Research Paper | Commerce

Impact of Quality Services on Performance Measures in Mobile Sector

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ABSTRACT

Purpose – The principal aim of this study is to determine the impact of quality services) on performance measures of mobile service sector.

Design/methodology/approach – Based on theoretical considerations, exploratory factor analysis was used to analyse the data collected from 330 users of Cellone and airtel on the basis of pilot survey. Data for sample were collected from respondents located in six wards in Jammu (two each from north and west region & one each from east and south region)

Findings – Data analysis revealed that overall service quality has a positive and significant influence on overall performance and value added services for cellone and airtel.

Research limitations/implications – The data has been collected from users of cellone and airtel which may restrict to some extent the generalizability of findings to other. Further, only users perceptions have been analysed. The employee and managerial perceptions have not been considered.

KEYWORDS : Communication, Governance, Telecommunication, Technology

Introduction

In today's world of telecommunications business, where competition is fierce, margins are low and all the participants are forced to constantly evolve, innovate and at the same time cut costs wherever possible, it is increasingly important to properly identify the sources of expenditure and income in the first place. One area of telecommunications in which this kind of research has proven to be especially challenging is the area of network management. Dabholkar (1994) discuss how technology based services have made new services delivery options available to organisations, making customer participation more widely possible. The adoption of technology into service industries is becoming a strong trend as service providers are now being used by industry bodies to invest in technology (Australian coalition of service industries annual review, 1997) as a way of securing their future in the electronic age. The role of technology in service organisations as discussed by Kelley (1989) has been predominantly employed to reduce costs and eliminate uncertainties. In the service sector, technology has been used to standardise services by reducing the employee/ customer interface (Quinn, 1996). The majority of consumers now more than ever prefer to opt for a technology based service delivery over that of employee (Voice, The European magazine for applications of computer technology, 1997). This emerging trend raises some important issues about the impact that technology will have on service quality and customer satisfaction levels. The service delivery process and high technology service as such is considered as a service product as customers participate directly in the service delivery (Fitzsimmons & Fitzsimmons, 2006). It is interesting to note that although investments in technology and capital usually lead to higher productivity in manufacturing, no such linkage has been found in services (Haksever et al, 2006).

Mobile services has provided sound platform for not only modern business customers but also for end customers with anytime and anywhere communication service product which has created entirely new paradigms for interactive talks and data communication services (sugai,2005).although, the growth of the mobile network and services during the past decade has achieved prolific expansion but at the same time there is a high degree of concern to demonstrate oversight on issues such as interconnection, competition and level of technology (Fitzsimmons & Fitzsimmons,2006).Service quality acts as an important tool in measuring and researching the effectiveness of the mobile service providers(Dean & White,1999).Service quality is being increasingly perceived as a tool to deliver value to the consumer and as a means of positioning company in a competitive environment to ensure consumer satisfaction, retention and patronage (Parasuraman, Zeithmal & Berry, 1988).

Mobile service product

Service product is considered as a set of attributes that customer experiences. These attributes generally relate to supporting facility, facilitating goods, information, explicit services and implicit service (Fitzsimmon & Fitzsimmon, 2006).The mobile cellular service product is low labour and high technology intensive product. Its quality is conceptualised to be function of four generic features namely core services, customer information services, billing and miscellaneous services.

1. Core services: Growing number of customers interacts with technology to create service outcomes instead of interacting with a service firm employee. In new patterns of competition and co-operation image, technological change is treated as an endogenous characteristic, intertwined with social and economic changes in the organisational context. In telecommunication, a core network approach stresses on the underlying technological interdependencies and linking changes in the network governance structures to change the technological, activity, and resource structures and interdependencies(Anderson & Melleryd, 1997).The better the core services better will be the service quality vis- a- vis customer satisfaction.

2. Customer information services: The customer information services can be leveraged to create customer and supplier value through service performance which positively affects customer satisfaction that in turn enhances corporate performance and provide a differentiating competitive advantage (Turban et.al. 2005).

3. Billing services: Customers expect bills to be clear, informative and itemised (Rousan & Ali, 2006). Without effective billing system, adequate amount of revenue and expenditure cannot be determined. In addition, behaviour of front line employees, number of adequate counters for bill payments, good ambience of the billing halls, overall good physical environment, etc contributes to the billing dimension of mobile service quality.

