# Union Digital Centre, a Step towards Digital Bangladesh:

# Has it Got Institutional Roots?

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THIS WORK IS DEDICATED

TO MY PARENTS

# Declaration

I declare that the thesis entitled "Union Digital Centre, a Step towards Digital Bangladesh: Has it Got Institutional Roots?" submitted to the PPG Program of North South University, Dhaka, Bangladesh for the Degree of Master in Public Policy and Governance (MPPG) is an original work of mine. No part of it, in any form, has been copied from other sources without acknowledgement or submitted to any other university or institute for any degree or diploma. Views and expressions of the thesis bear the responsibility of mine with the exclusion of PPG for any errors and omissions to it.

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# Abstract

The telecenter movement is gaining momentum in the developing world as governments and donor agencies turn their attention to the digital divide. Telecenters are seen as community resources that offer access to information and communication technologies for inducing development among marginalized populations. By realizing the importance of telecenter to include marginalized people in the country's main development track, telecenter called Union Digital Centers (UDCs) which were previously known as Union Information and Service Centers (UISCs) have been established by the Government of the People's Republic of Bangladesh in all over the country. UDCs began operations in 2009 in 30 Union Parishads through partnership between Local Government Division and the Access to Information (A2I) program under the Prime Minister's Office.

UDCs are one-stop service outlets presently operating at all 4,547 Union Parishads of the country. Through use of information and communication technologies, UDCs are able to bring various types of information related to government, livelihood and private services to the doorsteps of citizens in rural areas. It ensures service providers and users to save time, cost and has made operations hassle free. Operating under the Public-Private-People's Partnership modality, these centers are run by local entrepreneurs, hosted by Union Parishad and supported by Central Administration.

Whilst promising outcomes are emerging by establishing direct links between citizens and the government and by creating trust, solidarity and reciprocity, UDCs are still supported by the governmental agencies. Stakeholders and observers frequently question the sustainability of these UDCs especially those in rural areas where telecommunications and electricity are problematic. This research makes an effort to examine whether the UDCs got institutional roots or not to be sustained for a long run. Here it has attempt to find out the factors having influence on the sustainability of UDCs also with finding the challenges and the possible remedies for ensuring sustainability.

This research used both quantitative and qualitative methods. A questionnaire survey has been conducted among the Service Receivers and Service Providers. Besides, the researcher administered some in depth interviews among some UDC Managerial Staffs like Additional Deputy Commissioner of Information and Communication Technology- ADC (ICT), Assistant Commissioner of Information and Communication Technology-AC (ICT), Upazilla Nirbahi Officer (UNO), Union Parishad Chairman (UP Chairman) and Service Providers. Both primary and secondary sources of data with research's practical observation have been used for further analysis and inferences.

To carry out the research, Entrepreneur's Qualifications, Infrastructure, Location and Government Intervention have been considered as explanatory variables to measure its effect on Sustainability of UDCs which has been considered as dependent variable. In the final analysis, the research has observed that maximum of the surveyed UDCs are not financially viable. Only citizens living close by the UDCs are coming frequently for different services but citizens living far from UDCs are considering these centers as government certificate distribution centers. Having high potentiality UDC's sustainability issues are affecting by various factors like Entrepreneur's Qualification such as professionalism and technical skill, Infrastructure such as electricity and internet, Location such as accessibility and availability of needed services and Government Intervention such as governmental support and political will. Here Government Intervention is more prominent to keep UDCs sustainable as the existence of UDC itself depends on Government support. Conclusion indicates that sustainability for development oriented UDCs appear possible under specified conditions.

***Key-words:*** *sustainability, viability, user acceptance, e-service, Union Digital Center*

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# List of Abbreviation

| | |
|---|---|
| **A2I** | **Access to Information** |
| **DC** | **Deputy Commissioner** |
| **ADC** | **Additional Deputy Commissioner** |
| **AC** | **Assistant Commissioner** |
| **BBS** | **Bangladesh Bureau of Statistics** |
| **ICT** | **Information and Communication Technology** |
| **UNO** | **Upazila Nirbahi Officer** |
| **UDC** | **Union Digital Centre** |
| **UP** | **Union Parisad** |

# Chapter 1

## Introduction

### 1. 1 Introduction

Information and Communication Technologies (ICTs) have been changing the way people live in today's world in an unprecedented way as a digital revolution is taking place with dramatic influences in both developed and developing world. ICT is now considered as a driving factor of economic growth in most of the developed and developing countries (Farhadi, Ismail and Fooladi, 2012).

Bangladesh, which is a lower middle income and agrarian based developing country with a huge population, is still locked in socio-economic underdevelopment especially those who are living in the rural areas. Most of our population is living in rural areas and so the development of the country cannot be fully achieved without the development of the rural community who constitute majority of the population (Bell, 1979).

As ICT is the main driving force in today's world and hence development without covering rural community is meaningless, the Government of the People's Republic of Bangladesh undertook a project to alter Bangladesh into a 'Digital Bangladesh' by the year 2021. The main purpose of this project is to provide government services at the doorsteps of the rural grass roots people. For this purpose, from November 11, 2009, Union Information and Service Centers (UISCs) currently known as Union Digital Centers (UDCs) were inaugurated in all unions across the country to provide information and convey government services to all citizens and ultimately to fulfill the desire of 'Digital Bangladesh'. These service centers were established by the Local Government Division of the Government with the help of Access to Information (A2I) program, which is directly operated and controlled by the Prime Minister's office.

The UDCs are publicly owned, but privately run one-stop information and service delivery centers which are catering huge number of information and government

services to rural communities. In each UDC, there are two entrepreneurs who are also known as Service Providers, one of whom is male and another is female appointed by the Local Administration in a contractual basis. Bangladesh Computer Council (BCC)[1] appoints Assistant Programmers to assist the activities of UDCs in every office of the Deputy Commissioner (DC)[2] and gave training to the entrepreneurs with the help of A2I program and Deputy Commissioner's office. The UDCs are equipped with computers, web cam, projector and wireless internet, which are primarily given by A2I and BCC. The whole activities of the centers are monitored by the District Administration under the direct supervision of the Additional Deputy Commissioner[3] (General/ICT) who is known as District Focal Point.

Access to Information (A2I) states that the prime aim of building UDCs is increased interactions between Government and mass people for efficient and quality service delivery and to elevate greater public voice of governmental activities with enhanced transparency and accountability of the government, enabling poverty alleviation initiatives, creating business opportunities for the private enterprises. This will ultimately decrease digital divide and ensure participation of the underprivileged, women and marginalized people in the provision of information and services to connect them to the information superhighways (2012).

Since Union Parishads (UPs) are the lowest tiers of local government bodies in Bangladesh, establishing UDCs at each UP has created reachable facilities for public service delivery for the substantial percentage of country's population.  Because of the presence of effective service delivery system now a citizen has to go neither long distance nor depend on market intermediaries to get public information and services to which they are entitled as per the report of the Bangladesh Bureau of Statistics (BBS) in 2016.

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[1] A statutory body under the Ministry of Posts, Telecommunications and Information Technology, Bangladesh. The main activities are encouraging and providing support for ICT related activities, formulating national ICT strategy and policy, creating standards and specifications of ICT tools for government organizations according to their necessity and working for human resource development.

[2] Main coordinating office in the District of Bangladesh and DC is the main coordinating officer.

[3] Next to DC in the Office of the Deputy Commissioner who works on behalf of DC.

On the whole, the UDCs are serving dramatically by delivering services to citizen's doorsteps and performing as a landmark towards achieving the goals of 'Digital Bangladesh'. The UDCs have enabled rural people to access needed information and essential services in rapid, cost effective and simple ways. Simply these are playing important roles in bridging the digital divide and giving the benefits of ICTs at the hand of rural communities. As the final source of information and service delivery, the scenario of UDCs to perform as the facilitating contrivance for ensuring sustainable development would be unparallel (Rahman, 2016). Thus by identifying the factors affecting its sustainability for timely support and proper direction are essential for the long term sustainability and effective functioning of UDCs. This is what this research endeavors to do.

## 1.2 Statement of the Problem

As in traditional system of service delivery all kinds of governmental services are provided manually, it is very expensive. In the past, most of our rural people did not get proper services in proper time due to this traditional service delivery system and they had to suffer a lot for getting government service in due time. In this process, as they go to the district headquarter for getting services and desired information regarding services, they have to pay more than the actual cost of services. At the same time, they have to put more physical labor in getting services or information. That is why the UDCs have been established to minimize rural people's time, cost and labor for getting services and information and at the same time to fulfill the desire of 'Digital Bangladesh'.

UDCs are PPPP (Public-Private-People's Partnership)[4] modeled telecenters as part of taking steps to decrease digital divide and increase public e-service delivery efficiency. In addition, these centers are also intended to distribute socio-economic remuneration to country and include them in the progression of conversion of Bangladesh into 'Digital Bangladesh'. These service delivery points are working as the

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[4] A model of cooperation among private, Government bodies and common people. The main thought of modality is very much people oriented. UDCs are people oriented approach, where all the stakeholders Government, Donor or private agency and villagers must work together to be successful.

crucial spots of service delivery by bringing various governments, private and local government services to the doorsteps of people and to foster local entrepreneurship. The government has assisted in the initial set up of UDCs expecting that entrepreneurs would eventually obtain the responsibility of sustaining the business in the long run. For this reason it charges permitted fees for delivery of services to meet the day to day operational costs and earnings for entrepreneurs (A2I, 2015a).

UDC is a place where all sorts of on-line government and commercial services are available for the grassroots people. It is based on ICT and wider use of ICT in service delivery has been improved the quality of service delivery and its access to the grass roots level. It also minimizes the gap arising from digital divide. Thus, UDC is a strong and important initiative to implement Digital Bangladesh-Vision-2021.

It is estimated that 1. 6 million e-services are delivered on average per month to citizens from rural and remote regions through 407 City Corporation Digital Centers, 321 Pourashavas Digital Centers and 4,547 UDCs. The UDCs provide 102 types of services containing 38 governments and 64 commercial services. Since their beginning, the UDCs have delivered 216 million services to 4.5 million beneficiaries on average per month (A2I, 2017a).

From above discussions, it can be summarized that UDCs have enough potential to transform Bangladesh into 'Digital Bangladesh'. But till now UDCs have been supported by A2I project of the Government and so the question arises what will be the future of UDCs on completion of project duration? That is why this dissertation intends to find out whether UDCs have got institutional roots to sustain in the long run or not. Understanding the sustainability of the UDCs is the significant focus.

### 1.3 Objectives of the Study
1. To find out the factors influencing the sustainability of UDCs.
2. To identify the challenges of UDCs to be sustainable over a long run.
3. To locate possible remedies for ensuring sustainability.

**1.4 Research Questions**

To achieve the research objectives, the following research questions have to be addressed:

**Broad Research Question:**

Have UDCs got institutional roots to ensure its sustainability?

**Specific Research Questions:**

1. Will UDCs sustain on the completion of A2I project period or without government support?
2. What factors are influencing the sustainability of UDCs?
3. What are its challenges and what may be the way forward to ensure sustainability of UDCs?

**1.5 Methodology**

The researcher collected field data by using different research methodology. Most of the data were collected by visiting different UDCs at different districts of the country. During the research, 09 UDCs were targeted for data collection. To ensure the actual reflection of the activities of the UDCs, out of total 09 UDCs, 03 UDCs namely Gorol UDC of Kaliganj Upazilla of Lalmonirhat District, Mohakali UDC of Sadar Upazilla of Munshiganj District and Aminbazar UDC of Savar Upazilla of Dhaka District are falling in worse category according to the respective district's annual report and researcher's 3 months observation of the national digital centre management system at http://www.dcms.e-service.gov.bd/. Accordingly three UDCs namely Kakina UDC from Kaliganj Upazilla of Lalmonirhat District, Rampal UDC from Sadar Upazilla of Munshiganj District and Savar UDC from Savar Upazilla of Dhaka District are in medium category. Finally Modati UDC from Kaliganj Upazilla of Lalmonirhat District, Panchashar UDC from Sadar Upazilla of Munshiganj District and Tetuljhora UDC from Savar Upazilla of Dhaka District are falling in the best category. The personal experience has been highlighted during data collection and also tried to find out the actual operational capability and management procedure of the UDCs by visiting physically, by asking different set of questionnaires and also by taking interview of the different management personalities.

## 1.5.1 Research Methodology

Both qualitative and quantitative methods have been followed in this research. Qualitative approach gives opportunities for discussions with managerial-staff like ADC (ICT), UNO[5], AC (ICT)[6] and UP Chairman[7] and with entrepreneurs which allows capturing insights view of the respondents and quantitative study allows for taking catchy information from Service Receivers and from Service Providers.

With these two methods, additional content analysis and practical observation methods have also been used to watch the overall fact which helped to explain the issue. The combination of the stated methods is intended to use for this research to take advantage of their respective strengths and overcome the limitations of others. It also helps to reduce bias of any single method. Combination of these methods is expected to be a reliable tool for the research because combined method enables us to explore, unravel and understand problems, issues and relationships (Aminuzzaman, 1991). Data has been processed and analyzed statistically with the tools of MS Excel 2007 and SPSS.

## 1.5.2 Selection of the Study Area

Although there have no significant difference among the inputs of UDCs like establishment, operation procedure, and nature of activities, all UDCs are not performing in the same manner. Some are performing very well, some are moderate and some are poor according to central web portal's day to day observation linked at http://www.dcms.e-service.gov.bd/ and District Administration's report. Some problems faced by Service Providers and Service Receivers are almost similar like space unavailability but some are not similar in rural and urban areas like frequency

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[5] Upazila Nirbahi Officer often abbreviated as UNO is the chief executive of an upazila (sub-district) and a mid-level officer of the Bangladesh Civil Service. A Senior Assistant Secretary of the Administration Cadre is usually assigned to this post.

[6] Assistant Commissioner, appointed in the Deputy Commissioner's office, work the ICT related activities under direct supervision of ADC (ICT).

