An Empirical study of Value Derivation in selected Telecom Service Providers in India

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Abstract: The telecomm industry spends a lot of its money on its infrastructure. This investment is of recurring nature because the technology changes at a very fast speed. The telecomm companies needs to evaluate the value derived from its investment. For the same the internal business process needs to be evaluated by taking a survey from the employees who are working on the technology. The five parameters have been taken like business operation, innovation process, quality measures, cost measures and post-sale services.

Introduction: The major element for value derivation is the internal business process in the organization. In the current research to examine the internal business process in the telecom company's primary data was collected among 300 junior level employees in the selected companies using the close ended questionnaire. Collected primary data has been analyzed using both the descriptive and inferential tools. Demographic profile of the respondents and the general background of the respondents about the internal process has been analyzed using the descriptive analysis whereas the major internal business process in the telecom companies and factors affecting those process has been analyzed using the inferential analysis.

Literature Review: Talking about the internal business process within telecom sector, Kumar & Joseph (2005) propounded that a worldwide attention has been gained by India due to software supply by it. This indicates the extraordinary internal business process India which has attracted the outsiders. However, intervention by the State in framing policies and procedures cannot be ignored which helps the companies in attaining unique success. The involvement of the government helped the companies in not only radical decrease in telecom costs but also in increased access and offering better quality of services (N. Kumar & Joseph, 2005).

While Kumar & Joseph (2005) talked about the intervention of the government to make amendments in the process and operations of the companies, Botta-Genoulaz & Millet (2006) highlighted about the importance of Enterprise Resource planning in telecom sector. They elucidated that many companies have made considerable investment in implementing Enterprise Resource Planning (ERP) systems for the smooth functioning of their internal business process. Though these solutions were mainly targeted for the manufacturing organization yet ERP

projects are now being embraced by service organizations as well. This was revealed that inclinations to regularization and amalgamation observed in the manufacturing sector are also mounting in services, but not in the same manner.

Bengtsson & Berggren (2008) explicated that for many years, the telecom equipment industry was at the leading position in subcontracting and shuffling their manufacturing operations to contract engineering firms positioned at Asia and Eastern Europe. However, since past few years, there has been a considerable change in the strategies of the companies and they are striving to revise the same based on their acknowledgement of the incessant prominence of technical leadership and incorporation competences. The study undertaken by Bengtsson & Berggren (2008) analyzed the dynamic forces of subcontracting and manufacturing approaches in the telecom apparatus business. Various business issues pertaining to the product regularization as opposed to variation and technological assimilation, the importance of assimilation competences for reduction of cost and smooth functioning of the process was discussed.

Chang (2011) attempted to analyses the corporate practice management telecom companies. He elucidated that the fast changing business environment demands companies to change their internal business process as well. AneTOM (enhanced telecom operations map) business framework is being adopted by telecom companies for the management of their business process. This is beneficial for the companies that require a change when innovative approaches and objectives are undertaken. Contrary to this, it was also outlined that many telecom companies are concerned about implementing the process framework. For that reason, if telecommunication organizations know how to assess their new-fangled procedures or that their existing procedures are ideal or not, they become to have influential weapons in the violent competitive corporate circumstances. The best way to evaluate their business process were simulation and optimization, as stated by Chang (2011).

The concept of security of functions was underlined in a report by KPMG. Gupta (2011)emphasized that each corporate operation at telecom operator has subcontracted some or all parts of its processes to numerous third parties and it is imperative for establishments to handle their third parties efficiently. These third parties are like prolonged supports of the machinists without which the machinists would not be able to perform effectively. While the course for recognition of and hiring of these third parties has been centralized decision at most of the machinists, yet corporate functions are required to communicate with these people individually for smooth functioning of their routine operations. Henceforth, it is indispensable that each operation comprehends the prominence of safety and take in it in its association with their third parties.

Alike Chang (2011), importance of business process management was also emphasized in a report by(ORACLE, 2012). The report propounded that accurate management of business process make it distinctive and helps in achieving laurels. Numerous issues such as mobile

communications, increasing demand for internet facilities, enormous competition etc. can be handled by the communications service providers through efficient management of business process. A telecom business can be run in a dynamic way along with low cost through internal operation support systems and business support system which helps the company in gaining competitive advantage.

