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Digital Divide: Concepts and Reality in Bangladesh

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ABSTRACT

Nowadays the physical boundary, political divergence, or the ICT do not only divide the world rather by new digital yardstick as well. The new separating phenomenon or aspect known popularly as the "Digital Divide" that confronts the nations and the people. Considering the worldwide promptness for bridging the Digital –Divide of developing countries, Bangladesh lags due to lack of proper initiatives. Proper institutional and legal framework and appropriate law/act in this regard not yet prepared. Bangladesh Telecom Regulatory Commission (BTRC), the authority to oversee and control the telecom sector of the country that is necessary for ICTs deployment, is vested with contradicting power and authority. Although the progress in all ICT facilities in Bangladesh is encouraging, yet it is not that fast as that of developed countries. ICT is an important factor for development but to be available for all level people. Therefore, by adopting appropriate methodology & intense alertness, this study has been completed with a view to eliminate the Digital–Divide of the country by deploying and maintaining ICTs for all irrespective of time, distance & ability to afford.

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1. Introduction

Human communication has always been a combination of intellect and emotion – a characteristic that helps to define our shared humanity. Telecommunication is harnessing the power of technology to fulfill a human basic need for communication & International Telecommunication Union (ITU) is trying to engage all its member countries for the best utilization of this power of technology. On its course, the release of the Militant Report by ITU 29 years ago, helped the world realize that it was not right that only minority of people should enjoy the benefits of telecommunications & ICT while a majority live in comparative isolation. The salient feature of the attempts is to spot out points where development of ICTs is needed, with special attention to explore roles to be played by telecom operators & ICTs entrepreneurs of the country. The recommendations concluded from the study are the subsequent findings and conclusions drawn from an in – depth analysis of present ICT's structure, its management and existing rules, regulations, policies of Bangladesh Government & others environmental impact studied by the Researcher with a deep perception of Digital Divide concepts and visualization of present ICTs scenario of the country giving proper importance of ensuring Digital Advantages to all and explaining how ICTs can bring success in all sphere of our life- individual , national and international. Research may also consider a larger sample and different methods for statistical analysis. It may also consider macroeconomic oriented issues and their impact on the operational strategies adopted by both Public & Private ICTs Service Providers and thus their impacts on their performance. In developing countries, like Bangladesh Information Communication

Technologies (ICTs) have occupied a unique position in economy with respect to their combined contribution for poverty alleviation play a significant role for the development of our economy by creating employment opportunity and helping other sectors of the country to develop. In this age of globalization, it is essential to cope with the rest of the world by creating, processing, disseminating and using intelligence information by people from all levels of society. Only pertinent ICTs can meet the challenges in today's global market. To utilize the power of ICTs and use it effectively for social and economic development, people must change their attitudes to ICT, combine their efforts and enhance cooperation between all the stakeholders. Bangladesh is trying to be an ICT – driven nation comprising a knowledge- based society and has already adopted ICT as a priority tool to reduce existing Digital-Divide and fight hunger, malnutrition, illiteracy, discrimination against marginal groups and areas. Moreover, it suffers from structural handicaps in providing equitable and universal access to ICTs for its population. That's why initiatives that ensure both public & private participation to achieve the target & creation of a fair playing environment for all the service providers is necessary. Researchers have identified that the three distinct components in the ICTs. These are policy making, regulation, and operation in a competitive environment. Government can take up necessary steps by passing different Acts, Policies, etc. and moving forward firmly with those policies & objectives. Hence in this paper it is tried to identify what can ensure overseeing & controlling capacity for achieving ICTs facilities for all, what amendments regarding acts/laws /regulations need to deploy & how operators can support the whole activities required for bridging the digital gap in the country within a preview of ICTs.

1.1 Problem statement

This paper has chosen the followings as Statement of the Problem on the context of building an equitable Information Society in Bangladesh. "Assessing and predicting trends of development in ICTs, its impact on economy & social development for creating and maintaining an equitable Information Society in Bangladesh."

1.2 Research objective

The main objective of this study was aiming at helping the Government to establish all sorts of the Digital benefits for all the People of Bangladesh at affordable cost, within minimum distance and shortest possible time after discovering hindrances in this regard. The secondary purpose of the study covers developing concepts of Digital-Divide.