[7] Directly elected by the voters of the Union under the Local Government (Union Parishads) Act, 2009. Each Union is made up of nine Wards. Usually one village is designated as a ward. There is one chairman for one Union Parishad.

of load shedding. That's why different UDC has different outcome. Considering above condition, the study has been conducted the survey on 3 districts: Munshiganj which is categorized as best serving District, Dhaka which is considered as moderate serving District and Lalmonirhat which is considered as least serving District. These Districts were selected according to digital centre management system's monthly report which was observed by the researcher. Researcher was observed three months report before going field data collection in September, 2017. Then 03 UDCs from each district categorized as good, medium and bad were selected as per District Administration's annual report.
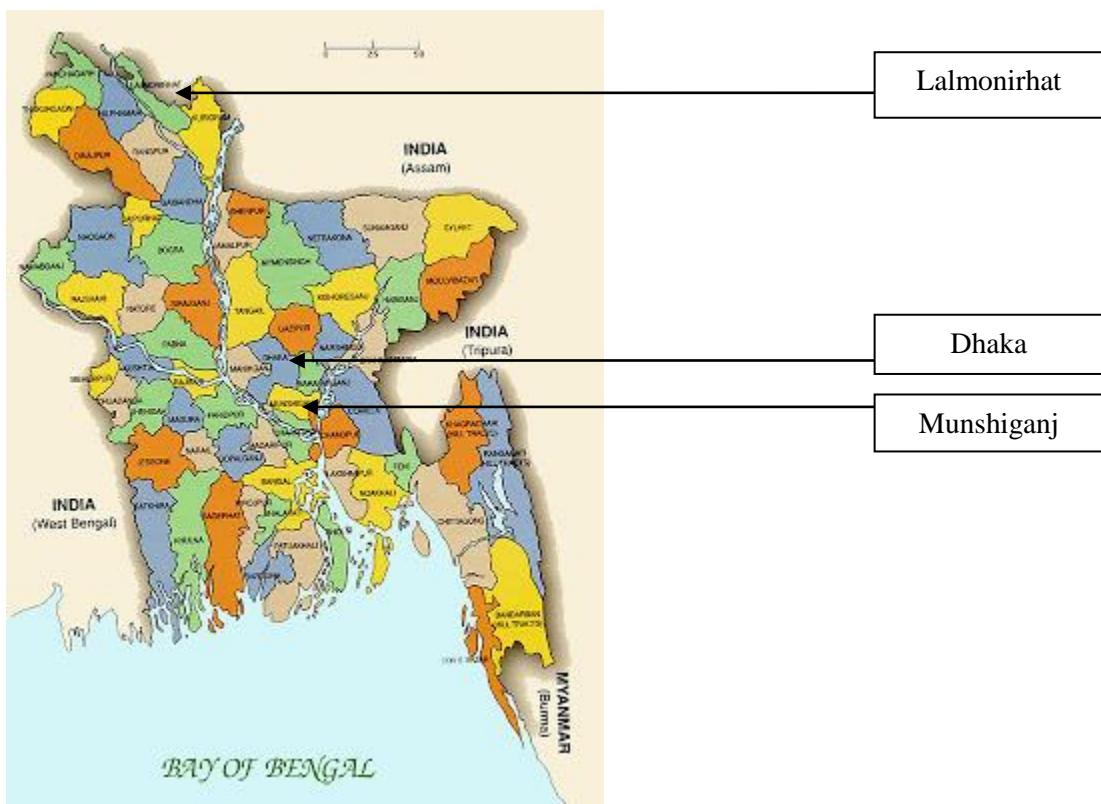


**Figure 1.1: Sampling Area of the Research**

**1.5.3 Sample Size and Sampling Method**

Total sample in this research is 58. Out of this 58, Service Receivers were 20, Service Providers were 20 and Managerial Staffs were 18. Service Receivers were covered under questionnaire survey; Managerial Staffs were covered under in depth interview and Service Providers under both questionnaire survey and in depth interview. Random sampling technique has been followed for survey of Service Receiver's data and purposive sampling technique has been followed for others.

**Table 1.1: Sample Distribution Criterions**

| District | Upazilla | UDC | Service Receiver | Service Provider | Managerial Staff |
|---|---|---|---|---|---|
| Munshiganj | Sadar | Panchashar | 2 | 2 | 6 |
| | | Rampal | 2 | 2 | |
| | | Mohakali | 4 | 4 | |
| Dhaka | Savar | Tetuljhora | 2 | 2 | 6 |
| | | Savar | 2 | 2 | |
| | | Aminbazar | 2 | 2 | |
| Lalmonirhat | Kaliganj | Modati | 2 | 2 | 6 |
| | | Kakina | 2 | 2 | |
| | | Gorol | 2 | 2 | |
| Total | | | 20 | 20 | 18 |
| Grand Total | | | | | 58 |

**1.5.4 Sources and Collection Techniques of Data and Time Frame**

Primary data for the study has been collected from primary source through questionnaire survey, interview and observation methods. Secondary data has been gathered from different books, journals, research articles, dissertation reports, policy documents, and reports of Government of Bangladesh.

Research has been completed in six months; first two months were for data collection, next two months for data analysis and last two months for research paper writing. Data source, Data Collection Techniques and Time Frame is shown in Table 1.2.

The research is basically explorative using both quantitative and qualitative research methods. Content analysis, questionnaire survey and interview were carried out here to collect data. Content analysis was carried on all relevant books, documents, articles, journals, published and unpublished research works and online articles that are available. In depth terview (Face-to-Face Interview) was carried out with key stakeholders who are responsible for various aspects of operations and management

like ADC (ICT), AC (ICT), UNO and UP Chairman and also with the Service Providers. Questionnaire survey was also conducted with Service Providers and Service Receivers.

**Table 1.2: Data source, Data Collection Techniques and Time Frame**

| Data Source | Data Collection Techniques | Time Frame |
|---|---|---|
| **Survey** | Collecting information according to designed questionnaire (both open ended & close ended) from 40 respondents. | August,17-September,17 |
| **Interview** | Taking interviews of selected 20 entrepreneurs and 18 managerial-staffs according to semi-structured questions. | |
| **Observation** | Observing the working environment, interpersonal relationship and nature of work. | |
| **Content Analysis** | Different books, journals, research articles, dissertation reports, policy documents, reports of Government of Bangladesh. | January,17-September,17 |

## 1.6 Rationale of the Study

Although Bangladesh is a developing country with variety of social problems, it is dreaming for being Digital Bangladesh. UDC is one of the most important step in this way which is providing different government and private services to rural people who are deprived of getting services and information properly and in due time. UDC is a place where all sorts of on-line government and commercial services are available and accessible to the grassroots people. The usage of ICT is broadening the operational capacity of public administration and the reliability of its actions in UDCs. The setting up of UDCs is seen as a mean to bridge the gap of digital divide between rural and urban citizens as it provides public access to ICT services and facilities, particularly in remote areas where such services and facilities are deficient.  Thus the sustainability of UDCs is essential for long term benefits of the rural Bangladesh but there are few empirical studies on these critical issues and we are in dire need of research to fill this gap.  Now it is a matter of administrative as well as research

interest how sustainable UDC will be when the project support will be stopped in near future. That's why this paper examines issues faced by UDCs in their ongoing operations that may arise in communities they serve. An empirical study was conducted through interviews and questionnaire survey with a range of stakeholders including Service Receivers, Service Providers and Managerial Staff of UDCs.

## 1.7 Significance of the Study

To fulfill 'Digital Bangladesh' vision, Government of the People's Republic of Bangladesh has taken different steps which provide a prospect to exercise ICT tools for development, strengthen the socio economic situation of the rural area, poverty reduction and thus improve citizen's quality of life. A good number of researches have already been conducted about the effectiveness of UDCs in Bangladesh for serving rural countryman to minimize digital divide. But there is not much study conducted about the sustainability issues of UDCs or the factors having influence on the sustainability of UDCs. Although this sustainability issues of telecenters were researched beyond Bangladeshi borders, this cannot be generalized in Bangladesh because of the different socio-economic condition exist in different countries. This study addresses that gap and there is no doubt that knowing the sustainability issues and the factors influencing sustainability of UDCs is very important. So it is necessary to analyze the things that may influence the sustainability issues of UDCs. The research finds the factors affecting the smooth running of UDCs and the challenges for its long run sustainability. This also finds out how the UDCs will get institutional roots to be sustainable in the long run. The result of the study would encourage the Government for initiating systems and policy for the betterment of UDCs and at the same time for the long term betterment of the rural community. This research result may also be useful to the academics, scholars and other researchers to validate the existing literature on this issue to supplement the knowledge of different stakeholders in general and policy researchers in particular.

## 1.8 Scope of the Research

Understanding the image of UDCs is necessary for the policy makers. If there is no institutional root of UDCs, it needs to be understood and addressed accordingly. As

UDCs have several challenges, it may likely create some implicit impact on institutional root or sustainability issues. The research has been conducted in 9 UDCs from 3 Upazillas of 3 Districts. Sampled UDCs are Gorol, Kakina and Modati UDCs from Kaliganj Upazilla of Lalmonirhat District; Mohakali, Rampal and Panchashar UDCs from Sadar Upazilla of Munshiganj District; and Aminbazar, Savar and Tetuljhora UDCs from Savar Upazilla of Dhaka District. The functions of UDCs, working culture and roles of committees of these UDCs have also been considered.

## 1.9 Limitations of the Study

The report is focused and based on 9 UDCs of 3 districts. Due to budget, time and resource constraint it was not possible to cover other Districts in Bangladesh. A total of 58 respondents were considered under survey which are not a large number. Shortage of necessary and relevant books, journals and written documents in various libraries and educational institutions regarding this issue is another limitation of this research. Moreover, most of the respondents did not want to answer the whole questions, because they were busy in their professional and routine work.

## 1.10 Organization of the Research

Chapter 1 specifies background of the research, statement of the problem, illustration of the research problem, research objectives, methodology, rationale of the study, significance of the study, scope and limitation of the research. Finally it provides organization of the research paper.

Chapter 2 contains literature review and analytical framework which clarifies literature relevant to the study, terminologies frequently used in this research and analytical framework which elucidates relationship between dependant and independent variables after specifying related theories.

Chapter 3 provides a brief discussion about A2I program, prime minister's office, whereas an introduction about A2I is provided through its historical background, objectives, and services. The later part of this chapter also offers a short discussion about UDC with its introduction, objectives, services and organizational structure.

Chapter 4 includes data presentation, analysis and interpretation. In this chapter different data is presented and presented data is analyzed using some statistical tools. Finally interpretation of those data depending on analysis is given.

Chapter 5 contains findings and conclusion. This chapter discusses relevant findings in light of the research questions, analytical framework, and theory depending on the analysis that has been made on chapter four. Finally it gives brief description on policy implications, future research implications and conclusion on the basis of findings.

# Chapter 2

## Related Works, Concepts and Theory

This chapter is divided into three parts: related work, theoretical overview and analytical framework. First part attempts to give a brief overview of the concept about common terminologies, an review of what other researchers have done about studies relating to the present study like works relating to telecenter movement; sustainability issues of telecenter; performance, effectiveness issues of UDCs in Bangladesh, etc. with relevant variables to give a profound insight how the telecenters like UDCs are affecting by different factors. Second part deals with the theoretical foundation of sustainability issues of developmental project, how sustainability of a system may be hampered and how it can be build. Reviewing the overall concepts and theories, the third part of this chapter presents the analytical framework of this research with the indicators of the explanatory variables to extend our understanding about the relationship between sustainability of the UDCs and different independent variables.

### 2.1 Background Information

*Access to Information (A2I) Program*

The Access to Information (A2I) Program at the Prime Minister's Office, with support from UNDP (United Nations Development Program)[8] and USAID (United States Agency for International Development)[9], was started in 2007 with the objectives of increasing transparency, improving governance and public services, and reducing inefficiencies in their deliverance in terms of 'TCV' – the time (T), cost (C) and number of visits (V) associated with obtaining government services for underserved communities in Bangladesh (A2I, 2016a). An elaboration of this concept is given in chapter three.

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[8] The United Nation's global development network, headquartered in New York City. It advocates for change and connects countries to knowledge, experience and resources to build people's better life by providing expert advice, training and grants support. It's ultimate aim is to achieve the eradication of poverty, and the reduction of inequalities and exclusion.

[9] The United States Government agency, primarily responsible for administering civilian foreign aid.

*Union Digital Centers (UDCs)*

Union Digital Centers (UDCs) are one-stop service outlets operating at all 4,547 UPs of the country. It is an exclusive step of the Government at the use of ICT in the systems of Local Government in order to strengthen it and to make sure e-services at the doorsteps of mass people. It ensures Service Providers and Service Receivers to save time, cost and has made operations without hassle. Operating under the PPPP modality, local entrepreneurs run these centers which are hosted by UPs and supported by Central Administration (A2I, 2016b). An elaboration of this concept is given in chapter three.

## 2.2 Operational Definitions

*E- Service*

E-Service is shortened from Electronic Service provided by any electronic means like internet/website, mobile devices or kiosk. In layman term, it can be understood as getting things through 'E' or service poses through 'E' that is electronically, which can be computer, internet. Operationally, the deeds, efforts or performances whose delivery is intervened by information technology like the web, information kiosks and mobile devices are known as E-services (Rowley, 2006).

*Resources*

The term 'Resources' is used in this research to mean the resources used in the UDCs for its effectual functions. These are the availability of equipments like computers, laptops, printers, fax machine, internet connection, mobile phones, video camera etc.

*Sustainability of UDCs*

Sustainability of UDCs means a condition for continued existence of these centers. Here financial sustainability and social sustainability are the main concerns. The UDCs have been planned to be self sustained. The entrepreneurs whatsoever they earn from the customers would be expending for day to day management of UDC functions and they will get guarantee of the serviceability of all apparatus and will

also do continuation of the apparatus from the revenue he creates from the customers.

*Availability of the Needed Services*

Availability of the services means that there must have human resources in the UDCs who should be geared up to offer services to the service seekers. The services may be of different kinds like online college/ university admission, examination results, online job applications, online interview, email correspondence, video conferences and different types information like daily news, market information, e banking, weather information, political news, local and international news etc.

*Customer's Satisfaction*

It means the intensity of contentment towards getting different information and services, performance of human resources in UDCs, and assistance of the human resources in UDCs to pay attention and take action with attention.

*Telecenter*

Telecenter is a public place where people can access computers, internet, and other digital technologies that enable them to gather information, create, learn, and communicate with others while they develop essential digital skills (Caspary, 2002).

## 2.3 Related Literatures

Rural development is a foundation for economic enlargement and information is a significant component in enlargement procedure as information will help them to become competent and creative in their social and political obligations to turn into better informed citizens (Okiy, 2003).

In order to supply information to the marginalized and rural disadvantaged and to decrease the digital divide between urban and rural areas, a number of information and knowledge centers popularly known as telecenters have already been established in the rural areas of many developing countries. The first telecenter for this function was established in the mid-1980s in Sweden to offer services, training

and jobs to the local community through computers and modern telecommunications equipment (Mahmood, 2005).

Telecenters as a kind of ICT projects are providing the benefits of new communication technologies to the rural poor. But the lack of sustainability as a common problem for many telecenters hinder them from staying operational in a successful way for long run and becoming independent from subsidies and external supports (Jauernig, 2003).

Location of the telecenter, facilities such as computers, power, photocopiers, scanners, laminators and printers, lack of enough chairs and space, unreliable internet, electricity affects the use of ICT in the telecenters to a great extent. Qualified staff and managers, leader's competency and capacity to manage telecentres are also essential for the development of telecenters and integrating ICT into the programs (Badsar et al., 2011).

