another dimension is very significant for online transactions. Since online customers have serious concerns about the security of online credit card transactions and the interceptions of their personal

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information [19]. It is essential for all the online companies to provide privacy to customers in terms of protection of personal information, web shopping behavior, credit/digital cash transactions**.** The privacy dimension is shown to have a strong impact on intention to purchase [36], satisfaction [37] and overall site quality [38]. Customer service, the fifth dimension includes information regarding contact number, handling of complaints, online help, solution to the problems and cancellation of tickets, if not required which are considered important for measuring online service quality. Customer service, such as ease to contact the service provider and easy to return the goods are equally important criteria in online buying decisions [24].

B. Pre-testing and Finalization of Questionnaire

The pre-testing was done on total thirty four customers who booked online tickets in airlines in Jammu region on the basis of convenience sampling to finalize the questionnaire. The exercise of pilot study led to the refinement of the questionnaire with addition and deletion of items. One general statement is added in general section on airline information. The application of factor analysis helped in deleting one statement from content, three statements from functionality, five statements from merchandise, and three from customer service. The final questionnaire on online service quality and its impact on service performance comprise two sections. First section is related with demographic profile which includes information on gender, age, occupation, qualification, martial status and income. Under this section, general perception of customers about airline sector such as name of the airline used, type of ticket, frequency, class of seat, website, purchasing period, booking and mode of payment are also considered. The second section focuses on dimensions useful for measuring online service quality and these include content, functionality, merchandise, privacy and customer service. All the five online service quality dimensions, based on five point likert scale, ranging from 5 to 1, comprises 5 statements (content), 11 statements (functionality), 15 statements (merchandise), 6 statements (privacy) and 7 statements (customer service) respectively. Lastly, 9 statements reflecting impact of online service quality on organization performance are also used. The application of factor analysis indicated the presence of functionality, merchandise, privacy and customer service. The two factors out of five remained same as such two dimensions merchandise and functionality are segregated. The content dimension is completed deleted and as such is not considered for further analysis. To add the other factors emerged from the factor analysis indicate about the core content dimension.

C. Sample Design and Population

Since the population on online customers are not well defined, so an effort was made initially to identify channel of sources such as known business and service employees, e-mail Id's, university teachers & students and tourists to identify online customers. Personal contact (275) and distribution (125) approaches are used to contact and collect data from the respondents. The known businessmen, service employees, university teachers and university students were personally contacted for information on web service quality. The tourists availing hospitality services from about twenty hotels near the Katra Bus stand were contacted during October 2008. The visit to Katra was made once in a week and that too on holidays. The judgmental sampling is used for final data collection. There efforts resulted in selection of 119 business class respondents, 138 service class respondents and 65 others which include faculty members and students of Jammu University. Out of 400 respondents the effective sample size is 321. The response rate in personal contact 100% and in distribution the response rate is 36.8% and non-response rate is 63.2%.

IV. STATISTICAL TOOLS

The data reduction technique of exploratory factor analysis is used to reduce total number of items into few manageable and meaningful items that affects the components of web service quality and web service performance. The study used principal component analysis with varimax rotation specifically to minimize the number of items with high loading on one factor, thereby enhancing the interpretability of the factors [39]. KMO values equal to and greater than 0.50 are used to find out relevancy of data reduction and grouping for factor analysis. Bartlett test of Sphericity is used to identify the significant correlation coefficient among the items. Further, degree of correlation coefficient equal to or greater than 0.30 is used as criterion for selection of items to check convergent validity (among items), discriminant validity (among factors) and nomological validity (between web service quality and overall service performance) [40]. Cronbach alpha and split half alpha is used to find out the reliability of the factors used. In addition Z-test is also used to check the mean difference between two samples. Lastly, simple regression analysis t-test is used to test the various hypotheses relating to web service quality and web service performance.

V. PROFILE OF AIRLINES

A. Full Service Airlines

Full service airline is one that offers various offboard and onboard services to its customers. These include personal valet at the airport to assist in baggage handling and boarding, exclusive lounges with private space, accompanied with refreshments and music at the airport, audio and video on demand, with extra personalized screens in the aircraft, sleeperette seats with extendable footrests and three course gourmet cuisines.