2. Literature review

Despite all utopian dreams, the Information Age has so far touched only a tiny minority of the world's population. If we define household access to the World Wide Web as a criterion for joining the Information Age, only less than 10% of the world's population of six billion had already gained access. (ITU, 2014) The question is how and whether the Information Age can improve the condition of life for the other 90%. The digital divide may exist for several reasons. Obtaining access to ICTs and using them actively has been linked to a number of demographic and socio-economic characteristics such as income, education, race, gender, geographic location, age, skills, awareness, political, cultural and psychological attitudes.(Car,2007) Multiple regression analysis across countries has shown that income levels and educational attainment are identified as providing the most powerful explanatory variables for ICT access and usage.(Hilbert,2010) Evidence was found that Caucasians are much more likely than non-Caucasians to own a computer as well as have access to the Internet in their homes. As for geographic location, people living in urban centers have more access and show more usage of computer services than those in rural areas. Gender was previously thought to provide an explanation for the digital divide, but controlled statistical analysis has shown that income, education and employment act as confounding variables and that woman with the same level of income, education, and employment embrace ICT more than men. (Rubin, 2010). Measurements for the intensity of usages of ICTs, such as incidence and frequency, vary by study. Some report usage as access to Internet and ICTs while others report usage as having previously connected to the Internet. Some studies focus on specific technologies, others on a combination. Based on different answers to the questions of who, with which kinds of characteristics, connects how and why, to what there are hundreds of alternatives ways to define the digital divide.(Hilbert,2011) "The new consensus recognizes that the key question is not how to connect people to a specific network through a specific device, but how to extend the expected gains from new ICTs".(Galperin,2010) Lack of Information (Information poverty)is the consequence of other forms of poverty, social inequalities, and inadequacy of resources, illiteracy, corruption, injustice, poor health, and lack of basic public services.

According to the National ICT Policy-2009 of Bangladesh, short-term, mid-term and long-term plans consisting of 306 action plans have been identified for the realization of Vision 2021. Elimination of the digital divide between rural and urban areas and between Bangladesh and other nations is essential to be at par with middle-income

nation. Despite mentionable achievements in the recent past, our position as providers and users of ICT services is far behind many countries. (ITU, 2014) This can be explained by the benchmarking indices of responsible international organizations like the United Nations, World Economic Forum, International Telecommunication Union, etc. This Paper tries to identify our achievements in ICT, examines hindrances, and suggests steps to be taken considering the recent advancements in ICT.

3. Conceptual frame work

3.1 Concept of ICT

The computers, telecommunications and related technologies together form "Information Communication Technology" (ICT) that is leading the world from an industrial society to an information society. ICT is a powerful force that can & must be harnessed to the need of socio-economic development of the country. Although ICT practices alone cannot guarantee economic progress, they are a powerful catalyst for economic growth, poverty reduction and social equity. ICTs allow for more efficient agricultural production, offer the possibility of delivering basic health services in areas with little or no access to health care facilities, and can extend the reach of educators allowing them to bring knowledge to the most remote corner. Information technology through establishing Universal Services makes it possible to leapfrog poor infrastructure and can also be extremely effective in improving governance.

Measuring ICT Capacities: To measure the progress and outcome of the ICT-related initiatives, ITU has devised an index to rank the countries in respect of ICT capacity. The index, known as Digital Access Index (DAI), is prepared based on the infrastructure, affordability of access knowledge, quality of ICT services and internet user penetration of a country. The digital Access Index is a vital reference for governments, international development agencies, non-governmental organizations, and the privet sectors to assess national conditions in Information and Communication Technology and overcome the digital divide particularly in developing countries. (ITU, 1997)

3.2 ICT applications

Among a lot of ICTs applications some of them are briefly illustrated below:

E-governance: Public administration can make use of **E-governance** to enhance transparency, accountability, and efficiency in the delivery of public services to citizens.

E-learning: E-learning is about development of skills to access knowledge which addresses numerous issue such as local contents, multi-lingual and cultural diversity, and intellectual property rights. The people, those still outside the reach of the formal educational system, should be offered education and information tailored to their need and culture.

