E-services analysis of Union Digital Center (UDC) in Bangladesh: A Digital Divide perspective

Mst. Sahiba Mahbub[1]

Abstract: In the modern era we always try to utilize our time more efficiently by minimizing the transaction cost. Nowadays it's not a common scenario in Bangladesh to wait in a long line for submitting a form for admission or job, and payments for utility services. Rather people from remote area do it in online with the help of Union Digital Centers (UDC). Bangladesh government has initiated this project to minimize hierarchy and hazards in traditional administrative procedure. We choose twenty-seven UDCs and fifty respondents purposively for this study. As per theoretical framework and previous literatures there should be a combination of some factors like infrastructure, individual conversion factors, capability set, and choice to successfully complete a task. In this present research, researchers analyzed data through stata software. From empirical results of Multiple Linear Regression, we came to know that infrastructures and training of service providers positive impact on the number of services provided by UDCs. It means the number of services increased with the increase of infrastructures, for example, rooms, printers, computers. Furthermore, the more trainings of service providers encourage the number of services. In some case, we found that despite having good training skills some service providers cannot fulfill the capability set because of low infrastructure facility. On the other hand, service providers have some other jobs reasonably they are less available in UDCs. Moreover, low level of literacy of service receivers also creates hamper in the effectiveness of UDCs in providing services.

Keywords: Digital Divide, Digital administration, Bangladesh, Union Parishad, Capability set

1. Introduction

Digitalizing the managerial procedure is the center convergence of present world just as Bangladesh government. With the resurgence of Awami Leauge government in the time of 2008, their center fixation is to build up the data innovation to improve the administrations given by them. Moreover, the present government is endeavoring to make the resident investment simpler for every single native of Bangladesh. Execution of Union Information Service Center (UISC) is one of the ongoing activities of the legislature to support the cooperation of country individuals in the administration of the legislature. Besides, Government wanted to give the entryway step administrations to the majority of the natives in regards to recognized administrations. Thusly, in the time of 2010, the majority of the Union Parishads of Bangladesh embraced the Digital Center for them. By the by, after the usage of UISC, it's fundamental to know the current circumstance and impact of some computerized partition too. There are a few sorts of computerized isolates in Bangladesh for instance: not having the infrastructural benefits, salary, instruction, preparing and so on. The present research is on investigating the specialist of advanced gap to distinguish the idea of usage of UISC in Bangladesh.

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[1] Associate Professor, Department of Public Administration, Jahangirnagar University, Dhaka, Bangladesh. Email: sahiba@juniv.edu

2. Review of literatures

The term digital divide comprises of race, class and sex. In this investigation author gathered hypothetical foundation of advanced partition. Monroe varies with the thoughts of Cooper and Weaver. They verbalized new and inventive types of advanced partition like Gender division in PC class, stereotyping conduct. They gathered an answer for the issue of computerized partition with the use of single-sex school and study hall. Advanced Separation is beyond the race, class and sex. It additionally aggregates poverty and power. Arrangements of this issue may be the foundation of e-government, majority rules system, deliberations and denizenship. Besides, to improve the interest of most extreme residents' e-popular government and e-casting a ballot system may be connected.

Digital Divide isn't just about having PCs in the home or office. It is tied in with having appropriate IT preparing and information about innovation. Following appropriate definition in regards to the issue make it simple to have a legitimate arrangement. Servon showed preparing and IT learning as the primary issue of computerized separation and prescribed to plan arrangements to kill this issue. Contextual investigations from various developing nations clear up the meaning of Digital separation. With this examination a few approach activities may be embrace in Bangladesh. Leigh, 2011 examined about advanced gap in certain nations. Strategy zones have additionally talked about by the creator.