Training in ICT related skills, development strategies, staff roles, production of content, marketing, evaluation, human resource management are important components in ensuring the sustainability of the telecenters (Norizan, Zaharah and Rosseni, 2010).

Social sustainability of the project after period of time needs to be addressed. There are a number of factors such as quality of services and delivery, appropriate staffing, and effective promotions of telecenters which are crucial in achieving social sustainability of telecenters (Zahurin et al., 2009).

In most cases, the discussion of telecenter's sustainability refers to financial self-sustainability, which is often regarded as a condition for continued existence of the centre. However, experience from telecentre experiments suggests four types of sustainability exist for telecentres:  Sustaining financial viability (Hudson, 1999), Sustaining staff capability (Baark and Heeks, 1998), Sustaining community acceptance (Whyte, 1999), and Sustaining service delivery (Colle and Roman, 2001)

Financial viability refers to the capacity that a telecenter has for generating sufficient income to cover its costs of operation, and/or the establishing cost (Hudson, 1999).

Projects that introduce new skills also need to maintain the sustainability of the capabilities that are created. This will be ensured only to the extent that trained people, or their trained replacements, continue to work in the same area and that their capabilities are maintained and utilized (Baark and Heeks, 1998).

It is well to note that a telecenter's sustainability will be determined by the degree of acceptance by the community that it is able to generate. It is due to the fact that the introduction of a community telecenter is going to have a major impact on the community; its culture, communication patterns, economy, social structure and future development (Whyte, 1999).

Sustaining service delivery relates to the continuation of flows of information that communities find useful and useable. But it also relates to sustaining the overall services of a telecenter in terms of adapting to evolving community needs, proactively seeking new sources of useful information and alerting the community to the value of information (Colle and Roman, 2001).

### The Bangladesh Scenario

The course of information from and to the rural communities is an indispensable pre-condition for the development of rural Bangladesh. Information and communication technologies (ICTs) greatly facilitate the flow of information and knowledge offering the socially-marginalized and unaware community unprecedented opportunities to attain their own entitlements (Akbar, 2004).

Realizing the importance of telecenters on the development of country, telecentre movement in Bangladesh has been initiated by Development Research Network in August 2006. A workshop for social entrepreneurs and practitioners was held in

Rangpur[10]. Gonokendra: Centre for Community Development, first community learning center started in Bangladesh at 1987. Amader Gram Learning Centre: Community Database for Development, has established village communication, information and learning center in April, 2001 in Bagerhat[11] on pilot basis. Dhaka Ahsania Mission supported these centers by supplying books, newspapers, newsletters, magazines, booklets, posters, wall magazines, etc. depending on level of literacy skills of the users (Raihan, 2007).

Recently from 2007, the Government of Bangladesh established Union Digital Centers (UDCs) all through the Country. UDCs are ICT enabled one-stop service outlets located at Union Parishad level similar to the 'telecenter' concept by different private organizations. It is unique in the sense that it builds on the concept of Public Private People's Partnership (PPPP) instead of donation dependent models (Asad, 2011).

Faroqi (2014) has conducted a research on assessment of Union Information and Service Centers (UISC) in Bangladesh from beneficiary's perspective. He argued, despite some limitations the UISC has the potential to reduce time, distance and cost in service delivery. Its delivery mode is hassle free, immune from the reign of intermediaries and it does not ask for extra documents or coerce with bribes.

The establishment of UISCs at union level creates an opportunity for greater access to the information system and educational facilities for the underprivileged population of rural Bangladesh (Ekram, 2015).

As a one-stop delivery points, the UDC is placed with the potentials to eradicate all these problems since it is located in UP, a nearer place to them. It has the potential to reduce inaccessibility, cost, time and distance, remove problems of

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[10] A district of Bangladesh situated in Northern part of the country. It is a part of the Rangpur Division.

[11] A district of Bangladesh situated on south-west part of the country. It is a part of the Khulna Division.

intermediaries, unresponsiveness, unaccountability and lack of transparency in the delivery provision of information or services (Sarker, 2013).

Today, a farmer in a remote location can learn about appropriate fertilizer and pesticide, and receive prompt feedback from relevant public-sector experts; a villager can apply for land records, birth certificates and other services without having to undertake multiple visits; and a migrant worker can now participate in Government-to-Government (G2G) migration opportunities without having to visit Dhaka (Zaman, 2015).

In case of UDCs, to impart all information and services, however, there must be an effective back-end support to supply them with appropriate contents (Hanna, 2010; Bhatnagar, 2004) which is yet to be developed for UDCs. Along with this, the capability of it to connect the rural citizenry can be questioned for a number of other reasons like limitations in infrastructure, human resource and support from Local Administration and the UP. It is also challenging to involve disadvantaged people like women, poor, and illiterate, given the difficulty to make them aware, for leveraging the benefits (Siddiquee and Faroqi, 2013).

## 2.4 Research Gap

A review of the empirical studies shows that various factors which includes qualification of the staff, ICT infrastructure, location of the telecenters and the product mix influence the adoption of ICT in various aspects. There is also empirical evidence that community participation and community aspirations also influence the adoption of ICT in community based projects.

Although different literatures showed the importance, effectiveness and acceptance of UDCs in Bangladesh, there is limited literature on telecenter sustainability or whether the UDCs got institutional roots or not in Bangladesh. However, many works have been conducted on telecenter sustainability issues which are all beyond the Bangladeshi borders and cannot be generalized in the Bangladesh context because the contexts are not similar with Bangladesh. Despite the Bangladesh Government is

committed to ICT investments in the country and the UDCs have huge potentiality to meet the commitment, there is no or limited work on the sustainability issues of UDCs.

**2.5 Theory**

The telecenters are widely used in different countries in the world and effectiveness of those centers has been finding out by using different models. To understand the relevant framework Natural Capitalism and Four Capital Model of Sustainability theory are discussed below:

**Sustainability Theory:**

Two models are frequently used by using sustainability theories. These are:

1. Natural Capitalism Model
2. Four Capital Model

*Natural Capitalism Model*

The approach which said us that some simple changes for protecting the biosphere and for way to run businesses, built advanced techniques for making resources more productive, can yield startling benefits both for today's shareholders and for future generations is known as natural capitalism (Lovins, Lovins and Hawken, 2007*).* They agreed that the journey to natural capitalism involves four major shifts in business practices; all are vitally interlinked and can be utilized to maintain the environmental sustainability in the society:

- **Dramatically increase the productivity of natural resources.** Reducing the wasteful and destructive flow of resources from depletion to pollution represents a major business opportunity (Lovins, Lovins and Hawken, 2007*).*
- **Shift to biologically inspired production models.** Natural capitalism seeks not merely to reduce waste but to eliminate the very concept of waste (Lovins, Lovins and Hawken, 2007*).*
- **Move to a solutions-based business model.** The business model of traditional manufacturing rests on the sale of goods. In the new model, value

is instead delivered as a flow of services—providing illumination, for example, rather than selling light bulbs. The new relationship aligns the interests of providers and customers in ways that reward them for implementing the first two innovations of natural capitalism—resource productivity and closed-loop manufacturing (Lovins, Lovins and Hawken, 2007*).*

- **Reinvest in natural capital.** Ultimately, business must restore, sustain, and expand the planet's ecosystems so that they can produce their vital services and biological resources even more abundantly (Lovins, Lovins and Hawken, 2007*).*

So, the four instruments of natural capitalism can be briefed as shown in Figure 2.1 below:
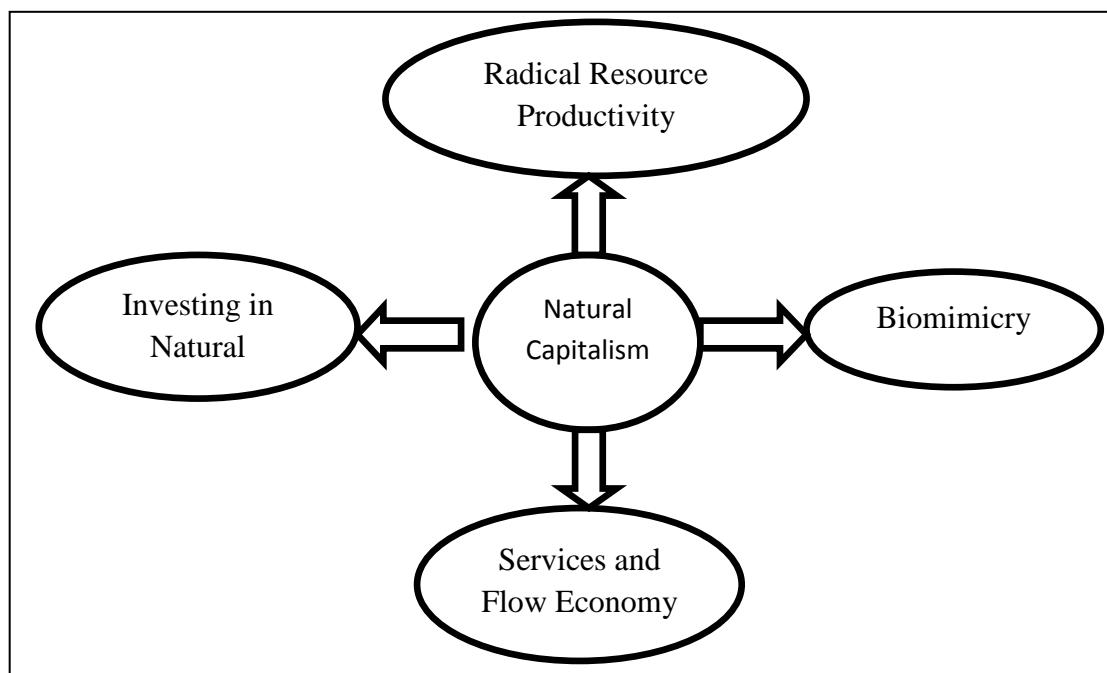


**Figure 2.1: Four instruments of Natural Capitalism (Lovins, Lovins and Hawken, 2007***).*

A key element of Natural Capitalism was the idea that the economy was shifting from an emphasis on human productivity to a radical increase in resource productivity. This shift would provide more meaningful family-wage jobs, a better worldwide standard of living to that in need, and a dramatic reduction of

humankind's impact upon the environment. So while the context for Natural Capitalism existed in a theoretical framework, the exposition did not.

*Four Capital Model*

Ekins (1992) put forward a 'Four-Capital Model', relating manufactured, human, social and natural capital to the process of production and the generation of human welfare. Financial capital, and the financial system through which it acts, may better be seen as a type of social capital, a conventional way of allocating and representing the power to mobilize the other four kinds of capital, which have the real inherent power to deliver benefits. According to Four Capital Model of Sustainability, these capitals cannot be considered as complimentary. Sustainable development is simply related to the four-capital. Meeting human needs and increasing quality of life (through consumption, satisfying work, good health, rewarding personal relationships and well functioning social institutions, and the full range of environmental goods and services) may be regarded as resulting from the flows delivered by the capital stocks. Doing so sustainability requires that these capital stocks are maintained or increased over time. Useful diagram in this Four Capital Model is in Figure 2.2 below:
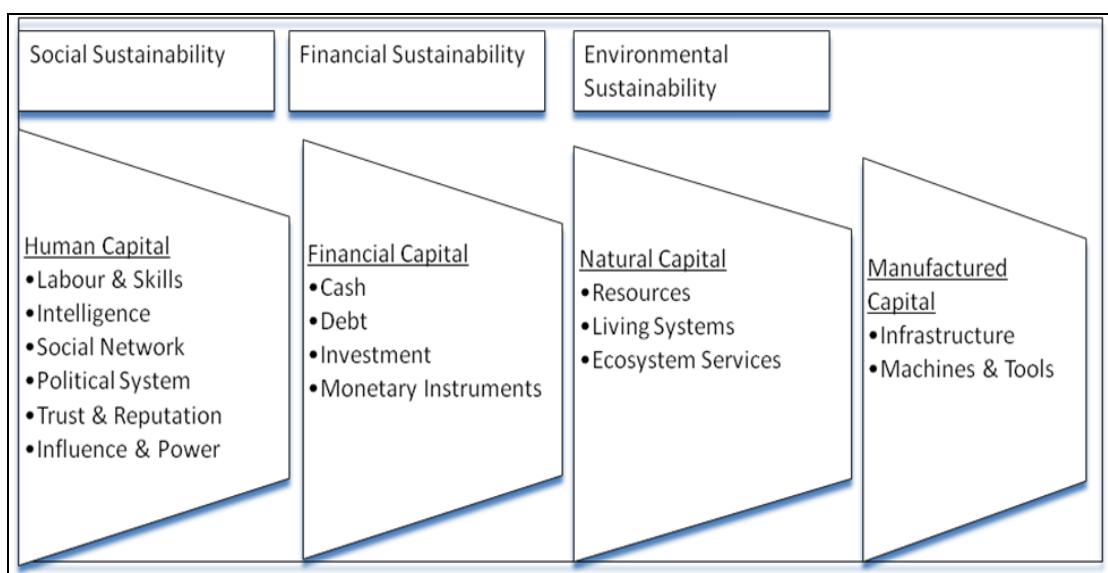


**Figure 2.2: Four Capital Model of Sustainability (Ekins, 2000).**

*Manufactured capital*

Manufactured (or human-made) capital is produced assets that are used to produce other goods and services. Some examples are machines, tools, buildings and infrastructure (Ekins, 2000).

*Natural capital*

Natural capital can be considered as the components of nature that can be linked directly or indirectly with human welfare (Ekins, 2000).

*Financial Capital*

This type of capital is related to money and its related policies and instruments. Examples of financial capital include cash, debt, and other monetary policies which maintaining balance among them in the society creates the financial sustainability (Ekins, 2000).

*Human capital*

Human capital generally refers to the labor and skills, intelligence, social networks, political systems, trust and reputation, and influence and Power, *h*ealth, well-being and productive potential of individual people. Types of human capital include mental and physical health, education, motivation and work skills (Ekins, 2000).

In order to maintain the sustainability, four capitals must be kept in equilibrium in any society. Giving too much concentration to any one of the capitals may affect the other capitals. This model put these four capitals subsequently to each other. According to this model, sustainability is not possible to build without maintaining the balance among these four capitals (Ekins, 2000).

**Shortcomings of this Model**

By using this model, it is not promising to mark out sustainable development with one composite descriptor or pointer. Overwhelmed by the difficulty of sustainable progress, policy forecasters often suppose that any replica used to undertake the problems of such difficulty should be equally difficult and unfeasible for everyday

implement. As a result, sustainability concepts gradually turn out to be a hostage of their own ambiguity (Bojan 2007).

**We tend to use the Four Capital Model of Sustainability in this research work because of the relevancy of this model with this research work.** This Four Capital Model of sustainability seems to be a useful way to understand the sustainability condition of the UDCs in providing services. It may also indicate where managerial authorities need to apply their experiences and knowledge to make UDCs more sustainable in their area of interest.