E-Business: Use of digital technologies can enhance the role of enterprise in promoting entrepreneurship, the accumulation of knowledge, the upgrading of skills, fostering innovation, reducing transaction cost, and thereby increasing productivity.

E-Commerce: E-Commerce covers many forms of trade of goods and services by using the service of internet. ICT tools will make policies more accountable and transparent and enable better monitoring and control of public services and allow for greater efficiency in their delivery.

Telemedicine or E-health: The service of e-health can provide immense opportunity to the patients and the medical practitioners. Using the service of telemedicine, the patient of rural areas or in large cities, can consult with the doctors of different places of the country and beyond. The doctors, even, can upgrade their knowledge by consulting with the experts of the world and can share their knowledge and experiences among themselves. Hospital and laboratories management system can also be developed.

Multipurpose Community Telecentres: In many countries, Multipurpose Community Telecentres(MCT) proved its usefulness to connect rural and semi- rural areas effectively, where all the villages are not supplied with electricity, are not covered by telecom networks.

E-Post: It may be recommended that using a V-sat network based on solar power E-Post services in the coastal, mountainous, and other remote Upazillas, scanned letters and documents can be sent to those areas which could otherwise take more than a week to reach.

Mobile Payphone Service: Every Postman outside the city areas may be provided with a mobile payphone. Whenever he moves to Bazaars or villages and delivers letters, he will carry always his phone with him and an important letter might be promptly responded this way. The postman may get (say) Tk. 0.50 per minute as commission and will deposit the cash weekly.

Emergency Telephone Service: In all the developed and in most developing countries it always advised to carry the mobile phone along with whenever someone travels to mountain, jungles, and such other risky places. It is a regulatory obligation to facilitate Emergency Calls irrespective of the subscriber's locations.

Home Language Service: Recommendations from a recent study question in APT Study Groups have suggested implementation of such a service which can be used by foreigners/ tourists to seek for him help in his own language. Through this service a foreigner who cannot speak Bangla, who have lost his way or need to talk to an emergency service will be able to communicate with someone who speaks the same language.

Personal computer with telephone dial-in facility is still the dominant access method to internet, although broadband is gradually spreading. Mobile communications provide e-cash, e-ticket, e-retailing, & also digital access for rural women which helps them to combat with the poverty and empower in the society.

Universal Service Policy & Objectives: Universal service concept comprises nation-wide coverage, non-discriminatory access, and widespread affordability. Universal service applies to the entire population with special attention on non-discriminatory provision of service to the low-income customers, living in rural, remote, and high-cost areas. In some of the developed economics, the universal service program also caters to the needs of libraries, schools, health-care service providers and disadvantaged persons. (Ahmed, 2003)

Line of Actions for building information Society: The linkages of ICT with the Information society are now well –accepted. The term "Information Society" has increasingly been used since the early 1980s. The Information society is a society which effectively utilizes information/ knowledge and their related technologies to promote human well –being. To meet the challenges of creating an equitable Information Society based on the benefits of ICT, special attentions are to be given to different action lines like infrastructure development, capacity building, access to information and knowledge, building confidence and security, cultural diversity and identity, linguistic diversity, and local content and International and Regional Cooperation. (Ahmed, 2005)

Information Society makes extensive use of ICT - a Technology that makes life easy and comfortable. If one wants to use a technology, first he must learn it, acquire it and then the question of using comes. ICT can be looked as an Instrument or as an Industry. Unfortunately, Bangladesh emphasized on ICTs as an industry rather than engaging into using it as an instrument for development. So, Bangladesh is always seeking investment from outside rather than investing by herself. The reason behind buildup of such a mind –set can be examined.

In the world, Summit on the information society, Ex. Honorable prime Minister of Bangladesh, Begum Khaleda Zia expressed her dream to build Bangladesh as an ICT – driven nation comprising a knowledge- based society by the year 2006. The target has not been achieved. Later time was reshuffled as 2021. Thus, it may be mentioned that it is needed to strengthening & promoting private and public telecom operators as the most cost-effective and advisable means of providing ICTs facilities as well as employment and injecting dynamism into other industrial growth, both for poverty alleviation and for contribution to the GDP.