Table 1: Summary of existing theories of some related research

Author	Variables	Unit of analysis	Findings
Arikpo, Iwara I and Osofisan, Adenike (2009)	Education, research and development (dependent variable) Policies related to telecommunication are (Independent variable)	Policies by Nigerian government and other agencies to bridge digital divide	Funding in ICT is satisfactory but Nigeria is not still connected strongly with global village because of lack in strategy and critical drive
Lenhart & Horrigan (2003)	Nature of digital divide and its influence in online service mechanism	Races in America	Some people avoid their private access for online service. Moreover, some public service delivery access point may build up to ensure online access.
Donnermeyer & Hollifield 2003	Rural communities and usage of telecommunication and other advanced technology	Four rural communities from Nebraska and Wisconsin	Digital divide on the basis of place influence awareness, knowledge and eventual adoption of information technology
Haan, 2004	Multidimensional concept of digital divide i.e. motivation, possession, digital skills and use	Theoretical-empirical research at the program on IT and Society of the Social and Cultural Planning Office in The Netherlands	People having greater access to technology has the competitive advantage
AL-Rababah & Abu-Shanab (2010)	Women empowerment by ICT project for minimizing digital divide	Fifty women completed ICT project in Jordan	e-government projects were not successful enough for reducing digital divide

There is a positive connection between computerized partition and law (Kariyawasam, 2007). Author distinguishes some particular arrangement fixation territory by recommending innovation and some other monetary law. E-administration needs to receive inside four stages those are nearness, association, exchange and change (Garson, 2006). Among the dreams of e-administration computerized partition idea has planned as an issue of setting up system society.

Digital Divide idea rose with the "System Society" vision of e-administration from 1997 (Garson, 2006). This idea is about division regarding innovation. This division may happen based on age, area, sex, and so on. Past this Stereotyping, control Poverty, Have-nots, Want-not's considered as the type of computerized isolate.

3. Theoretical and conceptual framework:

David Garson aggregated components and condition inside a network. In the event that we think about the UISC under the framework, at that point we can say this may fall under the Reinforcement hypothesis and Socio specialized hypothesis. These two speculations consolidate human and innovative factor however underline on Human factor most.
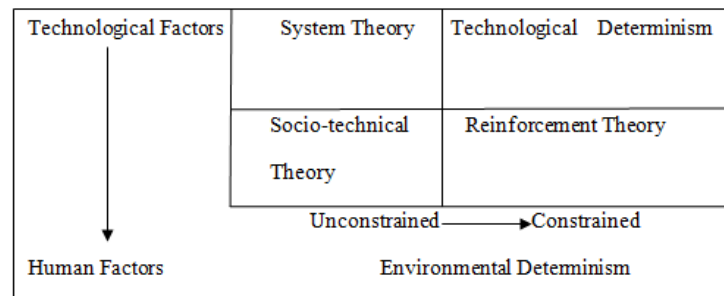

Figure 1: Factor-Environment Matrix (Garson, 2006)

The above Matrix demonstrates impact of innovation and human factor more than four individual hypotheses (framework hypothesis, mechanical determinism, socio-specialized hypothesis, and fortification hypothesis) of e-administration. Execution of UISC is the target of Bangladesh government to quicken the e-administration wonder by guaranteeing the administrations increasingly available for individuals. Be that as it may, execution of this middle guarantees appropriate stream of innovation utilization contrasting and the created nations and breaks the frameworks hypothesis for example compelled data with top or urban region too.

Besides, both mechanical and human variables impact Union Information Service Center to give structured administrations. Each administration focus has two business visionaries; we can consider them the human factor notwithstanding this there are some mechanical factors additionally, for example, for example PCs, room, modem, printer, photocopy, camera, Laminating and so forth.

The Noble Laureate economist Amartya Sen demonstrated a compelling method to lessen computerized isolate factor to actualize open arrangements worried about data innovation. Also, he examined some key components; Infrastructure, singular change

factor, capability sets, decision and accomplished working to characterize the idea digital divide. Moreover, The UN Human Development Index concerns these variables to quantify the idea of Digital divide on the planet. Sen's capacity approach expands the idea of digital divide from the one-dimensional idea to multidimensional idea (Veit and Huntgeburth, 2014). Already computerized separation was characterized from the perspective of having the specific foundation yet in all actuality having a framework i.e.; a having a personal computer does not imply that the proprietor knows the activity of that PC. Be that as it may, computerized isolate is a more extensive idea ascertaining a few components whether the proprietor has the ability set to work specific foundation or not.