Figure 2.2 above illustrates the four main capitals in understanding of sustainability. The Four Capital Model is used to find out the infrastructure, resources like location, human capital means entrepreneur's qualifications which are directly linked with sustainability issue of any enterprise. So variables used in Four Capital Model have many similarities with this study. Here, the goal of the study is to find out the sustainability of UDCs through financial viability and user's acceptance or social viability of UDCs.

Yang and Fang (2004) argued that customers achieve satisfaction by comparing the performance a product or service with their previous expectations. If performance exceeds the prospect positive disconfirmation occurs and increases in satisfaction can be expected to take place.

There are six dimensions of online relating service quality with the comparison of the traditional dimensions of service quality such as website appearance, communication, accessibility, credibility, understanding and availability (Schaupp and Bélanger, 2005).So, the independent variables that are relevant with effectiveness of UDCs are Entrepreneur's Qualifications, Infrastructure, Location and Government Intervention.

Sustainability of UDCs is the dependent variable which has been derived by the financial viability and user's acceptance or social viability.  That means sustainability

depends on four independent variables: Entrepreneur's Qualifications, Infrastructure, Location and Government Intervention. In the light of the Four Capital Model and considering the importance of Government Intervention, the Analytical Framework has been made.

## 2.6 Analytical Framework

The Figure 2.3 below presents the Analytical framework developed out of a critical review of existing literature on the variables. The conceptualization in this study was based on the following variables: Sustainability of UDC (dependent variable); and qualifications of the entrepreneurs, existing infrastructure, location of the telecentres and Government intervention are the independent variables.
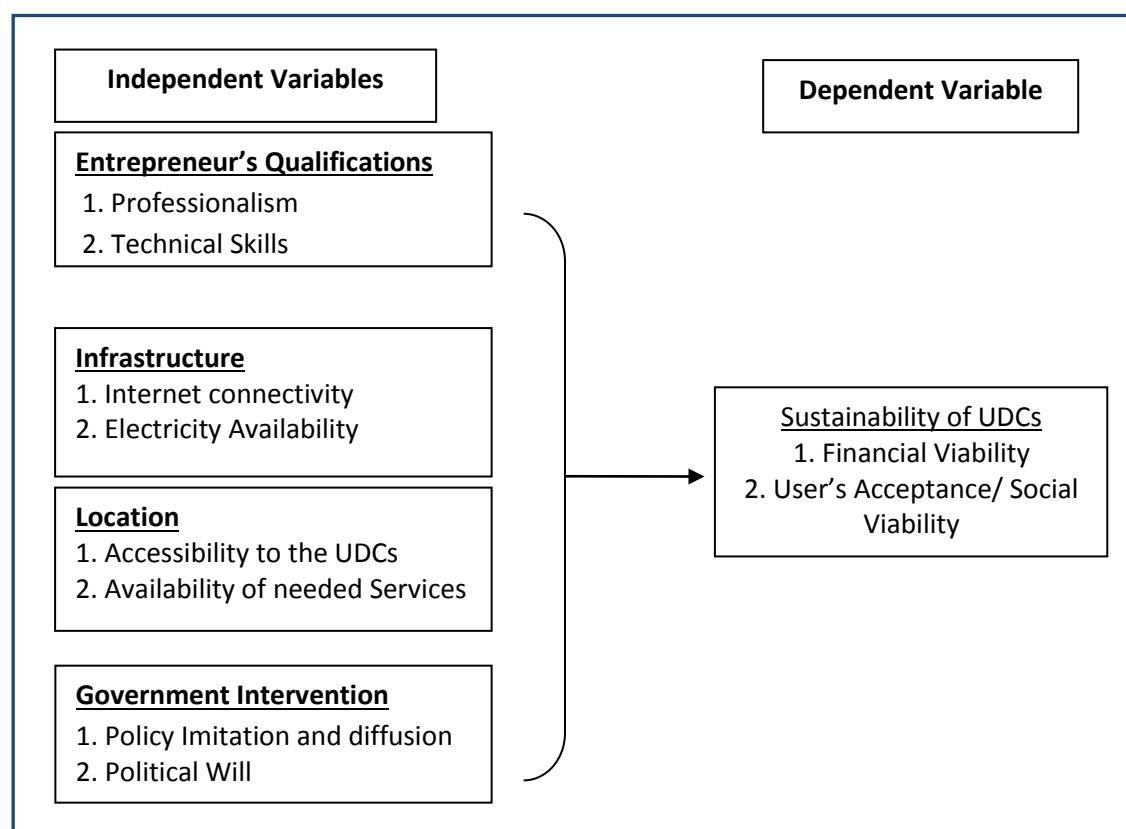


**Figure 2.3: Analytical Framework of the Research**

As sustainability of UDCs is a key issue, it is considered as a dependent variable and as according to existing literature financial viability and community acceptance are two most important indicators of sustainability of most telecenters, these two are

also considered as two indicators of this dependent variable. On the other hand, having influence of the other variables on the sustainability Entrepreneur's Qualifications, Infrastructure, Location and Government Intervention are considered as independent variables according to existing literature and theory.

**2. 7 Describing the Variables and Measureable Indicators**

*Entrepreneur's Qualifications*

It means the capacity, knowledge, or skill that suits or makes someone eligible to handle a certain assignment. Skilled entrepreneurs are very important in an UDC for providing effective services to the customers. If the skilled entrepreneurs are not available, then resources will not be properly utilized.

*Location of UDC*

Location means a place of settlement and activity. Location of UDC is important because if the location of UDC is not suitable, it indirectly discourages users to visit. Location can ensured by the accessibility to the UDCs and availability of the services to the customers.

*Government Intervention*

A Government intervention is an action taken by a Government in an effort to impact the effectiveness of UDC beyond the basic regulation and provision. It may refer to the ways in which a Government regulates or interferes with the various activities or decisions made by individuals or organizations within its jurisdiction. Sometimes it depends on political will of the Government. Here political will refers to political intention or desire or the firm intention or commitment on the part of a government to carry through a policy.

*Institutional roots of UDC*

Literally institutionalization means the action of establishing something as a convention or norm in an organization or culture. To institutionalize something

means to establish it as part of a culture, social system, or organization. Here, basic indicators of having institutional roots are having social and financial sustainability of UDCs. If UDCs become financially viable to run business and have huge acceptance then it will consider having institutional roots.

*ICT Infrastructure*

Infrastructures are facilities and/or equipments that are required by any telecenters to function adequately. They includes: computer sets, printer, photocopier, fax machine, internet connectivity, power back up and others. Here speedy internet connection and uninterrupted electricity supply are considered.

**Table 2.1: Variables and Indicators used in Analytical Framework**

| Dependent variable | Indicator | Independent variable | Indicator | Measuring Indicators |
|---|---|---|---|---|
| Institutional roots of UDC | 1. Financial viability 2. Continuous Demand | Entrepreneur's Qualifications | 1. Professionalism 2. Technical Skills | 1. Prompt and cordial service delivery 2. ICT skills, training |
| | | ICT Infrastructure | 1. Internet connectivity 2. Electricity | 1. Speedy connection, availability of modem/wifi 2.Uninturrupted power supply |
| | | Location | 1. Accessibility 2. Availability of services | 1. Ease of access 2. Availability of needed service |
| | | Government Intervention | 1.Rules and Regulation 2.Political Will | 1.Policy imitation and diffusion 2.Political Will |

## 2.8 Summary of the Chapter

UDC is an important initiative of the Government of Bangladesh to provide accurate, reliable and quality of information to rural people. However, question arises to what extent can UDCs be institutionalized for long term sustainability? The aim of this

study is to find out the factors having influence on the sustainability of UDCs, the challenges of UDCs to be sustained for a long run and finally the possible remedies for ensuring sustainability. No systematic study had so far been conducted on this aspect in Bangladesh; researchers have worked on only UDC's effectiveness and acceptance. However, available literature was reviewed in this chapter to search out related works conducted in home and abroad. This chapter explores studies carried out by accredited researchers and scholars with reference to the factors influencing the use of information technology in telecenters. The chapter further analyzes various theories that have been used to guide the study. The operational definition and the background information were also presented here. The Analytical Framework of the study is also presented in this chapter and lastly the research gap is also presented here identified from the studies reviewed.

## Chapter 3

## Overview of A2I Program and UDC

This chapter provides a brief discussion about A2I program, prime minister's office, whereas an introduction about that organization is provided through its historical background, objectives, and services. The major implication of A2I program is prominent in rural areas where the Government has launched the UDCs for the ultimate goal of digitalization. The later part of this chapter offers a short discussion about UDCs with its introduction, objectives, services and organizational structure.

### 3.1 A2I (Access to Information) Program

A2I program is an UNDP and USAID supported program started in 2007 located at the Prime Minister's Office. The project intended to offer support in building a digital nation through delivering services at the citizen's doorsteps. It aims to advance value, widen right of entry, and disperse delivery of public services to ensure receptiveness and clearness.

The program, implemented by the Prime Minister's Office, heralded a mindset change within Government to embrace ICTs as a powerful enabler for the nation's socio-economic transformation. The time-frame of the project's first phase was 2006 – 2011. The second phase of A2I program, aiming at e-service delivery for transparency and responsiveness, is the new and improved version of the first phase of the program. It is also being implemented by the Prime Minister's Office to drive innovation in service delivery. At the same time, since the project is facilitating implementation of e-services across various Ministries, directorates and in field administration, it is working closely with the Cabinet Division (A2I, 2016c).

A2I works for ensuring new initiatives and programs on e-governance within the context of national development priorities, and mainstreaming ICT for Development into the national development plans. It supports the development of innovative ICT programs and provides technical assistance for monitoring and evaluation and also develops a national e-governance vision and strategy to establish digital

opportunities for development in close consultation with stakeholders. The vision for Digital Bangladesh is focused on both increasing Bangladesh's ability to compete more effectively in the global economy and on building a responsive and effective Government capable of delivering services to the poor and marginalized (A2I, 2016d).

A2I elaborated on the Digital Bangladesh vision by setting out strategies and priorities. It also participated in the drafting of the ICT Policy, 2009. A2I helped other sectors such as agriculture, education and health to prepare e-services visions. There is some concern that the program may have stretched itself through involvement in so many policy areas and that future focus should be on e-service policy including development of an e-Government master plan (Minges, Raihan and Raina, 2015).

### 3.1.1 Objectives of A2I Program

The objective of the project is to increase transparency, improve governance, and reduce the time, difficulty and costs of obtaining government services for under-served communities of Bangladesh (A2I, 2016d). This is to be achieved by:

- Strengthening existing e-services and launching a second generation of integrated, inter-operable e-government applications
- Sensitizing government officials, training service providers and expanding digital literacy among the general public
- Forging strong policy and strategy links to ensure implementation of needed legal and regulatory changes in support of the project
- Promoting innovation in the delivery of e-services

### 3.1.2 Activities of A2I Program

The major three key activities of the program are as follows (A2I, 2013):

*a. Accountability and responsiveness*

The conventional process requires the citizen to appear before one or more public officials multiple times during office hours, fill in complicated forms, obtain authentication/notarization from government agents, and often wait in long lines. This face-to-face delivery model makes services less accessible to a large segment of

the population who are either unable or face substantial difficulties to undertake travel to government offices the physically challenged or the elderly population.

### b. Capacity of Service Providers

In Bangladesh, the lack of individual capacity is made more acute by absence of high quality and dynamic skill development systems and institutions. The only available face-to-face training model available in the country is inadequate to serve the growing number of Service Providers.

### c. Lack of Incentive and Motivation

The other related challenge is the lack of motivation and incentives for improving the quality of services. The absence of a system to monitor service performance, especially at the sub-regional level, also discourages efforts to improve service quality and perpetuates the status-quo.

### 3.1.3 Projects of A2I Program

The important projects by the A2I program are as follows (A2I, 2014):

### Introduction of m/e-services

This is introduced to lessen long distance journey, corruptions ridden face-to-face interactions and need for intermediaries. It will additionally advance the service delivery performance; provoke the procedure of superiority oversights by the senior government officials.

### Capacity Development of Service Providers

It is expanded by initiating a computer based training agenda to facilitate a rapid expansion of skill training courses. The project will also design and develop a state-of-the-art leadership development course for the government officials.

### Promoting Innovation in Public Service Delivery

This scheme will be accountable for identifying reach for innovation, provide mechanical support to propose innovative solutions and support innovation.

Additionally, an 'Innovation Fund' established by the project will ensure quick achievement of pilot and to support up scaling of flourishing innovations.

### Creating an enabling environment for e/m-services delivery

The project is influential in establishing a self-sustaining system required e-services to obtain origin in Bangladesh. The program supported the formulation of a variety of institutional norms, including essential laws and standards.

### 3.1.4 Different E-Services in A2I Program

### Union Information and Services Center (UISC)

This project is jointly taken by the Local Government Division and A2I program. It is government run information centre located at Union Parishads at Union level with the leadership of Local Government Division and assistance of District Administration. UISCs started its operation in 2009. It has been established to ensure services providers and users to save time, cost and hassle free operations (Asad, 2011).

### UISC Blog

UISC Blog (uiscbd.ning.com) is a popular grassroots blog in Bangladesh where the UDC entrepreneurs participate in open discussion in order to make the UDC effective and sustainable. This discussion includes problems, solutions, new ideas, leadership and innovative initiatives. UISC Blog has been created for the entrepreneurs and this blog is working as an effective online communication and problem solving platform among all the entrepreneurs as well as Local District Administration (Asad, 2011).

### District e-Services Center (DESC)

The District e-service centre has been planned to provide one stop ICT facilitated service center which provides an efficient electronic version of the century old and heavily bureaucratic service delivery system in every DC office in the district level. The DESC has been designed to improve the accessibility and transparency of public service delivery system in the district level (Asad, 2011).

*Jatiyo e-Tathyakosh (National Information Cell)*

It is an online contented stage which is a consequence of assistances from a variety of departments and ministries, development and non government organizations, and private sectors organizations. It ensures the easy access of information on the content on relevant livelihood topics such as healthiness, cultivation, learning, commandment and human rights, diverse government information etc. (Asad, 2011).

*e-Purjee (Digital Sugarcane Procurement System)*

e-Purjee is an SMS-based system informing farmers to bring in their cane. Farmers can either register their mobile phone number—increasingly widespread in rural areas—or that of a relative or friend. e-Purjee is aimed at the agricultural sector of Bangladesh. It refers to the pink sheet of onionskin paper—the purjee—used for the last 200 years to inform sugar cane farmers of when to bring their product to the mill. The paper purjee often got lost or found its way to rent seeking middlemen. As a result some sugar cane farmers never received their purjee or had to pay for it. The mills suffered with a mismatch between supply and capacity (Asad, 2011).