3.3 ICT policy of Bangladesh

For the development of ICT sector within the framework of overall national development, the government has approved the national ICT policy in October 2002. Considering ICT as the thrust sector the vision of this policy aimed at building an ICT-driven nation comprising of knowledge-based society by the year 2006. A national ICT task force had been formed headed by the Ex. Honorable Prime Minister Begum Khaleda Zia.

Key objective of National ICT Policy: Key objective of National ICT Policy was "*Building an ICT-driven nation comprising knowledge-based society by the year 2006".*

The supportive objectives were

- Set up a national database accessible to all peoples of the country.
- Bangladesh Telecommunication Regulatory Commission founded to regulate multi-operator environment.
- Telecommunication facilities to be made available to all segments of the society at affordable cost.

- To establish direct connectivity with international communication backbone through joining the Submarine Cable Network.
- To establish the Software Technology Park, with dedicated and advanced data communication facilities.
- To extend start -up financial support to the local hard ware & software industry.
- To achieve an annual target of 2 billion US dollars from earnings of export of software, data entry &IT enabled services by 2006.

3.4 Present status of ICTs in Bangladesh:

In Bangladesh, a large force with different levels of experts in ICI field is continuously growing. Course of computer literacy; its applications, hardware and software are being offered in different Collage and Universities, Bangladesh Computer Council, and Engineers Institutions of Bangladesh (IEB). But desired quality of these programs should be ensured and redesigned as per need of the hour. We cannot get the benefit out of the ICT if we confined our activities in large cities and districts level. BTCL has installed digital exchanges in all the districts & Upzill's in Bangladesh. Transmission links are being expanded up to all Upazillas levels and optical fiber cable is installed to distribute the facilities of ICTs all over the country. Bangladesh has already been connected to the global information superhighway through submarine cable. But due to lack of pre-planning of connectivity Bangladesh also should be able to reap benefit from submarine cable utilization. She must start developing contents and applications and find business so that the people can fully utilize the available band width. Moreover, the Government has initiated to establish *High Tech Park* with all modern infrastructural facilities. But access to the information is exclusively dependent on the combination of telecommunication infrastructure, the availability of user-end equipment and tariff of the service.

From the end of 2013 Government has been providing E-Services from all Districts. Government has also started using Union Parishads Complexes to coordinate all development activities. Besides using this complex as the office of the Union Parishads, provision have been made to accommodate Union level offices of Health and Family Welfare, Agriculture, Education, Livestock, Ansar and VDP, BRDB and LGED. Inhabitants will now come one single place and ventilate their various difficulties and problems to the concerned officials. At the same time, the elected representatives would be able to supervise the activities of various offices at the Union level and enable them to perform coordination effectively. Such a nice building may have a room allocated for providing E-services. Out of 4,496 Unions, about 100 have already been accessible through 512 kbps bandwidths provided by BTCL & them are rendering E-Services. Union level officials will also make use of the facilities to communicate and coordinate with their higher offices. Gradually rest of the Unions will also be provided with such connectivity. A project to connect 1000 Unions is going on. But ITU has been continuously pursuing its members to establish MCTs to provide various telecommunications service to the rural people. But unfortunately, instead of villages Government of our country have concentrated on Unions with a very low Bandwidth. MCT will provide the villagers to fulfill their telecommunication need. This will enable the villagers to browse Internet and use web based applications to retrieve desired information. They will use Internet to access necessary informant or update/upload any information. The center can become a nodal point to bring the rural people in touch with globe. This MCTs may be equipped with one land/WLL telephone, one mobile phone, one land /WLL telephone for dial up internet access or a radio/satellite link for broadband internet connection and one or two PCs. The *main reason behind such failure in our country is lack of initiatives, absence of suitable space, financing, and uncertainty about who will take care of the MCTs.* (Islam, 2005)

4. Methodology

For the purpose of the study secondary sources of information: the books and journals; reports published by ITU, other foreign bodies; Journals published by BCS (Telecom) Samity, Bangladesh namely Teletech and online information etc. were reviewed thoroughly. To improve the scenario the situation of ICTs in Bangladesh was explored by the researcher through brainstorming session tilted analytical frame work that follows derivation of research questions. Such derived Research questions are used to construct Investigative Questions that are questions the Researcher tried to answer to satisfactorily arrive at a conclusion about the research questions.