*Kingfisher***-** is a private airline based in Bangalore, India. The airline is owned by Vijay Airbus of United Beverages Group. Kingfisher airlines started its operations on May 9, 2005.

Indian Airlines- India's premier airline has now been renamed as Indian. Indian airlines is fully owned by the /government of India and came into being with the enactment of the Air Corporations, Act 1953.

Jet Airways- is India's premier private airlines. It was established on 3 May 1991. Jet airways has won a number of

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awards in recognition of standards of its service and also received the ISO 9001:2000 certification for its in-flight services.

Among full service airlines, 32.7%, 24.8% and 42.5% online customers have booked online airline tickets of Kingfisher, Indian airlines and Jet Airways (Table I).

TABLE I. Demographic profile of respondents in full service airlines.

Full Service Airlines		
Airlines	**No. of respondents**	**%**
Kingfisher	74	32.7
Indian Airlines	56	24.8
Jet Airways	96	42.5
Total	226	100

TABLE II. Demographic profile of full service airline users.

Demographic characteristics	Groups	Number	Percentage
Gender	Male	136	60
	Female	90	40
Martial Status	Married	139	61
	Single	87	39
Monthly Income	Below Rs 10,000 (IG-I)	25	11
	Rs 10,000-Rs 20,000 (IG-II)	79	35
	Rs 20,000-Rs 30,000 (IG-III)	77	34
	Above Rs 30,000 (IG-IV)	45	20
Qualification	Higher Education (group I)	17	8
	Graduate (group II)	63	28
	Post Graduate (group III)	85	37
	Others (group IV)	61	27
Occupation	Business men	82	36
	Service class	103	46
	Dependent	41	18
Age	21-30 years (AG-I)	77	34
	31-40 years (AG-II)	92	41
	41-50 years (AG-III)	45	20
	Above 50 years (AG-IV)	12	5
Purchase Experience	0-1 year	40	18
	1-2 years	76	34
	2-3 years	71	31
	Above 3 years	39	17
Full Cost Airlines	Indian Airlines	56	25
	Jet Airways	96	42
	Kingfisher	74	33
Total		226	100%

VI. Web Service Quality and Service Performance of Full Service Airlines

This chapter primarily discusses customer attitude towards online service quality of full service airlines with respect to five dimensions after factor analysis namely customer service, functionality, privacy, merchandise and offerings and their impact on overall service performance. The demographic profile of online users in full service airline and reliability & validity of data from online service quality and service performance scales are also discussed. The detailed analysis is discussed as under:-

A. Demographic Profile

The demographic profile of full service airline respondents is identified according to gender, age, occupation, monthly income and qualification criteria (Table II). The sample of respondents (226) using online services consisted of 60% males (136 respondents) & 40% females (90 respondents). 61% & 39% respondents are found to be married and unmarried respectively of online services in full service airline. Further, 11% respondents fall in income group –I (IG-I) with monthly income below Rs 10,000; 35% respondents belong to income group-II (IG-II) with monthly income between Rs 10,000- Rs 20,000, 34% respondents fall in income group-III (IG-III) with monthly income between Rs 20,000- Rs 30,000 and 20% respondents in the last income group (IG-IV) with monthly income above Rs 30,000. The respondents falling in four educational groups include 8% respondents in group I (higher secondary), 28% respondents in group II (graduates), 37% in group III (post graduates) and 27% respondents in group IV (others). The respondents are also categorized according to their occupation viz. business class (36%), service class (46%) and dependent (18%) respectively. Further, 34% respondents (77), 41% respondents (92), 20% respondents(45) and 5% respondents(12) are found to be falling under age groups i.e. AG-I (21-30 years), AG-II (31-40), AG-III (41-50 years) & AG-IV (above 50 years) respectively. Lastly, as per online service experience, maximum respondent percentage is found to be using online services for 0-1 year (18%), 1-2 years (34%), 2-3 years (31%) and above 3 years (17%).

TABLE III. Item statistics, scale statistics and cronbach alpha value of online service quality scale for full service airlines.