*National Web Portal*

The national web portal framework is the single platform or template that stores all the information of any organization to ensure easy accessibility, sharing and updating of data with other websites. In light of upholding the Right to Information Act, 2009, A2I program has taken the initiative to provide a single template to be used by all government offices and to act a guideline for website development of other affiliated organizations. This is a national web portal framework designed to ensure complete access to information and to ensure that the services for the citizens of the country comply with the Right to Information Act (Asad, 2011).

## 3.2 UDCs (Union Digital Centres)

UDCs are one-stop service outlets operating at all 4,547 UPs of the country. Through use of ICT, UDC is able to bring various types of information related to government, livelihood and private services to the doorstep of citizens in rural areas. It ensures

Services Providers and users to save time, cost and has made operations hassle free. Operating under PPPP modality, these centers are run by local entrepreneurs, hosted by UPs and supported by Central Administration (A2I, 2015b).

### 3.2.1 Establishment of UDC

UDCs began operations in 2009 in 30 UPs through partnership between Local Government Division and the Access to Information (A2I) under the Prime Minister's Office. The Quick Win Initiative[12] by A2I expanded rapidly culminating in a launch in all 4,501 UPs of the country on November 11, 2010 by the honorable Prime Minister of Bangladesh and UNDP Administrator. These access points were known as the Union Information and Service Centers (UISCs) and currently renamed as the Union Digital Centers (UDCs) (A2I, 2015b).

### 3.2.2 Objectives of UDCs

UDCs are ICT enabled one-stop centers where rural people can get various information and services of multiple provider agencies including Government, Local Government and private enterprises. It is equipped with computer, laptop, modem, mobile phone, webcam, photocopier, scanner, printer, multimedia projector, digital camera, solar panel, etc. It was created for making changes among the overall scenario of the country as well as has a great impact in the socio-cultural context of Bangladesh, especially in the rural areas.

The prime aim is to work as the focal point of service delivery by bringing various governments, private and local government services to the doorsteps of people. The particular objectives of the UDC are to connect the UP to the global and national network and make it the vibrant knowledge-based institution and ensure easy access of common people to the useful information and services. This initiative is taken on the bottom-up approach from which the demand driven service chain is expected to cause electronic transformations of government making the vision of "Digital

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[12] ICT based short term initiatives adopted by various ministries and agencies of the Government of Bangladesh. It is aimed at improving public service delivery techniques.

Bangladesh" a reality (A2I, 2015b). The main purposes of introducing UDCs are strengthen the Local Government, assuring e-services to the door steps of citizen, and making the self-employment opportunity within UDCs (A2I, 2016b). By analyzing the activities, the objectives of the UDCs can be summarized as (Asad, 2012)

- To ensure easy access of common people to ICT based services.
- To create ICT infrastructure at rural level and increase efficiency of UPs.
- To provide a supportive environment for creation of local entrepreneurs.
- To provide a supportive environment for empowering rural community.

### 3.2.3 Operations of UDC

Each UDC is operated by two young local entrepreneurs, a male and a female, who are self employed and motivated under supervision of a local advisory headed by UP Chairman. They do not receive any remuneration from the government. There are some guidelines of appointing entrepreneurs from the Deputy Commissioner's Office regarding adequate computer skills so that they are able to operate the technology. They invest financially in the center and get proper profit share as per the contract made between the respective UP and entrepreneurs. Local Government Division coordinates with Cabinet Division and BCC to provide the basic ICT setup including computers, laptops, printers, multimedia projector, digital camera, webcam and solar panel. The entrepreneurs are free to install additional facilities to support business growth, at the same time, ensuring that the social sustainability of the centre is achieved by delivering government information and services (A2I, 2015a).

People go the centers according to their necessity and the operators provide the services by using ICT facilities. As for example, if someone needs a printed copy of passport application form, he just conveys it to the entrepreneur of the center. The entrepreneur downloads the application form from respective website and prints it. Finally he provides it to the customer by receiving assigned charges. Total earnings of the center are distributed as per contract.

### 3.2.4 Management of UDC

A committee comprising of 7-9 members represents as managing committee of the UDC. The Chairman of concerned UP is the Chairman of this committee. The duration of this committee is about 2(two) years. One-third of the members of this committee is women. The UP secretary provides all types of institutional and other assistance to the committee. The managing committee is assigned to render the following activities (Ahsan et al., 2010):

- Selecting of local entrepreneurs by consulting with UNO.
- Buying of different equipments of UDC.
- Selecting rate of charges for different services provided by UDC.
- Assisting in maintaining different income and expenditure reports.
- Holding at least a meeting in each month to review UDC activities.
- Providing all necessary assistance to the UDC entrepreneurs.
- Motivating mass people for taking services from UDC.

### 3.2.5 Services of UDC

It is observed that UDC provides 3 types of services (A2I, 2015):
- Information Services,
- Commercial Services, and
- Government Services.

*Information Services*

UDC provides it to common people as their demand and creating awareness in favor of Government. Information related agriculture, health, education with, law and human rights, tourism, environment and disaster management provided by the center. It arranges consultancy with doctors in some UDCs.

*Commercial services*

Providing photo of customers is one of the popular commercial services of UDC. Computer and English language learning training, photocopy, scanning, email,

internet browsing, talking with Skype etc. are different private services provided by the center. Partnership between various private organizations like bank, insurance company provides different private services also.

*Government Services*

Services like online birth registration, death certificate, citizenship certificate, character certificate, download different types of government forms, government circulars and notices, online university admission, examination results, population census data entry, etc. are common government services.

**Key services of UDCs**

*Public exam results:*

Different public exams like Secondary School Certificate, Higher Secondary School Certificate are now published in official websites which can be searched by people from UDCs who do not have own internet facilities.

*Government forms download:*

Government forms like passport application form, land mutation application form etc. can be downloaded or viewed before submitting at relevant offices for the specific purpose.

*Birth and death registration certificate:*

Birth and death registration is mandatory in Bangladesh. Here these can be done in UDCs easily and at reasonable cost.

*Online university admission data entry:*

Now university admission application are received via online system and students living rural areas can easily apply for different universities and download the admit cards of those universities from UDCs.

*Employment information:*

 Job circular can be searched and application for job can be prepared and submitted from UDCs.

*E-mail and Internet browsing:*

Rural students and others can use UDCs for e-mail services and internet browsing.

*Computer Training:*

Some UDCs are now providing computer training program which can be easily received from UDCs without going to the headquarters.

*Video conferencing:*

Rural citizen are now can made video conference with their nearer and dearer one living far from them.

*Mobile Banking:*

Mobile banking is a service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile. Mobile banking like B-kash, Rocket are now providing by some UDCs which make rural life convenient to receive or send cash from one place to another.

*Miscellaneous:*

Services like photocopying/scanning/photo or still picture capturing and print/mobile phone call services, etc. are very common and frequently taken services from UDCS.

Among those as per Census Report made by BBS in 2016, the popular income generating services are:

- Birth Certificate
- Composing Work
- Photocopy and printing
- Email
- Internet browsing
- Computer training
- Mobile Banking
- Photography
- Job information

### 3.2.6 Partners of UDCs

Important service partners are

- public and private banks (Dutch Bangla, Mercantile, Trust, etc.),
- life insurance companies (state-owned Jibon Bima),
- telecommunication companies (Robi, Banglalink)
- non-government organizations (British Council, Ankur, Practical Action).
- government agencies (Cabinet Division, Bangladesh Computer Council),
- solar energy (Infrastructure Development Company Limited),
- Cyber Cafe Owner's Association of Bangladesh.

Partnering with newer agencies help UDCs sustain economically enabling them to offer a wide variety of useful services. Government agencies also benefit from the UDC infrastructure and resources using them for data collection, identification of social safety net beneficiaries, and disbursement of allowances.

### 3.2.7 Importance of UDCs

The main value of UDCs to the citizens is to accept competent, reasonable and consistent right of entry to services at their doorsteps (A2I, 2017b). UDCs represent 'service access innovation' which is leveraging the government's 'service process simplification' works. In other words, UDCs are enabling rural communities to access government and commercial services as a result of innovations in ICT and mobile technology in service delivery. It has established direct links between citizens and the Government, creating trust, solidarity and reciprocity. In fact, UDCs offer the Government a bottom-of-the-pyramid platform to function as a pro-poor entity serving citizens across all strata and helping to foster development at the bottom. Furthermore, the UDCs act as a gateway to information and offer an enormous opportunity to rural communities, connecting them to the rest of the world. As the modern societies we live in, often called knowledge societies are extremely dependent on information; access to information in this age offers the potential to grasp certain opportunities by overcoming traditional barriers of distance or of physical space (Archmann and Iglesias, 2010).

**3.3 Summary of the Chapter**

This chapter gives a brief discussions about A2I which is a program directly enforced and controlled by the Prime Minister's office. UDCs are the major scheme outcomes of the A2I program. The UDCs ensure that the underserved such as countryside women, people with disabilities and the elderly regardless of their literacy and ICT literacy have right to use crucial information and services.

# Chapter 4

## Managing Data with Significant Analysis and Explanation

This chapter discusses and analyses the data found in the field to reveal the major findings and to discuss the main issue that is whether the UDCs got institutional roots or not to be sustained for a long run. The study has been conducted on 9 UDCs located in 3 different districts: Lalmonirhat, Munshiganj and Dhaka. Here structured questionnaire survey was conducted with Service Receivers and Service Providers of the UDCs. It also conducted interview of Managerial Staffs and Service Providers. Questionnaire answers have analyzed by quantitative method using different statistical tools with the help of MS Excel 2007 and SPSS and in-depth interviews have analyzed and processed by qualitative method using descriptive discussions to find out the result. Moreover, observation method and content analysis have been followed to explain the fact more critically. After analyzing the data found from the questionnaire survey, interviews, content analysis and practical observation, interpretation has been drawn later in this chapter.

This study collected data from the field level on basis of one broad research question-"Have UDCs got institutional roots to ensure its sustainability?" This broad research question was further followed by three specific research questions:

1.  Will UDCs sustain on the completion of A2I project period?

2.  What factors are influencing the sustainability of UDCs?

3.  What are its challenges and what may be the way forward to ensure sustainability?

### 4.1 Socio-demographic Data

For field data collection, the respondents were categorized into 03 categories: Service Providers, Service Receivers and Managerial Staffs. Service Providers and Managerial Staffs were purposive. It is due to the fact that the number of Service Providers in each UDC is fixed: one male and one female. Except these two, if Managerial Staffs of any specific UDC consider employing more Service Providers, they can do that but obviously the ratio of female and male will be 1:1 according to

UDC circular. The number of Managerial Staffs is also fixed: one UP chairman for one Union, one UNO for one Upazilla, one AC (ICT) and one ADC (ICT) for one District. So there was no option for selecting these respondents. On the other hand, as the Service Receivers are not fixed, they were selected randomly.

It is observed that maximum Service Receivers are male. There were 55% male and 45% female Service Receivers. It shows that maximum users coming for digital services from UDCs are male which shows our male dominated society. Not so much females are going outside for taking services rather they sent their male counterparts for required services. Data also showed that majority of the Service Receivers are within Secondary or Higher Secondary level students. It indicates that the students are receiving digital services mostly. They are mainly coming for education related services such as internet browsing, admission application form fill up and submission, computer training etc. Maximum of the Service Providers are also students studying at Secondary and Higher Secondary level. This is probably because of the fact that they can carry the UDC business and at the same time they can continue their study. All ADC (ICT) are male, one out of three UNOs and one out of three AC (ICT) is female. Out of nine UP Chairman, none are female. The overall picture of demographic data is presented in annexure.

## 4.2 Sustainability of UDCs

Sustainability of UDCs is considered as dependent variable in this study. For this purpose two indicators namely financial viability and user's acceptance or social viability have been used. This means sustainability has been derived from financial viability and user's acceptance or social viability. Both qualitative and quantitative methods have been followed for identifying the financial viability and user's acceptance.

## 4.2.1 Financial Viability

Income is one of the important indicator of UDC's succeed. More income refers to more effective and more efficient UDC having possibility to be sustained.

The income level of the surveyed UDC's Service Providers is presented below in Figure 4.1:
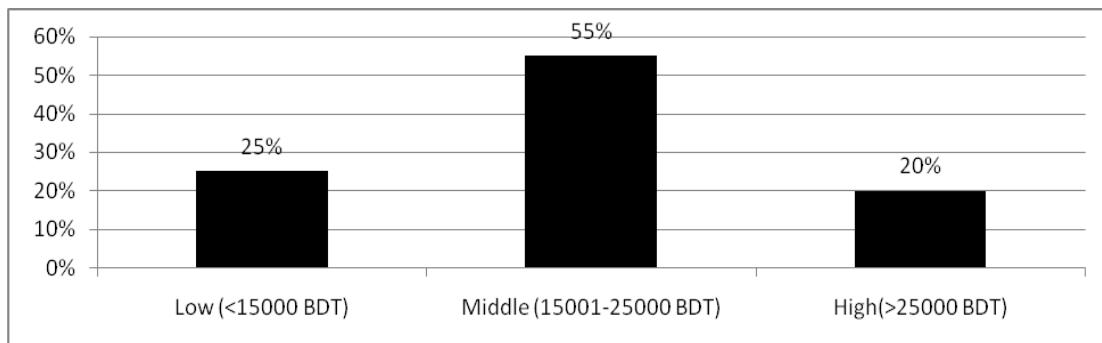


**Figure 4.1: Monthly Income of Service Providers**

With this income level, 40% respondents are not satisfied and 25 % are moderately satisfied. Only 35% are satisfied with their income. It means maximum Service Providers are not satisfied with their income which can indicates us that maximum of the considered UDCs are not financially viable at present. Because to be viable, it is essential for the Service Providers to be satisfied with their income so that they can carry their business without thinking to switch their job.