Kumar (2012) outlined the concept of Business Intelligence system which the other scholars missed. He averred that corporate aptitude skills such as Data Warehousing & Data Mining, OLAP & Reporting, and Performance Management can benefit the different areas and segments of the telecom industry of India. The various software used by the telecom companies fulfill their requirement and expedite their decision making process. Powerful data mining tools and advanced analytics can be employed to take crucial judgments at planned, strategic and functional level. The data available in the data sources can be well utilized by the companies to create business opportunities, resolving technological concerns, designing of product and promotion.

While the other scholars gave the general view about the telecom industry, Dialani & Price (2014) talked specifically about the operations of Tata Consultancy Services. They further propounded that the key drifts are compelling telecom providers to make organizational changes in their corporations, and these modifications will involve an all-inclusive outlook of their processes that extends across numerous operative platforms. Dailani and Price (2014) unpinned that reconsidering prevailing business and organization procedures to define where variations are desirable will be the important groundwork to operative revolution.

While Dialani & Price (2014) elucidated about the change in organizational structures, a report by A.T. Kearney (2014) emphasized that about the makeover triggers for telecom companies. The report characterized that in order to face the new market entrants; telecom companies must adopt various strategies and business model for the upkeep of their market share. Many companies are embracing a radical simplification of their business operations, products and information technological to stand in the competitive environment.

Descriptive analysis

Results from the demographic profile show that the most of the junior level employees (38 %) were in the age group of 31- 40 whereas 25 % of the employees included in the sample were in the age group of 21- 30. This shows that most of the junior level employees in the telecom companies were below the age of 40. In the recent time many telecom companies were trying to attractive the young talent professional in their companies with the expectation that young professionals will help to increase the productivity in the company and also the younger employees are aware of the customer demand better than the older generation professionals.
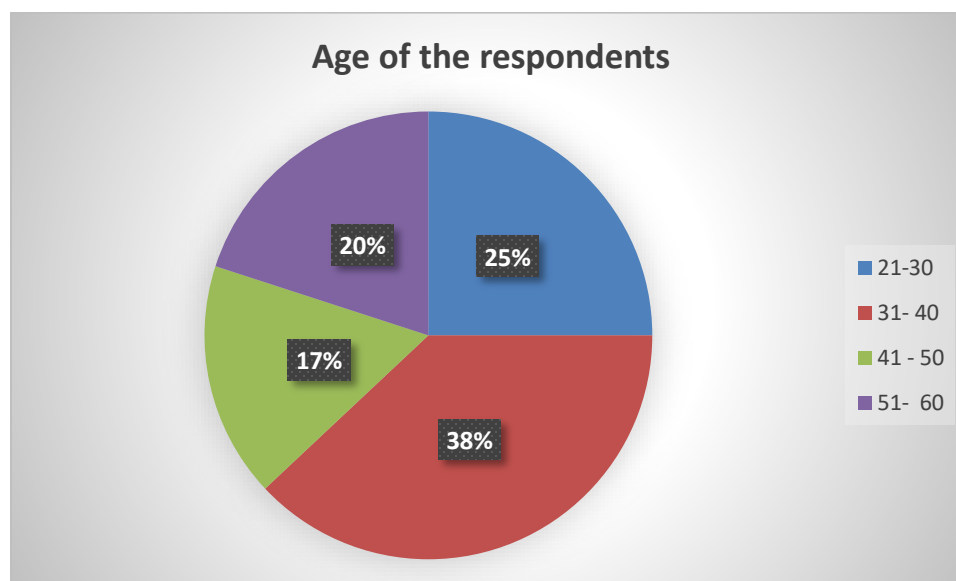
Age of the Respondents

Figure 1: Age of the respondents

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-30	75	25.0	25.0	25.0
	31- 40	114	38.0	38.0	63.0
	41 - 50	51	17.0	17.0	80.0
	51- 60	60	20.0	20.0	100.0
	Total	300	100.0	100.0	