Stages				
Item Statistics	Item mean	Mean	3.49	
		Variance	0.07	
	Item variance	Mean	1.47	
		Variance	0.11	
	Inter-item co-relations	Mean	0.27	
		Variance	0.20	
Scale statistics		Mean	90.69	
		Variance	292.37	
		Standard Deviation	17.10	
Reliability Statistics	Cronbach alpha		0.904	
	Split half alpha			
	Item-wise		Respondent-wise	
	0.872	0.838	0.869	0.919

B. Reliability and Validity

a) Web service quality: The cronbach alpha value for the online service quality scale is found to be above the threshold value of 0.7 (Hair et.al, 2005) (Table III). i.e. 0.904 indicating high internal consistency of the scale. To further support the results, split half method of reliability was also carried out. The overall split half cronbach alpha values for the online service quality scale for the first and second part are found to be 0.872 & 0.838 (item-wise) and 0.869 & 0.919 (respondent-wise) respectively, which again supported the reliability of the sample (Table III). Further, item mean came out to be 3.49, item- variance as 1.47 and inter-item correlation as 0.27 indicating good psychometric properties of the scale [41].

The face and content validity of the scale were checked with the help of literature review and discussions with experts. The value of Kaiser Mayer Olkin Measure of Sampling

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TABLE IV. Item statistics, scale statistics and cronbach alpha value of online service performance scale for full service airlines.

Stages				
Item Statistics	Item mean	Mean	3.63	
		Variance	0.04	
	Item variance	Mean	1.23	
		Variance	0.08	
	Inter-item co-relations	Mean	0.34	
		Variance	0.01	
Scale statistics		Mean	29.03	
		Variance	32.78	
		Standard Deviation	5.73	
Reliability Statistics	Cronbach alpha		0.799	
	Split half alpha			
	Item-wise		Respondent-wise	
	0.667	0.749	0.809	0.789

Adequacy (0.834) and variance explained (62.22%) (Table V) indicated construct validity of the questionnaire (Kline, 2005). The convergent validity of the sample was assessed by examining the nature of association using correlation (Hair et.al, 2005) for inter related items falling under five factors namely customer service, functionality, privacy, merchandise and offerings. All correlation coefficient are found to be significant and varying between 0.31 to 0.70 (Table VII) for customer service, functionality, privacy, merchandise and offerings. All this indicated validity of the scale. All values of discriminant validity are found to be within threshold range i.e. between low to average (Table IX) [41].

b) Web service performance: The overall cronbach alpha values for service performance comprising two variables namely 'customer loyalty' and 'website performance' is found to be 0.799 indicating the reliability of the performance scale (Table IV). To further strengthen the results, split-half method of reliability is carried out. The cronbach split half values for the scale is found to be 0.667 & 0.749 (item-wise) and 0.809 & 0.789 (respondent-wise) respectively, further, supporting the reliability of the scale. The discriminant validity also found to be significant at 99% level. Further, the study also supports nomological validity (Table XI).

TABLE V. Factor-wise mean, factor loading, KMO, MSA, % of variance and communalities for online service quality for full service airlines.

Factors	**Mean**	**Factor loading**	**MSA**	**% of Variance**	**Communalities**
F1-Customer Service				**14.63**	
Online help/toll free no	3.87	0.81	0.85		0.70
Easy to get help	3.82	0.71	0.91		0.61
Trust and confidence	3.70	0.70	0.84		0.60
Provide proper solution	3.53	0.74	0.84		0.74
Availability of customer service representative	3.48	0.67	0.91		0.58
Handlings of complaints	3.35	0.57	0.87		0.51
Mean	**3.63**				
F2-Functionality				**14.07**	
Easy to get anywhere on the site	3.86	0.61	0.88		0.53
Pages donot freeze	3.57	0.72	0.76		0.55
Quick transaction	3.41	0.65	0.86		0.54
Truthful about offerings	3.40	0.75	0.84		0.60
Loading of pages	3.38	0.75	0.82		0.64
Site does not crash	3.20	0.55	0.86		0.51
Mean	**3.47**				
F3-Privacy				**12.89**	
Personal info. Not disclosed	3.93	0.61	0.82		0.53
Web shopping behavior	3.79	0.76	0.86		0.66
Inf. On privacy policy	3.77	0.71	0.86		0.67
Feel safe	3.53	0.69	0.75		0.64
Credit card transactions	3.39	0.78	0.79		0.68
Solution of the problem	3.31	0.64	0.85		0.66
Mean	**3.62**				
F4-merchandise				**10.76**	
Price comparison	3.63	0.73	0.68		0.61
Guarantee on online product	3.11	0.76	0.83		0.73
Product return facility	3.20	0.71	0.82		0.65
Compensation for loss	3.00	0.75	0.83		0.71
Mean	**3.24**				
F5-Offerings				**9.87**	
Discount during off season	3.60	0.69	0.79		0.64
Internet ticket	3.43	0.69	0.79		0.57
Seasonal discounts	3.41	0.68	0.81		0.68
Discount during festivals	3.13	0.79	0.80		0.67
Mean	**3.39**				
Grand Mean	**3.45**				
Iterations	**7**				
% of total cumulative explained				**62.22**	
KMO	**0.834**				