4.1 Research questions

- Should the existing law and regulation need to modify in favor of bridging the digital –divide?
- Should financial performance in terms of market share, profit, customer satisfaction etc. help job creativity by ICTs?
- Should external financial sources be increased for ICTs?
- Should constraints for Improvement of ICTs be reduced / eliminated?
- Should special care needs for making ease of ICTs operation & maintenance?

4.2 Sample design and data collection

The interviews were guided with a Questionnaire adapted from the literature review & subsequent brain storming session that precedes Pre-testing using a sample of 10 respondents & thus reduced the huge constructs of this study. 50 ICTs entrepreneurs randomly chosen from Dhaka City provided their impression on the ICTs development & suggestions for strengthening it. Data was gathered in a face-to-face 1/2 to 1 hours meeting with the interviewee. Before that, he contacted his target clients over the telephone.

5. Analysis and findings

The analysis of the demography of the Respondents reveals a very insignificant no. of people engaged in ICTs is female (about 8%). Employee's productivity while measuring in terms of their effectiveness & efficiency reflected very much alarming situation. The independent variables used for this purpose are Employee's co-operation in teams, knowledge of tasks & their planning and implementing capability & they measured impact on performance of ICTs as the employees' average productivity is neither favorable nor favorable. This is due to the fact that Human Resource Development /Management activities are not properly taken care of. The average score of Employee Knowledge is 3.4 with Standard deviation =0.756 shows Employee Knowledge in ICTs is below expectation. The Human Resource Management Development Index found as 4.8371. Such an almost extremely favorable average score indicates that by synchronizing with the elements of HRMD Index considered in this study, they expect a change regarding HRM scenario. To check the normality of the Distribution a Log transformation of HRMDI was made. Removal of Promotion deadlock, implementation of separate & timely chosen compensation system & strategies to fit ICTs as the best job, more training etc. got equal importance.

Regarding Employment growth, the conducted chi-square statistic shows that there is significance cause for variation in the responses and there is a large residual value in the test. This variation has practical significance because ICTs care a little for its personnel requirements & improvement. Engaging less than required manpower, promotion impasse, and no hands-on obligation for recruitment etc. are some of the underlying cause for this variation in responses.

Findings of service attitude reflected that the service attitudes of ICTs employees are almost equivalent to neither favorable nor unfavorable. Service attitudes echo current job satisfaction of ICTs' personnel. The median is 3.0 that is very close to mean score. The standard deviation is 0. 41825. Comparing average scores of different elements of job satisfaction with each other, it is found that public image of ICTs' job as deemed by employee is almost enormously high, but employees are extremely suffering from problem arisen from instability of income from their jobs. Analysis of all the elements of service attitudes call for improving the prevailing situations with a great care.

The statistics for how satisfactorily the respondents are with the Government ICTs Service focused to improve these Services urgently. The average score was found 2.8433 which are almost neither favorable nor favorable. The mean & mode being very close to each other (2.8433 & 2.83 respectively) support almost all the respondents responding with the same score. But when rudiments of this service offered by ICTS are plotted with their average scores almost all of them depict deplorable scenario. That implies that ICTs must make a complete change in its customer services by improving customers' attitudes.

When requested the respondents to quote a list of major Responsibilities/ roles /activities which should be done by the Government in the increasingly changing environment, most of them mentioned National Backbone Network, Connections of Government Organizations, International /Overseas Infrastructure, Up to Village Broadband Connections must be maintained by herself.

Besides the above statistics, by analyzing the Research Questions an attempt is also made below to help understanding the necessary steps need to undertake by the competent Authority of ICTs in Bangladesh.

Correlations

		Internal_ External_ more_ Financing	Employment growth per year
Internal_External_ more_Financing	Pearson Correlation	1	.101
	Sig. (2-tailed)	.	.485
	N	50	50
Employment growth per year	Pearson Correlation	.101	1
	Sig. (2-tailed)	.485	.
	N	50	50

The answer to the question *"Should External Financial Sources be increased for ICTs?"* is provided through the Bivariate Correlation Analysis between External Internal Financing & employment growth in ICTs. It shows the

linear association between them as the Pearson correlation coefficients that result from these two variables is positive.