Table 1 Age of the respondents

As shown in the figure below results for the educational qualification of the respondents shows that 36 % of the employees hold the post graduation degree whereas around 30 % were graduate. Among the remaining employees 6 % have done their diploma and remaining 28 % have pursued some other courses. Results indicate that the significant proportion of employees in the junior level have decent level of education.
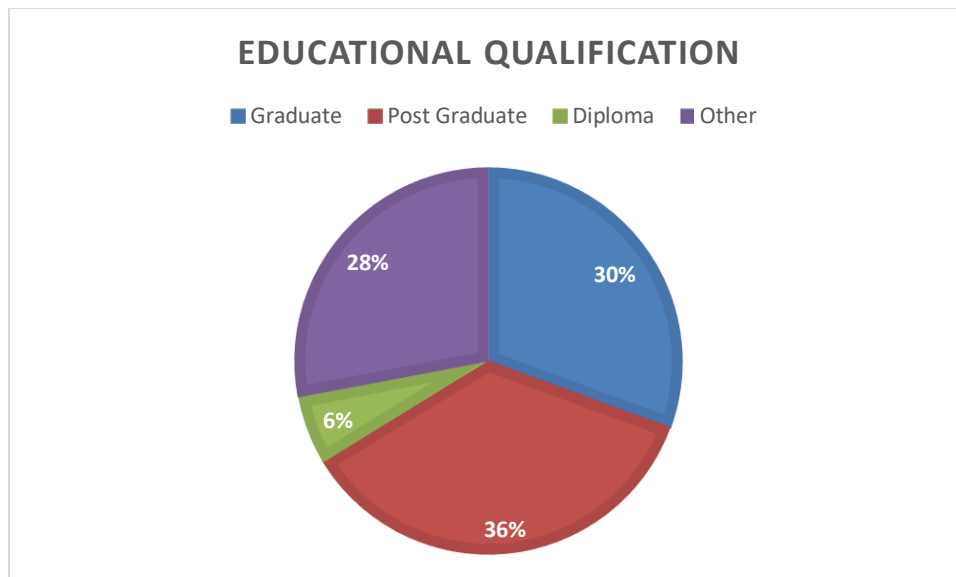
Figure 2: Educational qualification of the respondents

Another element which was included in the questionnaire to collect the information about the demographic profile of the respondents was the work experience of the employees in the current company. As shown in the figure below 39 % of the employees were working in the current company for less than one year whereas 37 % of the respondents have work experience of 1 -5 years.

Among the remaining employees 16 % of the employees have work experience of more than 10 years and around 8 % have 6- 10 years of experience. Most of the junior level employees who were working for more than 10 years were mostly in the sales department where the level of education do not matter much as compared to other department.

Work Experience		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-1 years	117	39.0	39.0	39.0
	1-5 years	111	37.0	37.0	76.0
	6-10 years	25	8.3	8.3	84.3
	More than 10 years	47	15.7	15.7	100.0
	Total	300	100.0	100.0	

Table 2: Work experience of Respondents

The distribution of the respondents on the basis of their current department is shown in the figure below. Results show that 35 % of the employees were in the customer service department which includes both direct dealing with the customer in the outlets and providing customer service through phone of mail in the customer care.
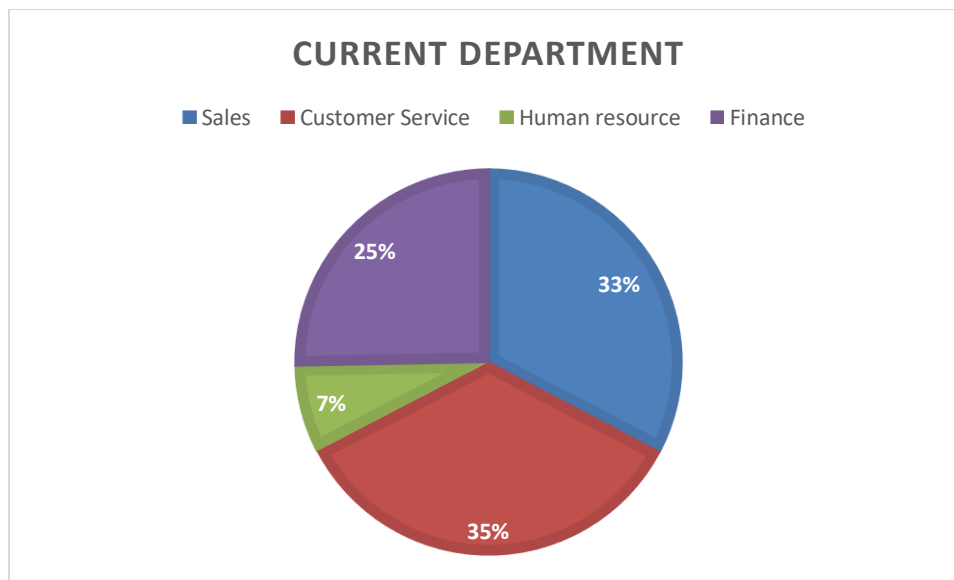