UDCs generally offered three sorts of administrations; taxpayer supported organizations, data administrations and Commercial services. Taxpayer driven organizations: like Online Birth Registration, diverse sorts of government frames, government fliers and notification, online college confirmation, examination results, populace enumeration information section, citizenship endorsement, resident sanction of Union Parishad. Data Services: like Agriculture, wellbeing, instruction, law and human Rights, the travel industry, condition and calamity the executives, science and innovation, industry and business and work. All these vocation data are given by National e-Tathyakosh (National e-Content Repository) which has on the web (www.infokosh.bangladesh.gov.bd) and disconnected (CD) form. Commercial services: like m-Banking, life coverage, English learning, PC preparing, web perusing, email, printing, filtering, create, photocopy, overlaying, information section, photography, telephone call, flexi load, versatile ringtone download, video appear, video gathering, projector lease, international ID and visa handling, tallness and weight estimation, circulatory strain estimation, soil test, arsenic test and so forth. The hierarchy of Union Information Service Center is following:

Hierarchy Level 1	Union Parishad Chairman
Hierarchy Level 2	Secretary
Hierarchy Level 3	Entrepreneurs

Figure 2: Composition of Union Information Centre in Bangladesh

Source: Field survey by Author

Between the two ideas Digital Divide is the free factor and UISC is the Dependent variable. Digital Divide is the independent variable for this research. In addition, the capacity set of Amartya Sen is the particular quantifiable factor for this examination. Following outline expounds five parts of computerized separate.

Infrastructure: While estimating the idea of execution of Union Information Service Center in Bangladesh a few foundations for example space for focus, PC, modem, printer, photocopy machine, projector, and scanner.

Individual Conversion Factor: Assigned people explicitly entrepreneurs ought to be physically skilled for giving administrations. Besides, legislature of Bangladesh gives experts to named business visionaries to give specific administrations.

Capability set: Appointed entrepreneurs ought to have the capacity set for example having preparing with respect to Personal Computer working framework and some related subjects.

Choice: The allotted volunteers expected to give any kind of expected administrations to the residents. Business visionaries were posed inquiries like they can give all sort of administrations by the person in question, also in the event that fall in any sort of issues, at that point who causes them most.

Dependent Variable: Total services provided by the Union Service Centre. Service Centre is supposed to provide several online services. The present research articulates the nature of services of twenty seven union information service centres's provided service in the month of October 2015.

4. Methods and Methodology:

The present research is a blended of qualitative and quantitative strategy. Optional sources are journals, book, explore paper and so forth. Essential information depends on the study information gathered with a brought together survey. Some kind of explicit systems are following:

Sampling strategy: Testing strategy has been chosen for this exploration is purposive examining. Purposive inspecting technique has been connected to set the territory of information gathering. For this time being one district has been chosen based on accessibility and availability of information.

Area of information gathering: Among sixty four districts of Bangladesh Pabna district has been chosen for gathering information based on simpler accessibility of information. This region arranged in the northern piece of Bangladesh. Twenty seven Union Parishads were chosen purposively attributable to the availability of respondents.

Method of information accumulation: Study poll was created to gather the essential information for the examination. Notwithstanding, survey comprise some lattice, possibility, open finished and shut finished inquiries. Absolute number of respondents for this investigation is fifty.

Multiple Linear Regressions: Various relapse investigations allow the estimation of the level of connection between an independent variable and at least two free factors considered all the while. So as to do this examination, one regression equation has been formulated on the premise on our hypothetical desires thinking about that the independent variable influences the dependent variable in a simultaneous way significantly (Sarantakos, 1998).

$$No.\ of\ Services_i = \beta_0 + \beta_1 income_i + \beta_2 room_i + \beta_3 computer_i + \beta_4 modem_i + B_5 printer_i +$$

$$\beta_6 photocopier_i + \beta_7 projector_i + \beta_8 scanner_i + \beta_9 infrastructure_i$$

Here i denote the observations. We have quantified our qualitative primary data which have been collected from field survey in the year of 2017 from 27 Union Information Service Centers (UISC). Fifty respondents were observations for this study. All of them are customers of the UDCs.

5. Findings and discussion

Table 2 shows impact of all independent variables to the dependent variable Number of services. All of the independent variables are factors which are defining advanced separation or digital divide. As per the conceptual framework these variables also indicates that there are impacts of usages of infrastructures.