Although the correlation reported in the table is positive, it is not significantly different from 0 because the p-value of 0.485 is greater than 0.10. This suggests that External Internal Financing should be focused in efforts on making more employment growth because there is an appreciable effect of it on growth of ICTs.

Moreover, when requested to offer some suggestions in Open Ended Question to improve the present scenario of ICTs of Bangladesh, the respondents spontaneously put forth a good number of suggestions. Counting them reveal that both external & internal financing along with employees training, Upazillas/ Union projects for ICTs received attentions of all the 50 respondents. Responses of Establishment of Telecentres in all Union Parishads, Quick project Implementation & more rewards are 44, 46 & 40 respectively.

To investigate *"Should the existing Rural Telecom Infrastructure need to modify in favor of ICTs?"* the respondents were asked – "Are Network / Infrastructure of BTCL sufficient for providing full supports on ICTs deployment in the country?". In the Telecom Act 2001, the responsibility of deploying Infrastructural Support for ICTs throughout the whole country is vested upon BTCL, but with no adequate financial & administrative power. Hence in this study when asked the respondents about network sufficiency, they responded in a way that indicates a difference in the opinions. So, chi-square measures test was conducted with the hypothesis that the row and column variables in the cross tabulation are independent. The test shows no clear indication about the null hypothesis. Then changing the cross tabulation, significance values of the test for both the groups are found 0.032 & 0.026 respectively that helped to conclude that the relationship observed in the cross tabulation is real and not due to chance and hence responses reflect true scenario. Thus, it may be considered that Infrastructural Capacity of Telecom Network needs to enhance. The average response scores 1.54 also mean those respondents suppose that Infrastructural Capacity of Telecom Network is insufficient to support needed ICTs support. The 27 respondents out of 50, quoting network insufficiency suggested some measures to be deployed in rural areas. Among them are extending Infrastructural Supports up to all Upazillas/Unions by more financing from external sources.

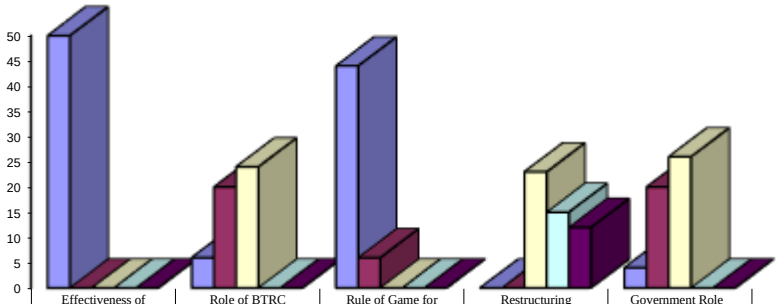
Sufficiency of the Effectiveness of Telecom Act, Role of BTRC, and Rule of Game for Operators, Restructuring BTCL, and Government Role for Supporting ICTs Development are the variables that are used to answer "*Should the existing Law & Regulation need to modify in favor of ICTs?'.'* Running chi-square test the Researcher get the differences in responses that are due to chance variation, which implies that each Unit /category offers the same level of responses. Sufficiency of the Effectiveness of Telecom Act, Role of BTRC, and Rule of Game for Operators, and Increasing Government Role for Supporting ICTs Development are to be considered with due importance to ensure sufficiency of Legal framework and other necessary supports in this sector. The corresponding responses along with a graph are shown below that describes:

- Telecom Act met only few requirements; average score 1; Mean, median & mode are equal,
- Role of BTRC: Mean score 2.36, needs to make its role more effective,
- Rule of Game for Operator, Mean score 1.12, means an essential requirement of establishing fair play for all Operators,
- Restructuring BTTB, Mean score 3.78 i.e., restructuring BTCL is highly expected,
- Government Role for Supporting ICTs Development, Mean score 3, which indicates Government Role must be strengthen for ICTs development in the country.

It was found that the above scores are statically acceptable.

Job creativity by ICTs is considered as variable 'contribution increasing' & to answer *"Should financial performance in terms of services, profit, customer satisfaction etc. help job creativity by ICTs?"* its Multiple Regression is performed by using following predictors.