CURRENT DEPARTMENT

Figure 0: Current department of the employees

Current Department	Frequency	Percent	Valid Percent	Cumulative Percent
Sales	98	32.7	32.7	32.7
Customer Service	104	34.7	34.7	67.3
Human resource	22	7.3	7.3	74.7
Finance	76	25.3	25.3	100.0
Total	300	100.0	100.0	

Table 0: Current Department of Operation

Similarly 33 % of the employees were in the sales department who were mainly involved in advertisement and the promotion of their telecom and attract customers. Among the remaining employees 25 % were in the finance department and 7 % in the human resource management.

General Background

Internal business process in any organization not only help to generate the right value for the loyal customers but also helps to examine whether various other stakeholder of the company are satisfied with the existing process of the company. In the current research to know the general background about the internal business process in the telecom industries the junior level employees were asked about their internal process.

When asked about the dominant internal business process in their respective organization 36 % of the employees said that the customer management process was the dominant business process in their company. On the other hand 28 % of the employees said that the dominant business process in their company is the operation management. Among rest of the respondents 26 % said regulatory social process and only 10 % mention about the innovation process. On the basis of the results it can be said that the innovation process in still not the dominant process in the telecom companies and the telecom sector should promote more research and development process so that the innovation becomes the dominant business process.
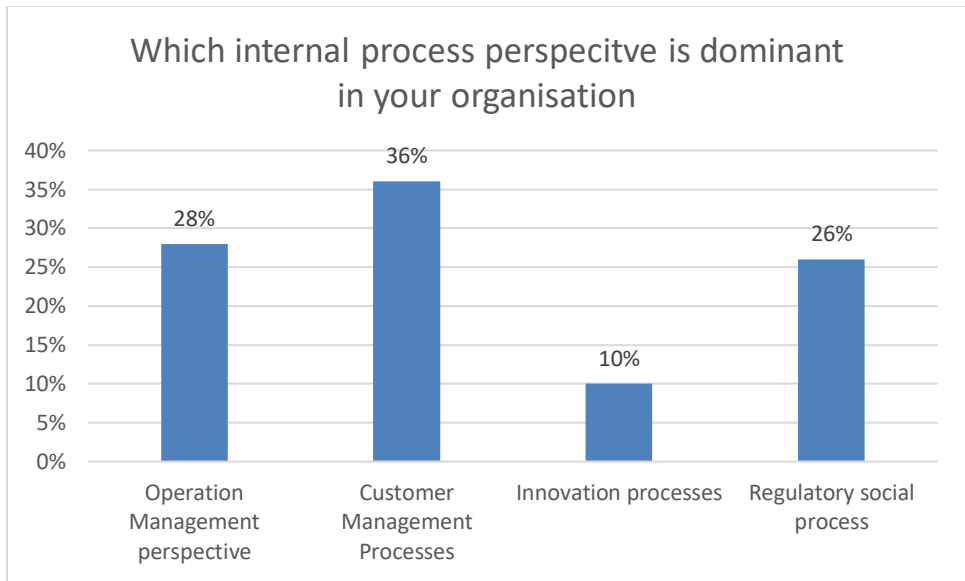
Figure 4: Dominant internal process in the telecom industry