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TABLE VI. Factor-wise mean, factor loading, KMO, MSA, % of variance and communalities for online service performance for full service airlines.

Factors	Mean	Factor Loading	MSA	% of Variance	communalities
Service Performance					
F1-Consumer Loyalty				28.79	
Positive attitude	3.90	0.68	0.73		0.48
Recommendation	3.81	0.75	0.67		0.63
Website for online purchase	3.78	0.72	0.71		0.54
Low switching intentions	3.39	0.57	0.78		0.35
Mean	**3.72**				
F2-Website Performance				26.67	
Overall satisfaction with website	3.64	0.78	0.83		0.64
Effective search engine	3.61	0.69	0.68		0.48
Overall value	3.47	0.72	0.68		0.66
Satisfaction with merchandise transactions	3.42	0.63	0.82		0.67
Mean	**3.54**				
Grand Mean	**3.63**				
% of total cumulative explained				**55.46**	
Iterations	**3**				
KMO	**0.839**				

TABLE VII. Item-wise degree of correlation coefficient for online service quality for full service airlines (Convergent validity).

F1-customer Service							**F2-Functionality**						
	CS2	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**		**F5**	**F6**	**F7**	**F8**	**F9**	**F10**
CS2	1						F5	1					
CS3	0.50	1					F6	0.51	1				
CS4	0.50	0.60	1				F7	0.40	0.47	1			
CS5	0.57	0.55	0.52	1			F8	0.48	0.56	0.48	1		
CS6	0.42	0.47	0.33	0.62	1		F9	0.50	0.48	0.40	0.47	1	
CS7	0.38	0.40	0.54	0.68	0.49	1	F10	0.37	0.42	0.41	0.38	0.49	1
F2-Privacy							**F2-offering**						
	P1	**P2**	**P3**	**P4**	**P5**	**P6**		**M6**	**M7**	**M8**	**M9**		
P1	1						M6	1					
P2	0.50	1					M7	0.52	1				
P3	0.58	0.59	1				M8	0.45	0.49	1			
P4	0.43	0.36	0.54	1			M9	0.41	0.29	0.53	1		
P5	0.56	0.36	0.51	0.50	1								
P6	0.48	0.16	0.32	0.64	0.57	1							
F4-Merchandise													
	M12	**M13**	**M14**	**M15**									
M12	1												
M13	0.70	1											
M14	0.54	0.67	1										
M15	0.31	0.42	0.528	1									

All the values of correlation are significant at the 0.01 level (2-tailed), Correlation is significant at the 0.05 level (2-tailed)

TABLE VIII. Item-wise degree of correlation coefficient for online service performance for full service airlines (Convergent validity).

Service Performance									
F1-Consumer Loyalty					**F2-Website Performance**				
	OSQ2	**OSQ3**	**OSQ4**	**OSQ8**		**OSQ1**	**OSQ5**	**OSQ6**	**OSQ9**
OSQ2	1				**OSQ1**	1			
OSQ3	0.43	1			**OSQ5**	0.31	1		
OSQ4	0.32	0.47	1		**OSQ6**	0.35	0.67	1	
OSQ8	0.20	0.32	0.31	1	**OSQ9**	0.35	0.47	0.47	1
All the values of correlation are significant at the 0.01 level (2-tailed)									

TABLE IX. Variable-wise degree of correlation coefficient of online service quality for full service airlines (Discriminant validity).