Figure 4.2 presented below also shows that the financial viability of maximum UDCs is not satisfactory. 25% respondents said that the UDCs are financially non-viable, 60% said UDCs are in average financial viability. Only 15% respondents agreed that UDCs are financially viable.
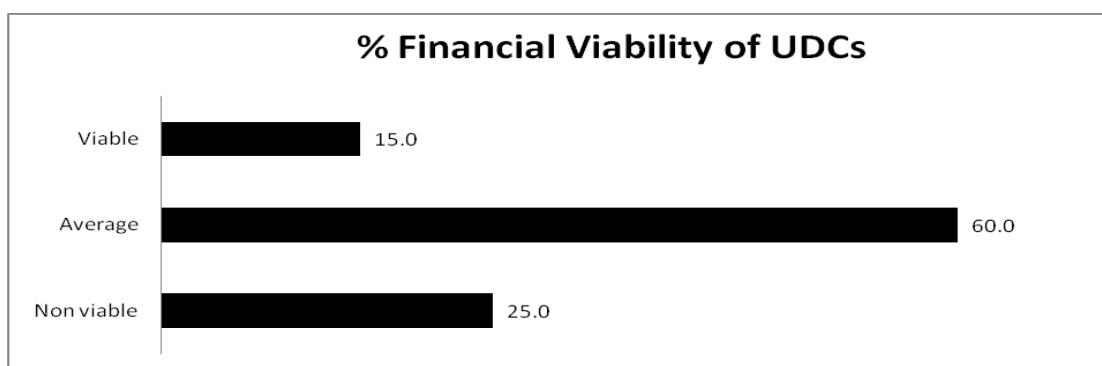


**Figure 4.2: Service Provider's perception about Financial Viability**

By analysing qualitative data, it is also observed that maximum of the considered Service Providers are at distressing situation with non-viability or average financial viability of the UDCs. In depth interviews of Managerial Staffs and Service Providers also showed that Service Providers who have high level of income and who are satisfied with their income are in favor of financial viability or average financial viability. Maximum middle incomers are in favor of average financial viability. Only few Service Providers with middle or low income have said that the UDCs are financially viable and few with high income level said that the UDCs are financially non-viable. This may be because of the factors other than income which vary Service Provider's perception about financial viability. The factors are Service Provider's living place and operation cost of UDCs. Where it is possible to meet daily demand and operation cost with minimum income, UDCs are financially viable with middle or low income. For example, UDCs situated in Dhaka with high income level are not financially viable but UDCs situated in Lalmonirhat are financially viable with middle or low income. This is because the living cost and operational cost both are high in Dhaka than those in Lalmonirhat.

### 4.2.2 User's Acceptance or Social Viability

Sustainability issue is closely linked with user's acceptance or social viability. As Service Providers and Service Receivers both are the users of UDCs, user's acceptance has been derived from satisfaction of both Service Receivers and Service Providers in various aspects.

### 4.2.2.1 Service Receiver's Acceptance

Citizens are the final stakeholders of the UDCs and so their acceptance is very much crucial for UDC's sustainability. To measure the acceptance level of the citizens, Service Recipients were asked how frequently they visit the UDCs and how they accept UDCs for day to day online services. It is seen that majority of the Service Receivers are frequently visiting the centers for different services. Some of them are visiting occasionally. It is observed that all of the surveyed users are aware of UDC and they all visited UDC for taking services. In case of acceptance of UDCs by the Service Receivers, the scenario is also accessed as per Figure 4.3 below:
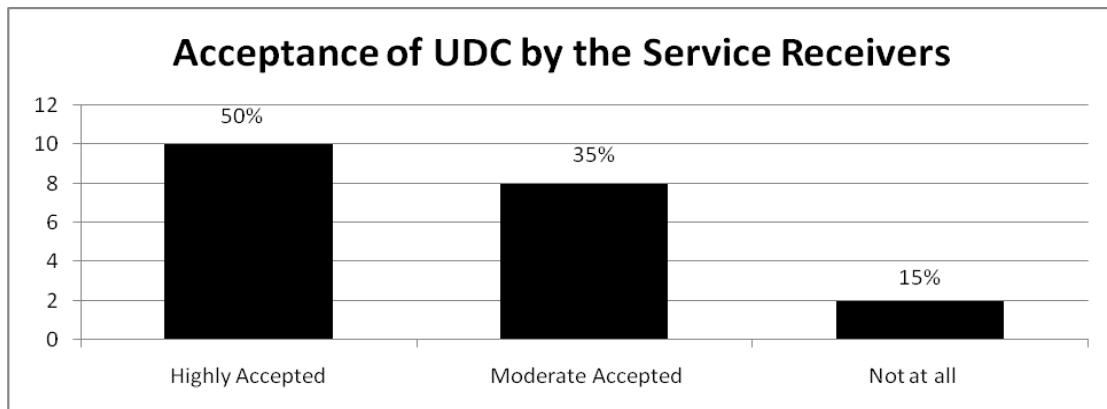
**Figure 4.3: Perception of Service Receivers about acceptance of UDC's services**

Figure 4.3 shows that half of the respondents agreed that the UDCs have been highly accepted by the society, some said moderately accepted and a few said that UDCs are not accepted at all. Those who visit hardly are in support of non-acceptability of UDCs.

By conducting interview, it is also observed that UDCs are very helpful to the common people, especially to the remote area's people where the bazaar or computer shops are not available. Researcher's practical observation and discussion with citizens living far from the UDCs, and the Table 4.1 below showing Service Receiver's home distance from the UDC also indicate that only the citizen living closer to the UDCs are receiving different services frequently. But considering citizens living far from the UDCs, it is seen that almost all of them do not know about UDC's services. They just know the centers as government certificate distribution centers. Table 4.1 below indicates that 45% of the surveyed Service Receivers are living within 1 km areas, 45% within 1 to 2 km and rest 10 % are above 2 km.

**Table 4.1: Distance between Service Receiver's home and UDC**

| Distance from UDC | Service Receiver's Number | Percentage |
|---|---|---|
| below 1 km | 9 | 45 |
| 1-2km | 9 | 45 |
| >2km | 2 | 10 |
| Total | 20 | 100 |

User's acceptance was also verified by analyzing the service type frequently delivered by the UDCs. Table 4.2 below shows that most of the Service Receivers are receiving government certificates from UDCs.

**Table 4.2: Service type frequently delivered and received from UDCs**

| Service Type | Frequency | Percentage |
|---|---|---|
| Education (Browsing, Admission, Job) | 7 | 35 |
| Training | 2 | 10 |
| Government certificates | 11 | 55 |
| Total | 20 | 100 |

Service Providers also said in interview that they are surviving only because of Birth Registration Certificate delivery service. As this service is mandatory, citizens are bound to take this service from UDCs. Service Receivers living closer to the UDCs are also taking educational and training type services but citizens living distant from the UDCs are taking only mandatory services like government certificates. Citizens living far-off from the UDCs also said that maximum of them feel comfort to go to private enterprises located in market because of the availability of the services or presence of alternative source of service delivery centers. Some of them are not even aware of other services offered by UDCs because of lack of sufficient publicity.

**4.2.2.2 Service Provider's Acceptance**

Service Providers have crucial role to sustain the centers. If they can accept the centers cordially, they will deliver services cordially and will invest more. Ultimately, Service Receivers will get services easily from these outlets. To know their acceptance, they were asked whether they feel honored to deliver services from UDCs or not, whether they are feeling comfortable to deliver services or not and in what instance they invest in the center.

All of the respondents agreed that they feel honored to be the entrepreneurs of UDCs and feel comfortable to deliver from UDCs. They also want to invest in the center but as they do not have business security, they did not invest more. They also

said that they want to work in these enterprises but as they do not know whether they will get next contract or not, they are searching alternative source of income. Quantitatively it is seen that, 85% of the surveyed Service Providers are seeking other job. Figure 4.4 below indicates the scenario of the job seeking status of the Service Providers. Here all the job seeker are student and others are either out of government service age range or some have no opportunity to continue education after completing secondary level education because of family burden.
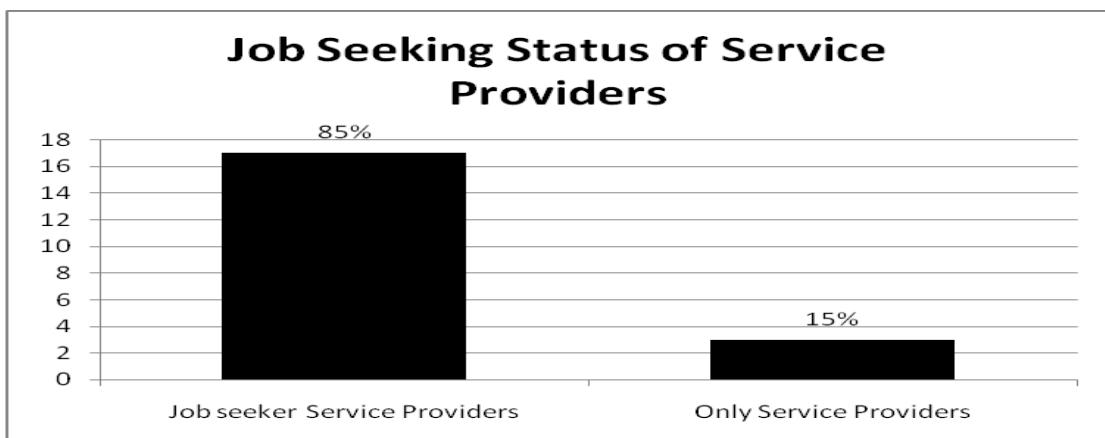


**Figure 4.4: Job Seeking Status of Service Providers**

Qualitative data also shows as the entrepreneurship is on contractual basis, it is assumed uncertain to the Service Providers for better future. They also have to face some political challenge like illegal pressure from UP Chairman and/or UP Secretary. They feel insecure to stay and so they search alternative way of income. The following statement of one respondent shows the overall picture.

*"Sometimes Chairman or secretary demands for reducing/altering the age of their nearer or dearer one for getting chance in Government job. It becomes tough /impossible for us to make them understand that it is not possible if one online certificate is already issued and so our job becomes tough. They then threat us to release us from the centers."*

Sustainability is considered to be present when any enterprise has financial viability and social viability. So to identify the institutional roots of UDCs, it is essential to identify its financial viability and user acceptance.

From above discussions, it is perceived that the most two important issues of sustainability are not in satisfactory situation. Most of the judged Service Providers are not satisfied with their income or they are somehow satisfied. Accordingly majority of them considered UDCs as either financially non-viable or in averagely viable.  In case of user's acceptance, although half of the considered Service Receivers agreed that UDC has high acceptability, their home distance from UDCs, qualitative data and researcher's practical observations oppose the issue. It shows citizens living close by the centres are only highly accepting UDCs. The job seeking status of Service Providers is also alarming for UDCs continued existence because they are already trained enough for serving in the UDCs. However the financial viability and the user acceptance are not same to each UDC. These two factors vary significantly in different UDCs. Now it is a question of how much the financial viability and user acceptance vary and why?

## 4.3 Factors having Influence on UDC's Sustainability

The study considers four independent variables: Entrepreneur's Qualifications, Infrastructure, Location and Government Intervention having influence on UDC's sustainability.

### 4.3.1 Entrepreneur's Qualifications

Entrepreneurs or Service Providers play a vital role for the effectiveness of UDC in terms of e-service delivery. The e-service delivery is disseminated by the UDC entrepreneurs. If they are not qualified enough to provide the e-services, people will deprive from getting desired services. In the study two indicators of entrepreneur's qualifications has been considered.  Those are Professionalism and Technical Skills. For these, two measuring indicators are:

1. Promptness, regularity and cordial service delivery
2. ICT skills and training

**4.3.1.1 Professionalism: Promptness, Regularity and Cordial Service Delivery**

As the citizens are main stakeholders of e-services, their satisfaction regarding e-service delivery is very important to assess the professionalism of UDC entrepreneurs. For this reason, following issues were asked to the respondents:

1. Whether the Service Providers are professional or not?

2. How much promptly the Service Providers can deliver services?

3. How much cordial the Service Providers are to Service Receivers?

4. Are the Service Providers regular visitors in the UDCs?

Majority of the respondents (Service Receivers) agreed that the Service Providers are professional and prompt to deliver services with much cordiality. But question arises with their regularity in the centers. It shows that maximum of the Service Providers (70%) are regular, some are average (5%) or irregular (25%). Male Service Providers are almost regular but the regularity of female Service Providers is not satisfactory. Out of the irregularity data maximum of them are females. This is because the fact that majority of female Service Providers are housewives and they take the entrepreneurship as part time work to support family. After completing all jobs of family it becomes tough for them to be regular in the center. The irregularity is more frequently seen in the rural area than the urban area where majority of them are student or are waiting for job.

**4.3.1.2 Technical Skills and Training**

To make the UDC effective, trained entrepreneurs are very much necessary. If they become trained at a desired level, they will be able to provide more services efficiently. In this regard, service providers/ entrepreneurs were asked about their training whether conducted by A2I, District Administration or Upazilla Administration or themselves. To assess Service Provider's technical skills and training status the following questions were asked to the respondents:

1. Whether the Service Providers are technically skilled or not.

2. Whether Service Providers got training or not, if yes then what type of training?

It is seen that maximum Service Providers are good in technical skill and all of them received training of different categories. 60% of the surveyed Service Providers received advanced training (web page design, free launcher, graphics design, internet browsing, Microsoft office works etc.), 25% of them received moderate training (internet browsing, Microsoft office work) and 25 % received basic training (Microsoft office work). Interview result showed that maximum training was arranged either by the A2I program or Local Administration by the support of A2I program. A few Service Providers obtained it by personal arrangement specially advanced training.

From above discussions, it is clear that most of the Service Providers are qualified. Because survey result showed that Service Providers are professional to deliver services. Professionalism data is also proved by their promptness and cordiality to deliver services. Most of them are also regular in the UDCs. In case of technical skills, maximum respondents (Service Receivers) agreed that Service Providers are technically skilled and all of the Service Providers got training. This information shows that most of the Service Providers are skilled enough and professional to deliver services from UDCs. This is because UDC is the top most priority given project of A2I program and regularly monitored by Local Administration.

### 4.3.2 Infrastructure

ICT infrastructure is very much important to carry on the UDCs. In this work two indicators, Internet connectivity and Electricity have been considered. For these the two measuring indicators were considered; Speedy connection of internet and Uninterrupted power supply.

### 4.3.2.1 Internet Connectivity

Internet connection is obligatory to provide digital services and hence internet speed. So, speedy internet is very important to authenticate the sustainability of UDCs because all types of e-services like e-mail, on-line banking, on-line shopping, Skype, internet browsing depend upon the internet speed. If the internet speed is at satisfactory level, e-service delivery can be provided according to the customers

demand. Internet connection either in optical or mobile form is present in all UDCs as per shown in Figure 4.5 below.
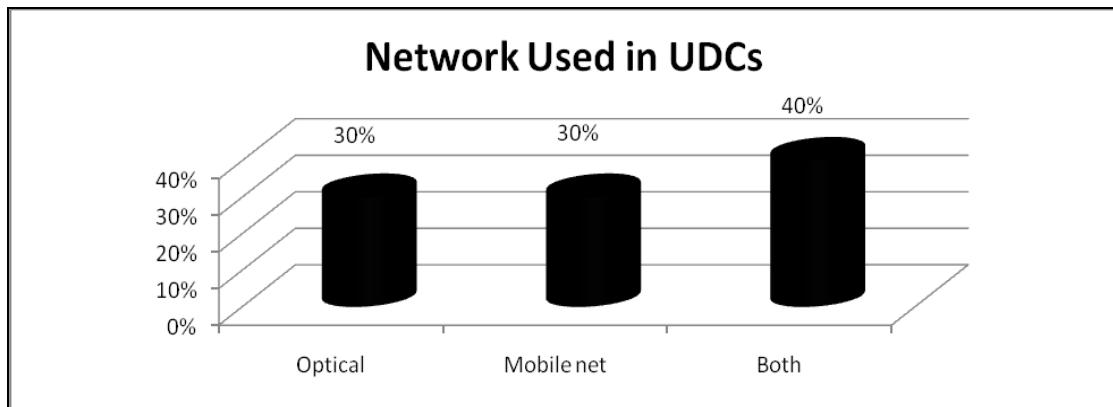


**Figure 4.5: Network Used in UDCs**

Whether the entrepreneurs and service receivers are satisfied or not on the speed of internet connection are also crucial for UDC's sustainability. It is observed that only 30% Service Providers and 45% Service Receivers are satisfied with internet speed; 35% Service Providers and 25% Service Receivers are moderately satisfied; and 35% Service Providers and 30% Service Receivers are dissatisfied with internet speed. That means most of the users are not satisfied or somehow satisfied with recent internet speed. Here, Service Receivers are more satisfied than the Service Providers. It may be because the Service Receivers do not need much more speedy internet for their purpose or they are not concern about that speedy internet. On the other hand, as the Service Providers are businessmen they require speedier internet to deliver more swiftly.