The following figure shows the results when the employees were asked about the main objective of existing internal business process in their respective organization. Among the 300 respondents 44 % of them said that the main motive is to making the business process more cost efficient or in other words reducing the cost while keeping the output fixed.
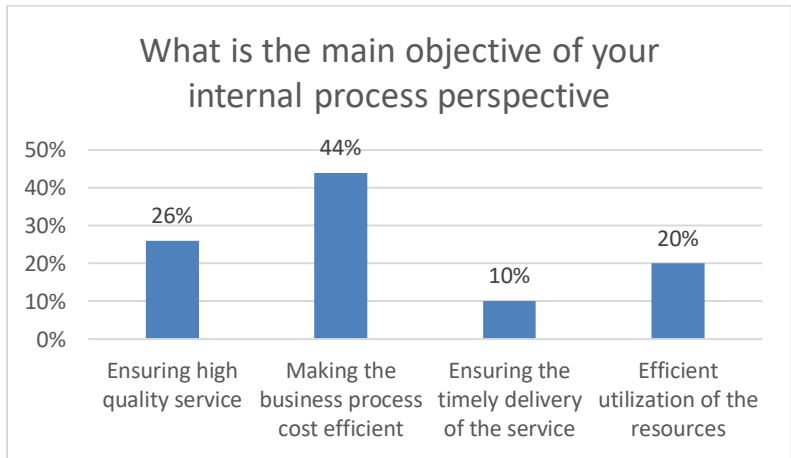
Figure 5: Main objective of internal process perspective

Similarly 26 % of the employees said that ensuring the high quality service to its customers is the prime motive whereas for 20 % is it is the efficient utilization of the resources. Remaining 10 % said that the ensuring timely delivery is the major motive behind the current business process in their organization. From the analysis it can be said that the telecom companies are the profit

seeking firms. The prime motive of the profit seeking firm is to earn higher profit and the only difference is the path to increase the profit. In this case some companies choose to increase the demand (for example by providing higher quality service and ensuring timely delivery0 whereas on the hand some firms concentrate in the supply side effects or the cost reduction method (by making the process more efficient or utilize the resource efficiently).

Figure 6: Opportunity of learning new skill in the telecom sector

While collecting the data from the junior level employees, they were also asked whether their company give them opportunity to learn new skills in the business process. As shown in the above figure around 59 % of the respondents said that their organization provide them opportunity to learn new things whereas 35 % of the employees said the current business process in their company do not provide the opportunity. Rest of the employees were not sure. Telecom sector is one of the fastest growing sector in the economy and with increasing number of mobile subscribers and the transformation from the broad band network to wireless network is expected to create a boom in this sector. So the telecom companies should promote innovation in their business process which will not only help to make the entire system more efficient but also leads to higher profits in the long run.

Inferential Analysis

On the basis of the literature review various aspects of the internal business process in the telecom sector. In this section the correlation and the regression analysis has been conducted to find the impact various factors affecting the internal business process and their significance.

Business operation

Business operation can be defined as the day to day activities of any organization with the main purpose of earning profits. Since the telecom companies are the profit seeking companies the business operation plays an important role. To earn the higher profit the telecom companies must ensure that the business operations are conducted efficiently and the cost reducing measures are taken into consideration. So to find the impact of various factors on the business operation the regression analysis has been conducted. For the regression analysis business operation is taken as the dependent variable and the factors affecting the business operation as the independent variable.

Prior conducting the regression, to examine the relation of the variables Pearson correlation testwas conducted and the results shows that variables included in the model are positively and significantly correlated with each other. Since the variables are correlated the regression analysis can be conducted for further analysis.

Results from the regression analysis are shown in the table below and the as per the results the R^2 (adjusted) is 0.80 which suggests that 80 % of the variation in the explained t variables is due to the change in the explanatory variable and remaining variation is by some other factors. Similarly the F value is highly is significant even at 1 %. To examine the existence of the autocorrelation in the variables the D-W test results do not show the autocorrelation.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.030	.095		-.322	.748
	My organization has a clearly defined day to day activities for all the product and service provided.	.345	.052	.339	6.664	.000
	My organization has a proper management system to manage cost as well as the inventory.	.526	.053	.517	9.899	.000
	My organisation is always ready to face the various challenges related to regulation	.054	.066	.053	.812	.418
	Cost and revenue from the business operations are well estimated in my organisation	.043	.064	.042	.676	.499

a. Dependent Variable: Business operation

Adjusted R^2 : 0.80

F statistic : 0.000

D-W: 1.01

Table 4: Regression results for business operations in the telecom sector

The regression coefficients in the above table, shows the impact of each variables on the business operation of the telecom companies. Results show that only two variables namely the properly defined day to day activities and the cost management system show significant and positive impact on the business operation. The coefficient of the cost management system (0.526) can be interpreted as, with one unit increase in the cost management system in the telecom companies the business operation improves by 0.526 units keeping all factors at constant. Other coefficient can also be interpreted in similar way. However the other two variables included in the model do not show statistically significant result.