4. Miscellaneous services: Various applications services can be observed among the users which ranged from telephone conversation and simple text messages to multimedia messaging service to download and enquiry service to internet access, depending on the capability of each mobile phone technology and services rendered (Karim & Shahriza, 2006).mobile services providers provide access to other information services such as news, astrology and enquiry of online tickets, national/international news, price, facebook,effective download and entertainment charges.

Impact of quality services

The impact of four dimensions of mobile service quality on overall performance of cellular providers is conceptualised to be dependent on the overall perception of customers with regard to service providers overall performance and degree of value added benefits provided to the customers. This is primarily because of the fact that retaining old customer is less costly than attracting new customers to serve because of learning effects and decreasing servicing costs. The overall performance is considered to be related with certain elements such as recommendation of services, reduced switching behaviour, better overall image, effective level of service, employee's performance and better performance in relation to competitors and introduction of new services. Value added benefits are considered as ability of good service

to provide benefit to a customer in comparison to resources scarified (Haksever et al, 2006).Differentiation strategy with respect to value added features such as extra talk time facility, discount on bills, internet packages, discount on call rates, free SMS regarding call rates,etc will strengthen the cellular service product features.

Research methodology
Hypothesis & objectives
Consumers use of mobile communication devices is increasingly rapidly, and devices based on mobile technology are now commonplace in everyday life (Bala Subramaniam, Peterson & jarvenpaa,2002). To explore mobile services from users perspective, service quality dimensions focusing as core services, supplementary services, customer information services and billing services, become more significant. This will directly impact on the organisational performance. Thus, higher the degree of service quality dimensions higher will be the value added benefits and better will be the overall performance. The present study builds following set of hypothesis and objectives.

Hypothesis 1: The core services followed by Customer information services, billing services and miscellaneous services contribute maximally to overall service quality of mobile services (Cellone and Airtel).

Objective 1: To find out the relative importance of four service quality dimensions core services, customer information services, billing services and miscellaneous services for mobile services(Cellone and Airtel) .

Hypothesis 2: Overall mobile service quality (Cellone and Airtel) has a positive influence on overall performance and value added benefits dimensions.

Objective 2: To analyse the impact of overall service quality dimensions on performance dimensions.

Research design
Data were collected by a means of self structured questionnaire comprising of six dimensions (four service quality and two performance measures) namely core services, customer information services, billing services and miscellaneous services & value added benefits and overall performance. Core service contained 15 questions pertaining to service provider coverage system and connectivity. Billing services contained 12 items which required respondents to evaluate the services of billing. Miscellaneous services also contained 14 questions pertaining to internet facility and downloading charges while customer information services contained 13 questions regarding employee's performance. Overall performance and value added benefits dimensions contained 10 and 5 items to judge the service provider level of service and free downloading facilities & extra talk time facilities.

The draft questionnaire was eventually subject to pilot testing with a total of 50 cell users, selected on the basis of convenience sampling the finalise the questionnaire items for measuring service scale quality. The pre- testing results were used to determine the value of standard deviation as 0.468. The sample size for the final data collection at 5% level of significance with the value of Z (standardised variate) as 1.96 and standard deviation as 0.468 came out to be approximately 330.

Data for sample were collected from respondents located in six wards in Jammu (two each from north and west region & one each from east and south region) . About 55 respondents each from six wards were contacted conveniently for data collection and making sample size as 330. A total of 330 questionnaires were distributed to respondents of six regions. Of these, 261questionnaires (113 Cellone & 148 Airtel) were returned with a response rate of 79 % (comprising 146 male respondents i.e. 56% males while 115 female respondents i.e.,44%).

Statistical tools used
Cronbach (alpha and spilt half) and correlation coeffient values were used to find out the reliability and validity of constructs used. Factor analysis were also uses to draw out important factors of service quality and service performance. Lastly, correlation and multiple regression analysis along with t- test were used for hypothesis testing.

Cellone – Reliability and validity
Service quality
The Cronbach's alpha value for the service quality scale is found to be

above the threshold value of 0.7 (Hair et. Al, 2005) (table 1) i.e., 0.920 indicating high internal consistency of the scale. To further support the results, spilt half method of reliability was also carried out. The overall spilt half cronbach alpha values for the quality scale for the 1st and 2nd part are found to be 0.850 & 0.916 respectively, which supported the reliability of the sample.Further, item mean came out to be 0.275 , item – variance as 3.17 and inter – item correlation as 0.28 indicating good psychometric properties of the scale.