	Customer Service	**Functionality**	**Privacy**	**Merchandise**	**Offerings**
Customer Service	1				
Functionality	0.48	1			
Privacy	0.44	0.40	1		
Merchandise	0.44	0.27	0.38	1	
Offerings	0.35	0.37	0.24	0.41	1
All the values of correlation are significant at the 0.01 level (2-tailed)					

TABLE X. Variable-wise degree of correlation coefficient of online service performance for full service airlines (Discriminant validity).

	Consumer Loyalty	**Website performance**
Consumer Loyalty	1	
Website performance	0.55	1
All the values of correlation are significant at the 0.01 level (2-tailed)		

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TABLE XI. Degree of correlation between overall web service quality and web service performance of full service airlines (Nomological validity).

	Web service quality	Web service performance
Web service quality	1	
Web service performance	0.502	1
Correlation are significant at the 0.01 level (2-tailed)		

After duly checking face and content validity of the performance scale, construct and convergent validity are identified. High and positive factor loading value greater than 0.52 and high KMO (0.839) (Table VI) of the scale confirmed the construct validity of the performance scale. The convergent validity of the scale is assessed by examining the degree and nature of association among satisfaction and information items (Kline, 2005). The degree of correlation coefficients between customer loyalty and website performance items are found to be quite significant at 99% level of significance with correlation values varying between 0.20 to 0.47 (Table VIII).

C. Data Analysis

a) Web service quality: The KMO value (0.834) and BTS (chi-square=3092.993, df=325 and p=0.000) indicate online service quality construct to be quite reliable for grouping of variables. The applications of varimax rotation method at 7 iterations helped in identified five factors (Table V) which explained 62.22 percent variance. The factor analysis grouped 26 statements into five factors christened as 'customer service', 'functionality', 'privacy', 'merchandise' and 'offerings', which are discussed underneath:-

Factor 1- Customer service

The six statements out of twenty six statements, in the first factor relate to 'online help/toll free number' (FL=0.81, MS=3.87), 'provide proper solution' (FL=0.74, MS=3.53), 'easy to get help' (FL=0.71, MS=3.82), 'trust and confidence' (FL=0.70, MS=3.70), 'availability of customer service representatives' (FL=0.67, MS=3.48) and 'handling of complaints' (FL=0.57, MS=3.35) respectively. The factor 1 clearly depicts that the customers have average degree of perception with customer service. The overall mean of items is valued at 3.63 and cumulative variance came out to be 14.63 percent from total variance of 62.22 percent explained by customer service (Table V). The value of communalities for the six items is found to be 0.70, 0.74, 0.61, 0.60, 0.58 and 0.51 respectively.

Factor 2- Functionality

The factor '2' comprises only six statements namely 'loading of pages', 'truthful about offerings', pages do not freeze', 'quick transaction', easy to get anywhere on the site' and 'site does not crash' which scored factor loading values of 0.75, 0.75, 0.72, 0.65, 0.61 & 0.55 and mean score values of 3.38, 3.40, 3.57, 3.41, 3.86 & 3.20 respectively. The results showed that customers have average perception with the dimension relating to functionality of the website. The overall mean score value depicts almost average degree of quality with respect to functionality services. The factor demonstrates 14.07 percent of variance out of total 62.22 percent of variance (Table V).

Factor 3- Privacy

The 'privacy' factor recognizes six statements i.e. 'secure credit card transaction', 'web-shopping behavior', 'information on privacy policy', feel safe', 'solution to the problem' and 'personal information not disclosed 'which have scored factor loading values of 0.78, 0.76, 0.71, 0.69, 0.64 & 0.61. The mean score of these statements ranged between 3 to 4. The factor explained 12.89 percent of variance out of 62.22 percent. The values of communality for the items in identified factors in order of contribution include 0.68, 0.66, 0.67, 0.64, 0.66 & 0.53 respectively.