Innovation Process

Innovation process includes discovering, developing or creating new ideas which can be helpful in increasing efficiency, reducing cost and eventually earning high profits for any organization. In the current globalized and competitive world innovation is the only way to earn higher profits at least in the long run. In this section among the various internal business process the innovation process in the telecom companies has been examined. The inferential analysis has been conducted to find the impact of various factors in the innovation process of the selected companies. For the analysis purpose the regression analysis has been conducted by taking the innovation process as the dependent variable and various aspects of innovation process in the telecom sector as the independent variables.

Prior running the regression model the correlation among the variables were examined using the Pearson correlation coefficient and the result from the correlation are highly significant and positive. In other words there is positive and significant association among the variables.

regression analysis results are shown in the following table and the results shows that the explanatory variables in the model are able to explain 86 % of the variation in the explained variables as the adjusted R square is 0.86. F statistic is also highly significant at significance level which suggest that the combine's effect of the explanatory variable on the explained variable is significant.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.107	.079		-1.353	.177
	New product, services and ideas are key objective of our technical innovation	.034	.050	.033	.691	.490
	Quality of service is a part of our technical innovation	.214	.057	.207	3.779	.000
	Innovation strategy has played important role in the organization to achieve its strategic goals	.212	.069	.206	3.060	.002
	Innovation is included in the vision or mission of my organization.	.117	.061	.113	1.917	.056
	Innovation in my organisation has helped to increases the customer satisfaction	.313	.055	.302	5.649	.000
	Innovation has helped increases the market share of the organisation	.051	.080	.049	.639	.524
	Improving employee morale, commitment, or both is part of our innovation strategy monitoring	.070	.067	.068	1.051	.294

a. Dependent Variable: Innovation

Adjusted R^2 : 0.86

F statistic :0.000

D-W : 1.68

Table 5 Regression results for innovation process in telecom sector

The individual effect of the each explanatory variable on the explained variable is represented by the regression coefficient in the above table. Results from the regression table show that only three variables namely the technical innovation to improve quality, innovation to improve strategic management and innovation to improve customer satisfaction show significant and positive results. Regression coefficient for other variables do not show statistically significant results. Coefficient of technical innovation is (0.214) . The interpretation of this coefficient is , with one unit increase in the technical innovation in the telecom sector the innovation process improves by 0.214 units keepingall other factors constant.

Existence of Quality measures

Quality of the service provided is one of the most important factor to achieve organizational success. The importance of the quality becomes more important in the core service sector like the telecom industry. As already seen in the customer perspective section that the quality of the service provided is one of the main reason for customer to choose particular network. In this section existence of the quality measures in the telecom industry has been analyzed through inferential tools which includes correlation and regression analysis. For the regression analysis purpose the existence of the quality service has been taken as the dependent variable and the various factor of the quality as the independent variables.

Correlation analysis was performed before running the regression sot that the association of the variables with each other can be examined . Pearson correlation test results shows that the variables included in the model are and significantly and positively related . Since the variable are correlated the multiple regression was run and the results are presented below.

Results suggest that R^2 (adjusted) is 0.84 which means that 84 % of the changes in the explained variable is due to change in the explanatory variable whereas rest of the 16 % change is because other factors. The cumulative impact is highly significant as the F test is significant at 0.01 . Similarly the D-Wtest result reject autocorrelation in the variables.

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.108	.082		-1.326	.186
The call quality and data transfer quality is good	.106	.062	.105	1.712	.088
The KQI method is used to measure the quality of service.	.185	.070	.182	2.643	.009
Live testing method is used as the measure of service quality	.137	.052	.135	2.613	.009
1 The service provided by my organisation has a strong and wide range network	.282	.052	.277	5.440	.000
The unsuccessful call ratio is relatively low as compared to the other competitors	.215	.054	.211	3.961	.000
Feedback from customers are taken and required actions are taken immediately to improve the quality	.071	.048	.072	1.478	.141

a. Dependent Variable: Existance of quality measures

Adjusted R^2 : 0.84

F statistic :0.000

D-W : 1.65

Table 6: Regression results for existence of quality measures in the telecom sector

Regression coefficient in the above table shows the impact of each explanatory t variable on the dependent variables and the results indicates that four explanatory variables shows positive and significant impact on quality measures namely the KQI method, live testing method , wide network coverage and low unsuccessful call ratio. Regression coefficient for other variables are not significant, statistically.Coefficient of KQI method (0.185) can be interpreted as , if KQI method increases by one unit then the quality measures improves by 0.185 units keeping all other things constant. Similar interpretation can be given to remaining regression coefficients. .