### 4.3.2.2 Uninterrupted Electricity Availability

To make the UDCs effective, electricity supply is very important. Uninterrupted power supply plays a vital role for smooth functioning of UDCs. Overall electricity condition is explained by asking whether the load shedding is frequently occurred or not on the UDCs during service delivery to both Service Receivers and Service Providers. Almost all UDCs (95%) face load shedding during service delivery. 35% Service Providers are dissatisfied with electricity condition, 35% are moderate and

only 30% are satisfied. On the other hand, only 15% Service Receivers are dissatisfied with electricity, 25% are moderate and 60% are satisfied. The satisfaction level variation between Service Providers and Service Receivers are probably due to the presence of alternative electricity connection. Figure 4.6 below shows that almost all of the surveyed UDCs have alternative to electricity connection.
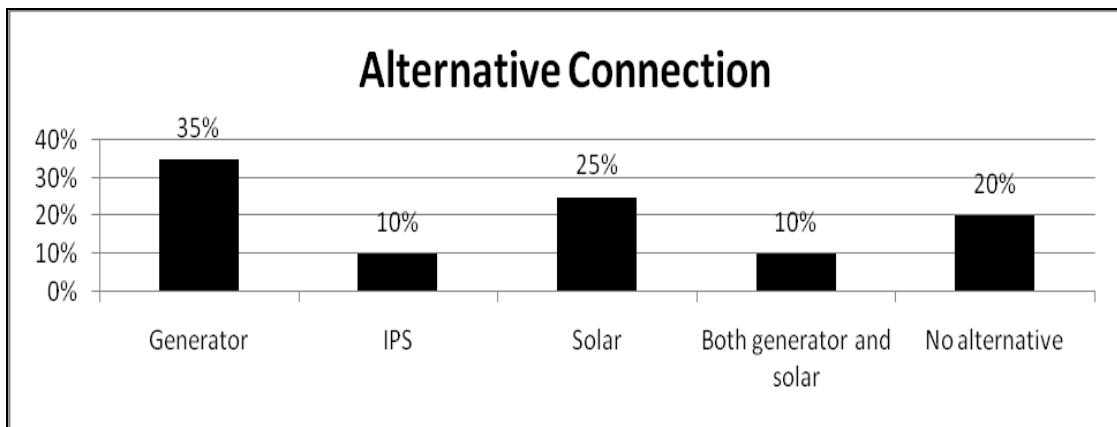


**Figure 4.6: Alternative to Electricity Connection Scenario in the UDCs**

### 4.3.3 Location

Location is a very important tool to make UDCs sustainable. Two indicators namely accessibility to the service point and availability of needed services are considering in this study and for this purpose two measuring indicators are; Ease of access to the UDCs and Availability of needed services in the UDCs.

### 4.3.3.1 Ease of Access to the UDCs

Citizen's access to the UDCs for getting e-services is one of the principal attributes for measuring of the acceptance of UDCs. If the beneficiaries of UDCs can enter easily into the UDCs for their necessary e-services, then it can be said that rural citizens have sufficient access to the UDCs which also means that the UDCs have social sustainability. The perception of Service Receivers about the extent of accessibility to e-service is presented Figure 4.7.
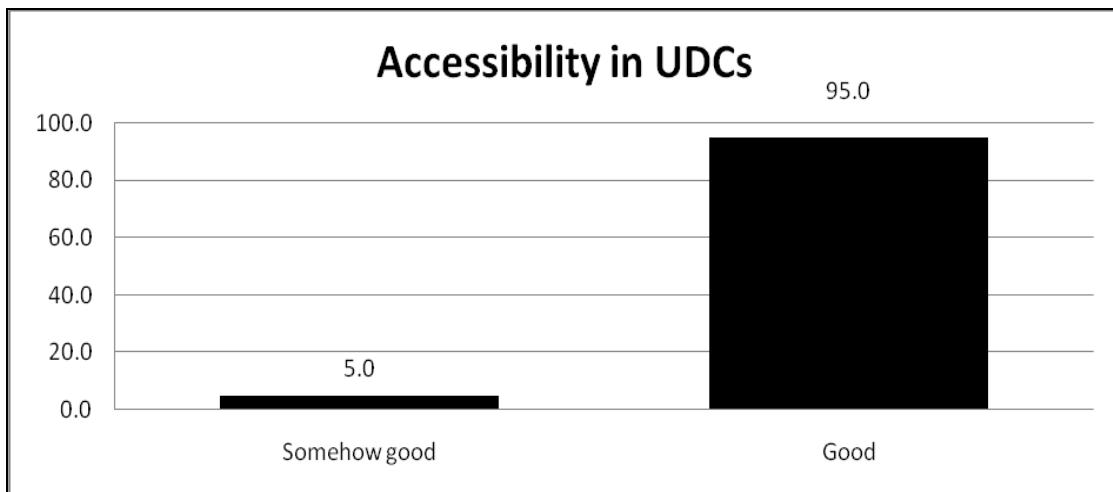
**Figure 4.7: Ease of Access to UDCs**

## 4.3.3.2 Availability of Needed Services in the UDCs

Most of the beneficiaries in the rural areas usually come to the UDCs for Birth Registration Certificate, Citizenship Certificate, Collection of Examination Result, Application for Admission at University, Application for job and Download of Government Form. In some UDCs, Service Receivers come for some special services which are announced by the Union Parishad itself like Application for Certified Copy of Land (Porcha)[13], Application for Rural Electricity Connection, Application for Passport, Visa Application, and Health and Agriculture related Information.

The availability of needed service delivery is one of the important criterions for sustainability of UDCs which ensures citizen's satisfaction. As the community people are the receivers of e-services, their satisfaction is very much necessary to define the availability of needed services.

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[13] Document for identifying land, prepared through survey for the purpose of determining possession, ownership and assessing Land Development Tax. It is also known as Record of Rights or *Sottolipi*.

Availability of needed services is presented here in Figure 4.8 below according to respondent's view.
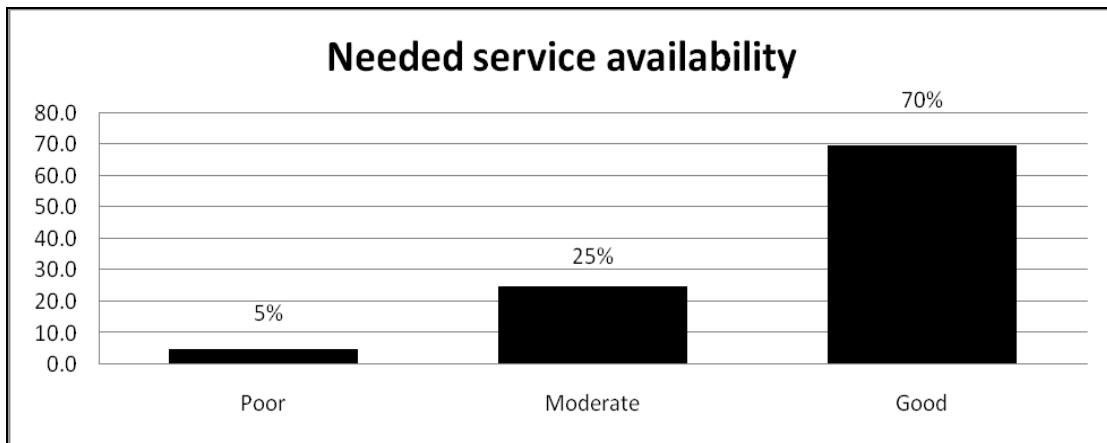


**Figure 4.8: Availability of Needed Services in UDCs**

From above Figures (Figure 4.7 and 4.8), it is clear that the accessibility and availability of needed services in the UDCs are good in condition because 95% respondents agreed that the UDCs have good accessibility and 70% respondents agreed that the needed services are available in the UDCs. This figure indicates that the location of UDCs is suitable to sustain for a long run.

### 4.3.4 Government Intervention

It is an action taken by Government in an effort to impact the effectiveness of UDC beyond the basic regulation and provision. Sometimes it also depends on political will of the Government where political will refers to political intention or desire or the firm intention or commitment on the part of a government to carry through a policy. Two measuring indicators frequently used in this research are Policy Imitation and diffusion/Government Support and Political Will of the Government

### 4.3.4.1 Policy Imitation and diffusion/Government Support

To get rid of the need for millions of underserved citizens to take a trip for gigantic distances, acquire high charge and tolerate significant hassle for accessing government services, A2I in collaboration with the Local Government Division, established UDCs (A2I, 2012). As A2I program is directly controlled by the Prime

Minister's office, the projects implemented by the A2I program got top most priority. It is also seen that structurally the decisions are in 'Top to down'[14] approach. So, it is easy to control the system by the Central and Local administration.

It is seen that UDCs are run over by A2I Project Document I and II, UDC related circular and circular on attachment of different services in the UDCs to increase the income of UDCs. According to the circular, these one-stop service centers are essentially micro-enterprises run by 'citizen entrepreneurs', 1 male and 1 female. Except these there are no rules or regulation rather than the A2I program's decision to take any decision upon UDCs.

According to circular, these centers are physically hosted in Local Government offices and 1% of their annual budget is directed towards these enterprises. Meanwhile everyday expenses like service charges, internet bills, computer preservation costs, etc. are put up with by the entrepreneurs who must create revenues by providing certain public and private services (A2I, 2016e).

According to A2I project document the collaborative organizations or authoritiess are:
- Access to Information Program (A2I)
- Bangladesh Computer Council (BCC)
- Deputy Commissioner (DC)
- Additional Deputy Commissioner (ICT)
- Upazilla Nirbahi Officer (UNO)
- Union Parishad Chairman (UP-Chairman)

Almost all of the respondents agreed that they are getting maximum support from UNO, A2I program, ADC (ICT), and UP Chairman.

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[14] A "top-down" approach is where an executive decision maker or other top person makes the decisions of how something should be done

Figure 4.9 below states that the UDCs are running by getting support from different governmental organizations and authorities.
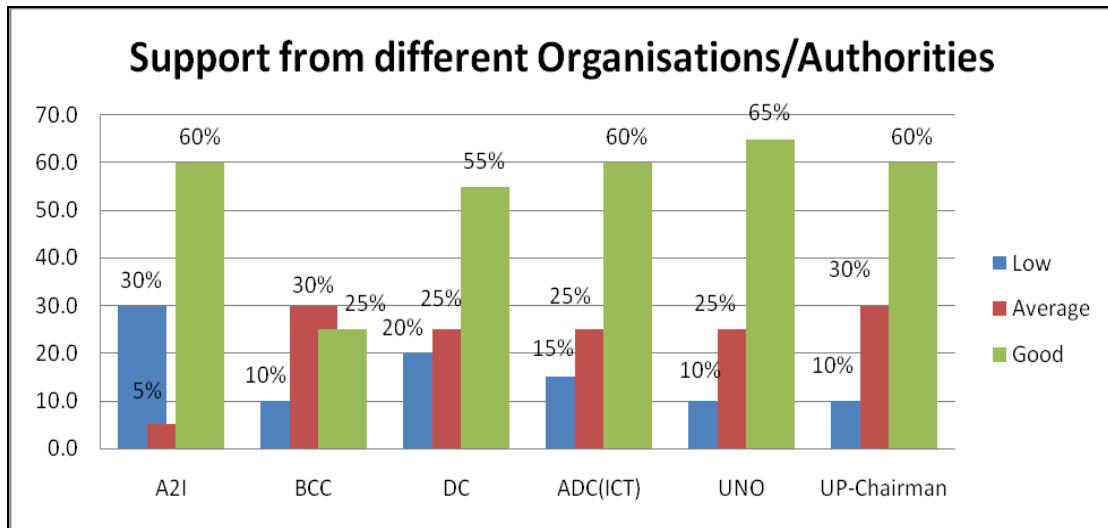


**Figure 4.9: Support gets by UDCs from different organizations/authorities.**

Qualitative data also showed that the UDCs are running by taking support from different government organizations and authorities and it's not time to stop government support. If we want to run digital service delivery to common people then government will have to take special policy to sustain these enterprises. Without government support the system will be collapsed.

When the Service Providers were asked whether they will able to carry their business without government support or not and what will be the future of UDCs when project period will be completed and government support will be stopped, maximum respondents answered that it's not possible to carry business without project support or government intervention. It's not possible to run business because of the political pressure especially from UP Chairman or interference of UP Secretary.

Figure 4.10 below shows the future of UDC business without government support according to Service Provider's perception.
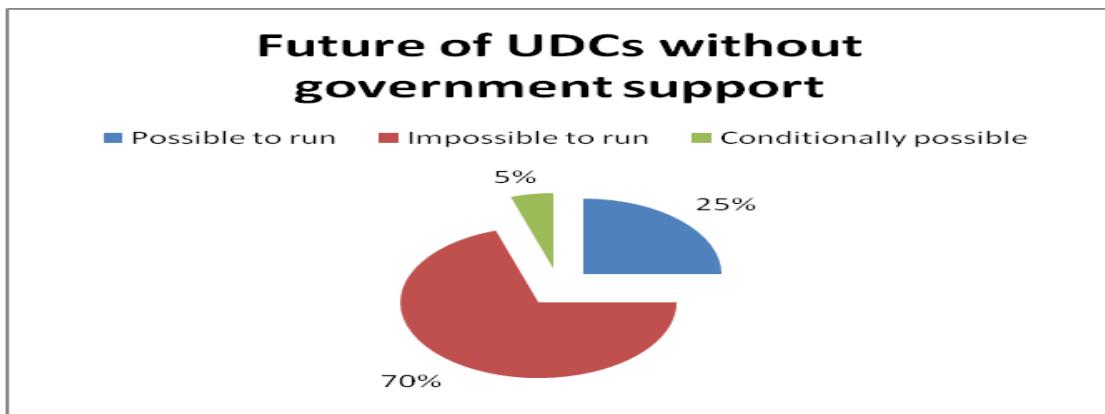


**Figure 4.10: Perception of Service Providers about future of UDCs without government support**

Qualitative data also showed that Service Providers require government support for the existence of UDCs. According to Service Providers, It is not a matter of financial viability or social acceptance rather a matter of existence. They said that at first we have to exist and then to continue. If government can give us necessary support to stay alive the centers and to be present the Service Providers in government area, then it will be possible to bring the financial or social sustainability.  One of the statements given by Service Providers showing below demonstrates their perception about future of UDCs without government support.