Factor 4 – Merchandise

Factor '4' evolved only four statements namely 'guarantee on online product', 'compensation for loss', 'price comparison' & 'product return facility' with high and positive factor loading values of 0.76, 0.75, 0.73 & 0.71 respectively. The mean score values came to be 3.11, 3.00, 3.63 & 3.10 which showed that customers have average degree of satisfaction. This also has been found by Fullantelli & Allegra (2003), Sardana (2001), Joia (1999) and Thomson (1999). The overall mean score came to be 3.23 which showed average responses with regard to merchandise services. The factor demonstrates 10.76 percent of variance out of total (Table V). These statements also showed good values for communalities and MSA which are also found to be significant indicating the relative importance of the statements.

Factor 5- Offerings

This factor has taken four statements viz. discount during festivals', 'internet tickets', discount during off-season' & 'seasonal discounts'. The factor loading of these statements were 0.79, 0.69, 0.69 & 0.68 and the mean score values came to be 3.13, 3.43, 3.60 & 3.41 which reveal that online customers have average degree of satisfaction with regard to offerings provided by airline organizations. The overall mean score value is 3.39 and the values of communalities of these statements ranged between 0.50 to 0.70.

b) Web service performance: Service performance plays significant role in the subsistence and development of online organizations. Indicators such as customer loyalty and performance with regard to website reflect the performance of the full cost airlines such as Indian airlines, Jet airways, Kingfisher etc. Service performance accorded KMO (Kaiser Meyer Olkin) Measure of Sampling Adequacy value as 0.839 and Bartlett's Test of Sphericity as 488.723 (chi-square) at df=28 & p=0.000 that indicate suitability of data for grouping analysis. The factor analysis grouped 8 items into two factors at 3 iterations (Table VI) which are discussed as underneath:-

Factor 1- Customer loyalty

The first factor christened as 'consumer loyalty' include items namely 'recommendation', 'website for online purchase', 'positive attitude' and 'low switching intention' with positive factor loading values of 0.75, 0.72, 0.68 & 0.57 and mean score values 3.81, 3.78, 3.90 & 3.39 respectively

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(Table VI). The findings have also been supported by the study undertaken by Sardana (2001). The factor demonstrated 28.79 percent of variance from a total percentage of variance (55.46%). The values of communalities for the items are scored as 0.63, 0.54, 0.48 & 0.35 respectively. The grand mean value (3.72) reflects that customers are more than averagely loyal.

Factor 2- Website performance

Four items are categorized in the second factor include 'overall satisfaction with website', overall value', 'effective search engine' and 'satisfaction with merchandise transactions' with factor loading values of 0.78, 0.72, 0.69 & 0.63 and mean scores of 3.64, 3.47, 3.61 & 3.42 respectively indicate that customers are satisfied with the information of the website. These statements showed communalities values of 0.64, 0.66, 0.48 & 0.67. The overall mean value accorded at 3.54 reflects that company is providing adequate information to customers. This factor demonstrated 26.67 percent of variance (Table VI) out of total percent of variance. The degree of communality values seems to be highly contributing to this factor except display of search engine bar.

Table XII. Regression values of web service quality dimensions for full service airlines.

Web service quality dimensions	**Unstandardized coefficient**		**standardized coefficient**			**Collinearity Statistics**	
	B	**Std. Error**	Beta	t-values	Significant	Tolerance	VIF
Customer service	0.337	0.059	0.400	5.728	0.000	0.636	1.589
Functionality	-0.037	0.053	-0.047	-0.705	0.481	0.688	1.454
Privacy	0.155	0.052	0.195	2.983	0.003	0.720	1.388
Merchandise	0.085	0.042	0.134	2.033	0.043	0.701	1.427
Offerings	0.003	0.052	0.003	0.053	0.958	0.755	1.325
Dependent variable: Web Service Performance							
Independent variable: Web Service Quality Dimensions							
R=0.571, R^2= 0.326, Adjusted R^2= 0.311							

VII. CONCLUSION

The impact of independent factors namely customer service, functionality, privacy, merchandise and offerings on online service quality are found to be 33 percent (R^2= 0.33) (Table XII). The independent factors are also checked for the multicollinearity. Variance inflation factor and tolerance values for the independent variables indicate absence of multicollinearity (Table XII). The beta values found to be 0.337 (p=0.000) for customer service, 0.155 (p=0.003) for privacy, 0.085 (p=0.043**)** for merchandise and 0.003 (0.958) for offerings, indicating positive impact on online service quality. Similarly, the impact of functionality on online service quality with beta values calculated as -0.037 (p= 0.481) depicting negative impact on online service quality. The results revealed that customer service has positive and significant impact on online service quality followed by privacy, merchandise and offerings functionality & offerings. Whereas the functionality of the website has a negative impact on online service quality. As such the hypotheses pertaining to functionality is rejected.