The face and content validity of the scale were checked with the help of literature review and discussions with experts. The values of Kaiser mayer olkin (KMO) measure of sampling adequacy (0.868) and variance explained (73.33%) indicated construct validity of the questionnaire (kline, 2005). The convergent validity of the sample was assessed by examining the nature of association using correlation between two items each under core services, billing services, miscellaneous services, customer information services which came out to be 0.261, 0.689,0.454 & 0.620 respectively. The correlation value for billing services is found to be highest followed by customer information services, miscellaneous services and coverage system indicating average validity of all constructs except core services.

Table 1 : Item statistics, scale statistics and Cronbach's alpha value for service quality scale

stages			I
Item statistics	Item mean	mean	2.75
		Variance	0.20
	Item variance	Mean	3.17
		Variance	0.55
	Inter – item co-relations	Mean	0.25
		Variance	0.05
Scale statistics		Mean	90.68
		Variance	973.10
		Standard deviation	31.19
Reliability statistics	Cronbach alpha		0.920
	Spilt half alpha 0.916		0.850
No. Of items			31
Items deleted			None
Item left			31

Service performance
The overall Cronbach's alpha values for service performance comprising two variables namely overall performance and value added benefits is found to be 0.868 indicating reliability of the performance scale. To further strengthen the results, spilt- half method of reliability was carried out. The Cronbach's spilt half alpha values for the scale is found to be 0.850 & 0.739 respectively, further, supporting the reliability of the scale (Table 2).

After duly checking face and content validity of the performance scale, construct and convergent validities are identified. High and positive factor loading value greater than 0.52 and high KMO (0.831) of the scale confirmed the constructed validity of the performance scale. The KMO Values for overall performance and valued added benefits came out to be 0.65 & 0.58 respectively indicating moderate validity of service performance scale. The degree of correlation coefficients between two statements each for overall performance and value added benefits are found to be quite significant at 99 % level of significance with correlation values scored as 0.659 & 0.761 respectively.

Table 2 : Item statistics, scale statistics and Cronbach's alpha value for service performance scale

stages			I
Item statistics	Item mean	mean	3.05
		Variance	0.10
	Item variance	Mean	2.75
		Variance	0.07
	Inter – item co- relations	Mean	0.34
		Variance	0.02
Scale statistics		Mean	39.70
		Variance	179.74

				13.41
		Standard deviation		13.41
Reliability statistics	Cronbach alpha			0.868
	Spilt half alpha 0.739			0.850
No. Of items				13
Items deleted				None
Item left				13

Table 3: Correlation, KMO and variance Explained values for cellular users of cellone

Dimensions	Correlation value	KMO	Variance
Service quality scale			
Core services	0.261	0.708	61.80
Billing services	0.689	0.779	76.82
Miscellaneous services	0.454	0.500	77.31
Customer information services	0.620	0.779	66.55
Performance scale			
Overall performance	0.659	0.650	56.58
Value added benefits	0.761	0.575	55.73

Airtel – Reliability & validity
Service quality

The overall Cronbach's alpha value for the quality scale for airtel sample is found to be 0.890. Spilt half method is also carried out which is found to be 0.853 for the first half and 0.892 for second half respectively (Table 4). The scale under item statistics is found to be suitable as item mean (M = 2.98, V = 0.45), item variance (M = 3.23, V = 1.06) and inter – item correlations (M = 0.19, V = 0.07) are found to be in acceptable range (Niemeyer, 2003). The convergent validity of the sample using correlation value (Kline,2005) was assessed by examining the nature of association among two inter- related items each under customer information services, billing services, core services and miscellaneous services service quality dimension, which came out to be 0.514, 0.638,0.293 & 0.505 respectively. For all correlation values are found to be above 0.5 except for core services which came out to be 0.29 indicating convergent validity for the customer information services, billing services and miscellaneous services.

Table 4: Item statistics, scale statistics and Cronbach's alpha value for service quality scale

stages			I
Item statistics	Item mean	mean	2.98
		Variance	0.45
	Item variance	Mean	3.23
		Variance	10.6
	Inter – item co-relations	Mean	0.19
		Variance	0.07
Scale statistics		Mean	98.34
		Variance	781.14
		Standard deviation	27.95
Reliability statistics	Cronbach alpha		0.890
	Spilt half alpha 0.892		0.853
No. Of items			31
Items deleted			None
Item left			31

Service performance

The reliability is analysed by examining the coefficient alpha and spilt half alpha values for the performance scale comprising two variables, viz; overall performance and value added benefits. The overall Cronbach's alpha value for the scale is found to be 0.865, which indicated the internal consistency of the scale (Table 5). Further, supported the internal reliability of the scale (Hair et.al, 2005). The convergent validity of the scale is assessed by examining the nature of association between average score response to the performance scale items using correlation values which came out to be 0.642 and 0.739 for overall performance and value added benefits respectively indicating good degree of convergent validity.