Income of entrepreneurs has positive and significant impact on number of services provided by UISCs. If they get more remuneration they get motivated to spend more time in centers. On the other hand education has negative impact on the number of services. That means if the service provider has more education then number of services are low.

Computer and Modem: Computer and Modem have highly significant impact on the independent variable number of services. Because the nature of services are filling up online job forms, communicating with foreign repatriates etc. All most all of the services need computer and modem.

Table 2: Summary of regression result

Variables	(1)	(2)	(3)
	No. of services	No. of services	No. of services
Income	0.154		0.158
	(1.76) *		(2.15)**
Room	-1.191	-1.253	
	(0.83)	(0.98)	
No. of computer	0.315	0.430	0.374
	(1.00)	(2.90)***	(2.54)**
No. modem	1.097	1.231	0.872
	(2.21)**	(2.78)***	(2.26)**
No. Printer	-0.376	-0.185	
	(1.07)	(1.15)	
No. photocopier	0.219		
	(0.17)		
No. projector	-0.487		
	(0.17)		
No. scanner	0.429		
	(0.14)		
Training of entrepreneurs	0.488	0.275	
	(1.17)	(0.88)	
Infrastructure	0.425	0.459	0.190
	(1.10)	(1.41)*	(0.65)
Constant	0.350	-0.740	1.053
	(0.15)	(0.38)	(0.67)
Observations	50	50	50
R-squared	0.50	0.42	0.46
Absolute value of t statistics in parentheses			

* Significant at 10%, ** significant at 5%; *** significant at 1%

Source: Data analysis by author

Infrastructures: On the other hand numbers of infrastructures also have positive impacts on number of services. Various types of infrastructures are required for providing large number of services from kiosks. In separate analysis we can also find in table 2 that these variables also have positive impact.

Training of entrepreneurs: We considered this variable as an independent variable and find that this one also has positive impact on number of services. There are many kinds of training programs provided by the Union Parishads. Table 3 shows the nature of services provided by UDCs. To provide these types of services only basic training programs are needed. But the original provisions of UDCs have more expectations and a long list of services.

According to Bakshi, Rezaul Karim (2017) there is some other destined services for Union Digital Centers like, land registrations, agriculture information (fertilization, harvesting, etc), online utility service payments etc. But these types of services are hardly provided by online kiosks. Theories and literatures revealed that there should be a combination of four sets (infrastructure, individual conversion factors, capability set and choice). From the empirical study we found that infrastructures are very significant for UDCs. On the other hand training of entrepreneurs has positive but not very significant impact on number of services. There are some other factors related which has been revealed through our study. We found that in some UDCs if entrepreneurs are trained up with much training still they cannot provide more services because of some other reasons likewise doing some other jobs or the number of infrastructures are very, the room for UDC has been occupied by Union Parishad office.

Table 3: Type of services provided by UDCs

Services
Public exam results
Government forms download
Birth and death registration
Online university admission
Data Entry
VGD/VGF card database
Livelihood information
Employment information
Visa processing /visa form printing
E-mail and Internet browsing
Computer Training
Video conferencing
Mobile Banking
British Council's English Learning
Photocopying/Scanning/Photo/Mobile phone services

Source: Field survey in 2017

Overall status of the Union Digital Centers is in a satisfactory position in Bangladesh. From the field survey, while talking with secretary of Union Parishad we came to know that people of rural area can even get access to the basic internet facility nowadays. Service holders also opined that they are moderately satisfied about the provided services.

6. Conclusion

According to David Garson "Technological determinism" is such a factor that we cannot bind. In this globalized era it is obvious for every nation to be connected with technology. As technology can make our daily life very easy so we should utilize this opportunity. Bangladesh government took a very good initiative to digitalize the administrative procedures. Establishment of UDCs is the most initial project of Bangladesh government to provide some designated services to the door step of people. As per the field study we can say that this strategy of Bangladesh government is getting success day by day. To make it more efficient we can recommend that this project needs more infrastructures, monitoring of the utilization of those infrastructure provided, expanding the area of services provided etc.

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