REFERENCES

[1] A. D. Singh, "A rainbow technology for a rainbow people: E-business capacity development for the CARICOM," Report of a Diagnostic Mission, Commonwealth Fund For Technical Cooperation; Commonwealth Secretariat London, 2001.

[2] P. Shetty, "Attitude towards entrepreneurship in organisations," The Journal of Entrepreneurship, vol.13, issue 1, pp. 53-68, 2004.

[3] R. Kohli, "Impact of IT- Applications on the performance of small-scale industries: A comparative study of Jammu & Kashmir and Punjab States," pp. 1-367, 2007.

[4] S. S. Liu and X. Luo, "Exploratory research on integrated web-based knowledge management in a customer contact context," *Academy of Marketing Science Annual Conference*, 2003.

[5] R. Kalakota and A. B. Whinston (2005), "Electronic commerce: A managers guide," Pearson Education (Singapore) Pvt. Ltd., Delhi.

[6] E. Turban, J. Lee, D. King, and H. Michael Chung, "Electronic Commerce- A Managerial Perspective," Pearson Education (Singapore) Pvt. Ltd., Delhi, pp. 1-520, 2005.

[7] C. Gronroos, "A service quality model and its marketing implications," *European Journal of Marketing*, Vol.18, issue 4, pp. 36-44, 1984.

[8] A. Parasuraman, L. L. Berry, and V. A. Zeithml, "A Conceptual Model of Service Quality and Its Implications for Future Research," *Journal of Marketing*, vol. 49, pp. 41-50, 1985.

[9] C. Gronroos, "A service quality model and its marketing implications," *European Journal of Marketing*, Vol. 18, issue 4, pp. 36-44, 1984.

[10] R. T. Rust and R. L. Oliver, "Service quality: Insights and managerial implication from the frontier, in service quality: new directions in theory and practice," *Sage Publications*, pp. 1-19, 1994.

[11] R. Johnston, "The determinant of SQ: Satisfiers and dissatisfiers," *International Journal of Service Industry Management*, vol.8, issue 5, pp. 53-71, 1995.

[12] R. A. Spreng and R. D. Mackoy, "An empirical examination of a model of perceived service quality and satisfaction," *Journal of Retailing*, vol. 72, issue 2, pp. 201-214, 1996.

[13] M. K. Brady, and J. J. Cronin Jr., "Some new thought on conceptualizing perceived service quality: A hierarchical approach," *Journal of Marketing*, vol. 65, pp. 34-49, 2001.

[14] G. D. Sardana, "Performance grading of hospitals: A conceptual framework," *Productivity*, vol. 44, issue 3, pp. 450-465, 2003.

[15] V. A. Zeithaml, A. Parasuraman, and A. Malhotra, "A conceptual framework for understanding e-service quality: Implications for future research and managerial practice," Working Paper, Report No. 00-115, Marketing Science Institute, Cambridge, MA, 2000.

[16] J. E. Santos, "E-Service quality: A model of virtual service quality dimensions," *Managing Service Quality*, vol. 13, issue 3, pp. 233-246, 2003.

[17] E. Loiacono, R. T. Watson, and Goodhue, "WEBQUAL: A website quality instrument," Working Paper, Worcester Polytechnic Institute, 2000.

[18] Z. Yang, R. T. Peterson, and L. Huang, "Taking the pulse of internet pharmacies," *Marketing Health Services*, (Summer), pp. 5-10, 2001.

[19] C. N. Madu and A. A. Madu, "Dimensions of E-quality," *International Journal of Quality & Reliability Management*, vol. 19, issue 3, pp. 246-258, 2002.

[20] M. Singh, "E-Services and their role in B2C commerce," *Managing Service Quality*, Vol. 12, issue 6, pp. 434-446, 2002.