Table 5: Item statistics, scale statistics and Cronbach's alpha value for service performance scale

stages			I
Item statistics	Item mean	mean	3.08
		Variance	0.18
	Item variance	Mean	2.72
		Variance	0.17
	Inter – item co- relations	Mean	0.34
		Variance	0.24
Scale statistics		Mean	40.06
		Variance	175.76
		Standard deviation	13.26
Reliability statistics	Cronbach's alpha		0.865
	Spilt half alpha 0.736		0.866
No. of items			13
Items deleted			None
Item left			13

Table 6: Correlation ,KMO and variance Explained values for cellular users of Airtel

Dimensions	Correlation value	KMO	Variance
Service quality scale			
Core services	0.293	0.723	61.04
Billing services	0.638	0.805	76.72
Miscellaneous services	0.505	0.500	78.77
Customer information services	0.514	0.838	79.52
Performance scale			
Overall performance	0.642	0.740	62.20
Value added benefits	0.739	0.643	68.88

Results and findings
Cellone
Service quality

The major findings of study with respect to billing services in regard to overall grand mean score value (2.88) of billing services accorded below average score reflecting more need to be done to improve the degree of service quality (Rousen,2005).The overall actual mean score value (2.96) depicts averagely level of quality for customers towards customer information services .The overall mean score value(3.35) depicts customer are averagely satisfied with the core services of cellone mobile services and thus contribute to mobile service quality (Parasuraman & Grewal, 2000) while overall mean score value (2.54) elicit low level of service quality for customers using miscellaneous facilities.

Service performance

The grand mean score of overall performance (3.16) elucidate little bit higher than average score value for mobile services and value added benefits (2.80) designate that cellone customers consider value added benefits to be below average level.

Airtel
Service quality

The overall mean score value of 3.48, 3.92 & 3.63 depict somewhat higher than average level of satisfaction of customer towards customer information services, billing services and core services while overall mean score value of 2.65 accorded below average score values indicating that airtel mobile users are not satisfied with the quality of miscellaneous facility.

Service performance

The grand mean score value i.e., 3.34 elicit average level of satisfaction for customers towards overall performance while 2.96 indicates low level of satisfaction of airtel cell users with regard to value added benefits.

Hypothesis testing

The relative contribution of customer information services, billing services, core services and miscellaneous facilities to the overall service quality is measured using multiple regression for cellone and airtel users. The beta values are found to be significant for all the four variables for cellone viz; core services (β = 0.21, t = 2.43) , billing services(β =

0.28, t = 3.36), miscellaneous services (β = -0.081, t = -0.91) and customer information services(β = 0.49, t = 5.43) at significant level of 0.017, 0.001, 0.367 & 0.000 respectively indicating rejection of first hypothesis for cellone services. The beta values are also found to be significant for all the four variables for airtel viz ; core services (β = 0.24, t = 2.51) , billing services(β = 0.28, t = 2.87), miscellaneous services (β = -0.047, t = -0.49) and customer information services(β = 0.46, t = -4.76) at significant level of 0.015. 0.005, 0.627 & 0.000 respectively indicating rejection of first hypothesis for cellone services.

Lastly, the overall mobile service quality show positive relationship with performance measures namely overall performance and value added benefits. The correlation values for overall service quality and overall performance and overall service quality and value added benefits are found to be 0.419 & 0.418 and 0.318 & 0.364 for cellone and airtel users respectively. Thus, the study accepts the hypothesis that overall service quality is having positive and significant influence on overall performance and value added services for cellone and airtel.

Limitations and future research

All feasible efforts are made to maintain objectivity, reliability and validity of the study, yet certain limitation could not be ignored. These are

1. The basic limitation of the research is related to the presence of subjectiveness of the responses of the customers. Though, appropriate efforts are taken to control subjectiveness of the responses using reliability and validity methods but at the same time caution has to be exercised in extending the results to other regions and cities of the state and outside the state.
2. Because of non- availability of list of individuals residing in different location of area, the data is collected using convenient sampling from mobile service users. The result cannot be generated for other users.
3. The perceptions of employees working for the mobile service providers are not considered in the study. Per se, in future, employees should be included along with users, to make research more holistic.

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