Predictors: (Constant), Profitability, Competitiveness,



	Effectiveness of Telecom Act/Law	Role of BTRC	Rule of Game for Operators	Restructuring BTCL	Government Role for Supporting ICTs Development
Met few	50	6	44	0	4
Met some	0	20	6	0	20
Met most Expectation	0	24	0	23	26
Met All	0	0	0	15	0
Met Exceeded	0	0	0	12	0

Exhibit 4: Sufficiency of frameworks

Employment growth per year, services _ICTs

Dependent Variable: Contribution increasing.
The test statistics in Exhibit 5 shows the Regression Equation as Contribution increasing = .17 + 0.72 (Services _ICTs) + 0.98 (Competitiveness) + 0.02 (Employment growth per year) +0.01 (Profitability).

As VIF is less than 10, Multilinearity is not a problem for variables in this analysis. Adjusted R square values change is 0.121 to reflect the model goodness of fit for population.

Exhibit 5: Statistics & testing job creativity by ICTs

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.348[a]	.121	.043	.296	.121	1.549	4	45	.204

a. Predictors: (Constant), Employment growth per year, Service _ICTs, Profitability, Competitiveness

b. Dependent Variable: Contribution increasing

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.544	4	.136	1.549	.204 [a]
	Residual	3.956	45	.088		
	Total	4.500	49			

a. Predictors: (Constant), Profitability, Competitiveness, Employment growth per year, Services _ICTs

b. Dependent Variable: Contribution increasing

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	Services_ICT	Competitiveness	Employment growth per year	Profitability
1	1	4.789	1.000	.00	.00	.00	.01	.00
	2	.134	5.976	.00	.00	.00	.71	.18
	3	.071	8.213	.00	.01	.00	.21	.66
	4	.004	33.375	.82	.27	.01	.05	.15
	5	.002	53.396	.17	.72	.98	.02	.01

a. Dependent Variable: Contribution increasing

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.68	2.15	1.90	.105	50
Residual	-.888	.318	.000	.284	50
Std. Predicted Value	-2.072	2.405	.000	1.000	50
Std. Residual	-2.995	1.074	.000	.958	50

a. Dependent Variable: Contribution_increasing

While analyzing *"Should Pay Structure in ICTs follow a standard for Job satisfaction?"* findings against the service attitudes, Productivities of employee, Attitude towards Human Resource Management, customer satisfaction, reward system etc. justify that Pay Structure in ICTs does not meet the necessary requirements to maintain superior services to customers. Thus, it should follow a comparable pay structure that will create job satisfaction to its employees and at the same time help achieving superior financial performance that is urgently needed to perform social & financial responsibility to all its Stakeholders.

The Improvement of ICTs was understood by responses against *"Should constraints for Improvement of ICTs be eliminated/ reduced?"* & exploration of the situation that mostly depends on Sufficiency of the Effectiveness of Telecom Act, Interactive Role of BTRC, and Equitable Rule of Game for Operators, Restructuring Government ICTs Operators with full Financial & Administrative Autonomy, and Government's Role for Supporting ICTs Development in the country. The Rate of Return in ICTs in the form of profitability is considered here as growth potential. If we consider the present trends & need of ICTs to be deployed throughout the world to make the world a DIGITAL HOME, then the variables mentioned above suggest that constraints for improvement of ICTs be reduced / eliminated in our country, otherwise the rest of the world will lag us. The mean score of profitability of ICTs Sector is 1.78 which is 35.6 %. This value matches well with historical data. Data shows the values of Std. Deviation (0.582), Standard error of Skewness (0.337), Standard error of Kurtosis (-0.274) fall within the acceptable range required for normal distribution. Using One Sample T Test to determine whether the mean profitability sample significantly differ from on the average 35 % profitability based on historical data, the writer get confidence intervals lie entirely above 0.0 for Test value = 1.5 and below 0.0 for test value=2 that helps to safely say that average profitability in telecom sector is between 30% and 40% that are significantly wider than on the average 35% profitability found in historical data.