[21] Z. S. Yun and L. K. Good, "Developing customer loyalty from e-tail store image attributes," *Managing Service Quality*, vol.17, issue 1, pp. 4-22, 2007.

[22] A. Ostrom and D. Lacobucci, "Consumer trade offs and the evaluation of services," *Journal of Marketing*, vol. 59, issue 1, pp. 17-28, 1995.
[23] C. Yoo, J. Park, and D. J. Maclnnis, "Effects of store characteristics and in-store emotional experiences on store attributes," *Journal of Business Research*, vol. 42, pp. 253-263, 1998.
[24] J. Choi and K. Lee, "Risk perception and e-shopping: Across cultural study," *Journal of Fashion Marketing and Management*, vol. 7, issue 1, pp. 49-64, 2003.
[25] D. Fodness and B. Murray, "Passengers expectation of airport service quality," *Journal of Service Marketing*, vol. 21, issue 7, pp. 492-506, 2005.
[26] F. L. Cunningham, H. G. James, M. D. Harper, and C. H. Young, "Perceived risk and the consume buying process: Internet airline reservation," *International Journal of Service Industry Management*, vol. 16, issue 4, pp. 357-372, 2005.
[27] R. J. Olson and K. K. Boyer, "Internet ticketing is not for profit organization: building customer loyalty," *Journal of Operations and Product Management*, vol. 25, issue 1, pp. 74-92, 2005.
[28] J. Semeijn, A. C. R. V. Riel, M. J. H. V. Birgelen, and S. Streukens, "E-Services and offline fulfilment: How e-loyalty is created," *Managing Service Quality*, vol. 15, issue 2, pp. 182-194, 2005.
[29] M. Jones, Z. Yang, and D. Kim, "Customers perceptions and their satisfaction," *International Journal of Quality and Reliability Management*, vol. 21, issue 8, pp. 817-840, 2004.
[30] A. Caruana and M. E. Twing, "The psychometric properties of e-tail quality," *International Marketing Review*, vol. 23, issue 4, pp. 353-370, 2006.
[31] J. G. Lynch and D. Ariely, "Wine online: Search costs affect competition on price quality and distribution," *Marketing Science*, vol. 19, issue 1, pp. 83-103, 2000.
[32] P. Spiller and G. Lohse, "A classification of internet retail stores," *International Journal of Electronic Commerce*, vol. 2, issue 2, pp. 29-56, 1997.
[33] T. P. Novak, D. L. Hoffman, and Y. R. Yung, "Measuring the customer experience in online environments- A structural modelling approach," *Marketing Science*, vol. 19, issue 1, pp. 22-42, 2000.
[34] A. C. R. V. Riel, J. Semeijn, and W. Janssen, "E-Service quality expectations- A case study," *Total Quality Management*, vol.14, pp. 437-450, 2003.
[35] D. Mazursky and J. Jacoby, "Exploring the development of store images," *Journal of Retailing*, vol. 62, issue 2, pp. 145-165, 1986.
[36] E. Loiacono, R. T. Watson, and D. Goodhue, "WEBQUAL: A measure of website quality," in Evans, K. Scheer, L. (Eds), *Marketing Education Conference: Marketing Theory and Applications*, vol. 13, pp. 422-437, 2002.
[37] D. M. Szymanski and R. T. Hise, "E-Satisfaction: An initial examination," *Journal of Retailing*, vol. 76, issue 3, pp. 309-322, 2000.
[38] B. Yoo and N. Donthu, "Developing a scale to measure the perceived quality of internet shopping sites (SITEQUAL)," *Quarterly Journal of Electronic Commerce*, vol. 2, issue 1, pp. 31-47, 2001.
[39] N. K. Malhotra, "Marketing research-An applied orientation," Pearson Education (Singapore), pp. 266-291, 2003.
[40] J. F. Hair, R. P. Bush, and D. J. Ortinau, *Marketing Research*, Tata Mc Graw-Hill Publication, Delhi, pp. 318-319, 2005.
[41] R. G. Netemeyer, W. O. Bearder, and S. Sharma, *Scaling Procedures: Issues and Applications*, Sage Publications, pp. 1-206, 2003.