Existence of Cost measures

Reducing the cost in the production of goods and service is another key element. For profit seeking companies the reduction in cost and achieving the economies of scale is one the main motive. The telecom companies who are mainly involved in the providing service, reducing cost is one of the main agenda. So, to examine the existence of the cost measures in the telecom companies the regression analysis has been conducted by taking the existence of cost measures as the dependent variables and various method used by these companies to reduce the cost as the dependent variables. Results from this analysis can also be used to study whether the cost measuring methods adopted by the companies are effective or not.

However, before the regression analysis was performed correlation analysis using Pearson correlation has been conducted to test whether the variables are correlated to each other or not. Results suggest that the most of the variable included in the model are positively and significantly correlated with each other.

Since the results from the correlation are significant regression analysis was conducted and the results are presented in the table below. sAs per the results the R^2 (adjusted)is 0.75 which suggests that 75 % of the variation in the explained variable is explained by the explanatory variable whereas rest of the variation is due to some other factors. Similarly the cumulative impact is significant as the F value is highly significant at 1 %

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.016	.105		.154	.878
	My organisation focus on achieving the economies of scale as the cost reduction technique	.616	.055	.602	11.252	.000
	My organisation focus of maximum utilization of the resources so that per unit cost can be reduced	.197	.064	.193	3.079	.002
	My organisation focus on using the latest technology to improve efficiency and reduce cost.	.075	.067	.073	1.119	.264
	Forward looking economic cost (FLEC) methodology is used in my organisation to calculate the cost	.049	.067	.048	.729	.467

a. Dependent Variable: Existence of cost measures

Adjusted R^2 : 0.75

F statistic :0.000

D-W : 1.2

Table 7: Regression results for existence of cost measures in the telecom sector

The impact of each independent variable on the explained t variable is shown by regression coefficient in the above table. Results show that achieving economies of scale and the maximum utilization of the resources are the only cost reducing methods which shows significant and positive impact. Other variables included in the model are not statistically significant . The coefficient of economies of scale can be interpreted as, with one unit increase in the cost reduction

improves by 0.616 , if the the economies of scale increases by one unit holding all other factors constant. In similar way other variables can also be interpreted.

Existence of post sales services

Apart from the ensuring quality and implementing the cost reduction techniques to achieve higher profits telecom companies should focus on retaining the customers and post sales service is one of the main factor affecting the customer retention. So, to examine the post sales services in the telecom industries regression analysis has been conducted by taking the post sales services as the dependent variables. However the regression analysis was performed only after the correlation was detected among the variables as shown by the Pearson correlation coefficient.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.017	.089		.186	.852
	My organisation provides services at the promised time	.092	.061	.094	1.520	.130
	Help line of my organisation can be easily accessed	.147	.050	.147	2.943	.004
	The employees respond quickly to customer requests even if busy	.681	.058	.679	11.683	.000
	The employees give individual attention to the customers	.000	.060	.000	.002	.998

a. Dependent Variable: Existence of post sales measures

Adjusted R^2 : 0.77

F statistic :0.000

D-W : 1.48

Table 8 : Regression results for existence of post sales services in the telecom sector

As the table above shows the R^2 (adjusted0 square is 0.77 which indicates that the 77 % of the change in theexplained variable is due to the change in the explanatory variable and rest due to some other factors. The F statistic is also significant at 1 %, indicating the cumulative impact of the explanatory variables on explained variable is significant.

Results from regression coefficient shows the impact of each explanatory variables on the explanatory variable and the results shows that the only two variables namely the helpline facility and the customer feedback shows significant and positive results. The coefficient of customer feedback (0.681) can be interpreted as, post-sale service improves by 0.681 if customer feedback increases by one unit Keeping other variables constant.

Conclusion: The results showed that the cost management system, technical innovation , KQI method ,economies of scale and customer feedback is proved to be the most adopted variables in the business operation ,innovation process , quality measures , cost measures and post-sale services respectively. The companies has enchance their value derivation by giving special attention to these variables.

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