Answering *"Should special care needs for making ease of ICTs Operation & Maintenance?"* helps us what should be Role of ICTs Operators in the process of creating equitable information Society. When asked to facilitate access to ICT at any time anywhere with affordable cost by every people of the country what steps should be taken by different ICTs Operators of the country, the respondents put forward a good nos. of suggestions. Among them creation of Universal Service Obligation Fund by all operators for extending facilities in low return areas has drawn the highest priority to be adopted by all ICTs Providers of the country. Matched efforts by all Operators get the 2nd highest. Provision of Adequate numbers, Reducing Drop call, Equitable Rules of Game, Customer Peace of Mind Policy, Ensuring Connectivity, improving service etc. are amongst the few of the rest.

6. Conclusion

Searching Strategy for how the situation can be improved showed a multitude of remedies. Taking the best advantages from latest Information Technologies; using the existing Infrastructures by managing most suitable and Technically wise-to-use state; Executing more Operation and Development work in a competitive environment already created in ICTs; Ensuring right people in right place by removing obstacles regarding recruitment, promotion and transfer ; receiving & solving service complaints in a Digitally enabled environment throughout the country etc. are the most important ends that can provide and maintain Competitive Advantages that is necessary for its superior financial performance in business.

The Government and service providers must encourage grass-root approaches for apply technology allowing affordable user access to prove that digital divide can be narrowed with simple, practical, common sense projects. Phone Lady by Grameen Phone, PCO/OTD service center by BTCL, Rickshaw phone PCO and internet service, mobile internet kiosk and cyber café are only a few of the examples of providing door to door service. Government need to patronize locally developed software through incentives, establish more IT parks ensuring private sector participation, train more IT teachers, and standardize IT education both vocational & academic. As a significant step, Bangladesh has joined a consortium of 12 countries to get connected with the Global Information Super Highway through the submarine cable, SE-ME-WE-4. BTCL is also augmenting its national Backbone network through optical fiber and high capacity digital Microwave links almost up to all Upazillas. Bangladesh along with her SAARC partners can launch initiatives to establish a network of Multipurpose Community Telecentres (MCT) to be managed by marginalized population specially women in this region. Moreover, Bangladesh, a large country in terms of population with very low availability of phones has vast potential for investment in ICTs related activities as investment in these realize quick and huge returns. With short and long term HRD targets and concrete milestones aiming at relatively well-educated and cheap labor pool, the country can compete in the multi-billion-dollar outsourcing ICTs market if access to ICT facilities is universal, reliable, and affordable. However, to realize the objectives of Universal Access obligation to connect "all the people to communicate" special efforts are required in the areas of telecom infrastructure, Human Resource Development, public awareness, and other areas to enable all people to take advantage of the opportunities that arise. There is a clear need to associate the Government, international and regional organizations, the private sector, and entrepreneur groups in this process.

7. Recommendations

The recommendations that result from this study are to add the following topics to growth strategy in both Tangible & Intangible Infrastructural Support for enhancing ICTs facilities throughout the Country:

- Value of ICTs in GDP ameliorative Program, Poverty Alleviation, job creation & Human Resource Development Programs of the Country

- Ensuring huge Investment in ICTs to facilitate creation of an equitable Information Society in Bangladesh & save a reasonable amount of foreign currency
- Modification of existing Telecom rules/regulation/policy/ law under the guide line of ITU through removing contradictory / confusing clauses in favor of public Interest
- Value of Bangladesh Telecom Regulatory Commissions (BTRC) to make it interactive, efficient & effective
- Incorporating all ICTs operators and ISPs of the country for maximum utilization of Submarine Cable Connectivity through sale/ lease of capacity /IPLC
- Best utilization of ICTs resources available throughout the country
- Both Government subsidies & External financial sources be increased for ICTs
- Ensuring Concerted Efforts by All the Telecom Operators of the Country for Improving ICTs Service & Connectivity:
- Extended ICTs infrastructure in Rural & Disadvantaged Area and Ensuring Worldwide Connectivity
- Favorable & Relevant Telecommunication Laws & Policies for ICTs Development
- ICT- based educational curriculum & Professionals
- Improving ICTs Facilities in the country & Creating ICTs Awareness among People
- Active Participation of all the Stakeholders and International & Regional Cooperation for ICTs

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