> "Government support needs for UDC's existence. If UDC exists, then we can continue our business which will ultimately confirm the financial viability and social viability."

### 4.3.4.2 Political Will of the Government

Vision 2021 is the political proposal of the present ruling party, Bangladesh Awami League, before winning the National Elections of 2008. Till 2008 the Bangladesh Awami League is ruling the country envisioned with a Digital Bangladesh by 2021. So,

the vision 2021 stands as a strong political vision of Bangladesh for the year 2021, the golden jubilee of the nation. "Digital Bangladesh" and "Vision 2021" are catch slogan in Bangladesh these days.

The Government of the People's Republic of Bangladesh declared a vision of 'Digital Bangladesh' by 2021 to ensure services at people's doorsteps. A total number of 4,547 UDCs covering all unions of Bangladesh is the major outcome of the A2I program which is a leading approach to fulfill the dream of 'Digital Bangladesh' into reality. It is the present government's commitment to alter UDCs in the store house of information and through the application of ICT, to confirm easy access to any information with a lowest cost so that rural people need not to come to various government agencies (Rakib, et al., 2015). It explains that the political will of the present ruling party converts into the Government's commitment. So, the UDCs have strong political will to exist in all over the country and the UDCs are getting apex precedence from the government also. But it is question how much it will be sustainable without political will. Qualitative data collected by in depth interview showed that the Service Providers are tend to be selected or advocated to run the business by the UP Chairman's will as he/she is the Chairman of the UDC's managing committee and he/she has authority to recommend UNO for employing or releasing Service Providers. One of the statements is given below for realizing the overall situation.

> "Our business depends on chairman's will. If we cannot fulfill the aspiration of UP Chairman then we cannot survive because of his/her influence. UP chairman tends to discharge us or threat if we cannot fulfill his desire which needs UNO/ADC level officer's direct intervention to minimize the situation".

Managerial Staffs like ADC (ICT), AC (ICT), UNO are in support of present PPPP type UDCs for getting its maximum benefits. On the other hand, UP Chairmen are in support to internalize the UDCs into UPs where Service Providers will be their direct

supervision and control. Profits of the centers will be incorporated on UP's fund and a fixed amount will be provided to the Service Providers by the UP. But the Service Providers want to nationalize their job so that they can carry their business with any condition. These concepts indicate that the UDCs are not in self operating condition in this moment rather it needs proper attention before discontinue project support.

## 4.4 Critical Analysis between Dependent and Independent Variables

### 4.4.1 Sustainability and Entrepreneur's Qualifications

In this research, sustainability of UDCs means the UDCs having financial and social sustainability. Data shows that financial viability varies with Service Provider's qualifications like technical skills and professionalism. UDC is viable or averagely viable when Service Providers are qualified. Here professional Service Providers earn more with good, average or poor technical skill. Some respondents said that it is not a matter of high technical skilled Service Providers rather matter of sincerity or professionalism. It is due to the fact that the services provided to citizen from UDCs do not require high technical skill but professionalism. Pearson's correlation value also shows that **professionalism and financial viability are positively significantly correlated at .01 levels (2-tailed) where correlation value is .681**.

In case of social sustainability, it is noticeable that acceptance of UDC is high to the Service Receivers when Service Providers are more qualified. Sometimes, having good professionalism and good technical skill does not mean Service Receiver's high acceptance. This may be because of other reason like availability of needed services and/or infrastructure. On the other hand, although the Service Providers accepted the entrepreneurship as a dignified profession and they feel comfort to deliver services from UDCs; their acceptance varies with the business security. As the business is on contractual basis for 5 years duration and as there is a provision to change Service Providers if they have any problems as per recommendation of UP Chairman, the Service Providers do not feel secure this business and search for different permanent job.

So, quantitative and qualitative data gathered for this research show that the sustainability of UDCs vary significantly with entrepreneur's qualifications.

## 4.4.2 Sustainability and Infrastructure

To fulfil the desire of 'Digital Bangladesh' into reality and so to continue the services to the common people by the UDCs, it is essential to ensure continual supply of internet and electricity.

Data shows that financial viability varies with satisfaction for internet speed of both Service Providers and Service Receivers. Here, Service Receivers are more satisfied with internet speed than Service Providers. This may be because of the fact that Service Receivers do not need much more speedy internet for their desired services or they are not concern about or experienced with the speedy internet. **Service Receiver's satisfaction for internet speed has also more impact on financial viability. It is positively significantly correlated with financial viability with Pearson correlation value of .477 at .05 levels (two tailed)**. **Service Provider's monthly income is also positively significantly correlated with Service Receiver's satisfaction for network speed having Pearson correlation value of .541 at .05 (two tailed) levels.** In some cases, it is also observed that UDCs are financially non-viable with satisfaction of both Service Providers and Service Receivers. It may be for other reasons like non-qualified Service Provider, or for distress access in the centre.

In case of electricity availability, it is seen that Service Provider's monthly income is high with both Service Provider's and Service Receiver's satisfaction for electricity supply but it may also be low or average in some cases. Service Receivers are more satisfied with electricity than that of Service Providers. This may be because of the fact that alternate to electricity in the form of solar energy or generator is present in almost all UDCs. **Service Receiver's satisfaction for electricity has also more impact on financial viability. It shows positively significant relation with financial viability having Pearson correlation value of .549 at .05 levels (two tailed).**

From above discussions, it is obvious that Service Receiver's satisfaction for both internet speed and electricity supply have significant relation with financial viability. It is may be because of the fact that Service Receivers have more option to go for their desired services but Service Providers are bound to deliver services if they want to carry business.

### 4.4.3 Sustainability and Location

It is assumed that the financial viability is closely correlated with the ease of access by the citizen in the centres and the availability of needed services to them. Ease of access in the UDCs is good, agreed by almost all of the respondents. Data shows that whether the UDCs are good, moderate or bad and whether the Service Receivers are satisfied, dissatisfied or averagely satisfied with delivered services from UDCs the accessibility is good. Only a few respondents agreed that the accessibility is somehow good who is also dissatisfied with delivered services. **There is no direct relation between financial viability and accessibility but SPSS shows significant relation between accessibility and Service Receiver's satisfaction for delivered services from UDCs with .454 Pearson correlation value at .05 levels (two tailed).** Service Receiver's satisfaction ultimately affects the financial viability of UDCs.

In case of availability of needed services, financially viable UDCs have more availability of needed services. This is because more Service Receivers go the center where they get their demanded services. **The Pearson correlation value of the relation between availability of needed services and financial viability is .462 which is significant at .05 levels (two tailed).**

From above discussions, it is mentionable that the financial viability directly connected with availability of needed services but indirectly with accessibility having influence on Service Receiver's satisfaction for delivered services.

### 4.4.4 Sustainability and Government Intervention

UDCs are running over by UDC circulars and supports from different government organizations and authorities. Quantitative and qualitative data show that the

surveyed UDCs will not survive without government support. As UDCs are directly controlled by A2I program which is the present government's top most priority given program, it is easy to control the system by the Central and Local administration. Structurally the decisions are also in 'Top to down' approach with strong political will. With giving apex precedence, maximum reviewed UDCs are not financially viable or they are not getting much acceptance from Service Providers or Service Receivers living far-off from the UDCs.

Qualitative data also demonstrate that the UDCs are running by getting support from different governmental organizations and authorities and it's not time to stop project support. Service Providers will not able to carry business without project support or government intervention because of the political pressure especially from UP Chairman or interference of UP Secretary. If we want to run digital service delivery to common people then government will have to take special policy to sustain these enterprises. Without government support the system will be collapsed. The interviewed result also indicated that either the UDCs will have to maintain the present PPPP modality or have to internalize the UDCs into UPs where Service Providers will be UP Chairman's direct supervision and control or have to nationalize entrepreneur's job so that they can carry their business with any condition. These concepts indicate that the UDCs are not in self operating condition in this moment rather it needs proper attention before discontinue project support. Government intervention is interrelated with the existence of the UDCs not directly with financial viability or social viability. **Government intervention shows the way of how to exist which ultimately gives an idea of how to continue**.

Qualitative data also show that if government can support UDCs to exist in the present location, then it will be possible for Service Providers to bring the financial viability and better services will ultimately ensure high social sustainability.

## 4.5 Interpretation on the Basis of Critical Analysis

UDCs are online service delivery centers in all over the country. It is possible to serve rural underserved citizen through UDCs very easily. But question arises when anyone

would think about its future that is how long it will sustain to serve the rural citizen; has it got sufficient institutional roots to be sustained; if not then what's the problem, what factors affect the sustainability issues of UDCs, and what are the challenges and possible remedies of those challenges.

Most of the Service Providers are in the low or middle income category and so their satisfaction level is maximally dissatisfied or somehow satisfied. Accordingly maximum surveyed UDCs are financially non-viabile (60% moderately viable, 25% non-viable and 15% financially viable). Sometimes UDCs with high income are financially non-viable and sometimes UDCs with middle or low income are financially viable. For example, high income UDCs in Dhaka are not financially viable but UDCs in Lalmonirhat with low or middle income are financially viable. This is because of the operation cost of the centers and the living cost of the Service Providers is not same in Dhaka and Lalmonirhat.

In case of user's acceptance, it is seen that maximum Service Receivers are frequently visiting the UDCs and majority of them agreed that the services delivered by UDCs are highly helpful and so highly accepted by them. But when the distance is considered, it is seen that maximum Service Receivers are within 2 km and they are receiving various government and non-government services. Service Receivers living more than 2 km are receiving only government and mandatory services. UDCs are locating in Union Parishad complex where the UDC is only one serving centre but in the bazaar or Upazilla headquarter, there is more than one centre. Most probably citizen living far-off from centres doesn't want to take risk to come in the UDCs rather they feel comfort to go the bazaar or other service delivery centres. On the other hand, although Service Providers agreed that they are recognizing UDCs but survey shows that 80% Service Providers are searching for permanent job due to their business insecurity.

Overall, although the services delivered by UDCs are helpful to the citizens, the surveyed enterprises are far from getting institutional roots to be sustained for a long run having only 15% surveyed UDCs as financially viable and having acceptance

for only citizen living close to the centers. These issues vary with different factors like entrepreneur's qualifications, infrastructure, location, and government intervention.

From discussions, it is clear that maximum entrepreneurs are qualified enough for serving from UDCs. All of them are trained, either taking training from A2I or from Local Administration. Service Receivers are satisfied with their professionalism and their professionalism positively significantly correlated with sustainability of the UDCs.

Data show that internet connectivity and electricity is present in all over the country but question arises when it comes to the point of speedy connection of internet and uninterrupted electricity. Where Service Receivers are satisfied with internet speed and electricity supply, UDCs are more financially viable. There is significant correlation between Service Receiver's satisfaction for internet speed and sustainability and also between Service Receiver's satisfaction for electricity and sustainability.

Ease of access in the UDCs is good as agreed by maximum respondents. Whether the UDCs are good, moderate or bad and whether the Service Receivers are satisfied, dissatisfied or averagely satisfied with delivered services from UDCs, the accessibility is good. Although there is no direct relation between sustainability and accessibility, Service Receiver's satisfaction indirectly influence financial viability having significant correlation between accessibility and Service Receiver's satisfaction for delivered services. In case of availability of needed services, financially viable UDCs have more available services and they have significant correlation.

Maximum Service Providers are agreed that they will not be capable to carry on their business without project support as project support or government support is necessary to make available back up for minimizing business insecurity. According to them, UDCs will not exist without government support. Thus it is not a matter of financial viability or social acceptance rather UDC's existence. UDC Managerial Staffs

like ADC (ICT), AC (ICT) and UNO agreed that UDCs are capable to serve citizens but it is not perfect time to stop project support. But if the project support wanted to be stopped then it will necessary to increase support from Local Administration and UP. UP Chairman said that the UDCs need to be merged with UPs so that they can directly control the Service Providers and so the centers. On the other hand, Service Providers want their job to be nationalized.

However, researcher's personal observation, survey data, interviewee's comments show that by keeping UDC under government's direct or indirect support, it is necessary to increase publicity and to attach more government services to be delivered from UDCs so that Service Providers get their permanent income source. It is obviously necessary to take some necessary action to minimize the challenges arising in the UDCs mainly antagonistic relation of Service Providers with UP Chairman and UP Secretary.

In this research, sustainability is considered to be present when any enterprise has financial viability and user's acceptance. With low financial viability and acceptance of only citizens living nearby, maximum of the surveyed UDCs are at a vulnerable situation. Although maximum of the surveyed UDCs are not financially viable and only highly accepted by merely citizen living closely by the UDCs, the UDCs are serving all over the country. Due to the presence of UDCs, most of the rural people are now conscious about online service system. Citizens are getting hassle free government services from UDCs as they do not need to go to the District or Upazilla headquarters. Analysis of the collected data also showed that the financial viability and user's acceptance vary with the factors like entrepreneur's qualifications, location and infrastructure. But it is a distressing concern that the forth considered factor namely government intervention is not directly linked with financial viability or social acceptance rather with the existence of UDCs. Without government support it is not possible to exist the UDCs, financial viability and social acceptance are matter of far-flung. This is because of the fact that government support is essential to keep alive the UDCs where other factors need to keep the centres financially viable or to enhance the social acceptability of the centres. Financial viability and

social acceptance is next to existence. Those will come after ensuring the existence of the centres.


**4.7 Summary of the Chapter**

UDCs have huge potentiality to provide accurate, reliable and quality of information to rural people. However, question arises to what extent UDCs be institutionalized for long term sustainability? The aim of this study is to find out the factors having influence on the sustainability of UDCs, the challenges of UDCs to be sustained for a long run and finally to locate the possible remedies for ensuring sustainability. This chapter explores that maximum of the surveyed UDCs are not in socially or financially viable condition. The sustainability issues vary with different factors like areas where the UDC is located, Service Provider's qualifications, Service Receiver's perception about satisfaction for electricity or internet, availability for needed service and accessibility to the centers, and with government intervention. The chapter further critically analyzed how various factors vary in different centers and finally presented a brief interpretation with a comparative discussion about the influence of various factors.

# Chapter 5

## Finding and Conclusion

This chapter summarizes the overall study and analyses the findings in the light of the analytical framework. It draws broad conclusions to research questions. Furthermore, based on the analysis and observations, few research issues with policy implications have been raised for future.

The study was carried out through mixed method approach. Assumptions were drawn by conducting questionnaire survey conducted with the key stakeholders who are responsible for operations called Service Providers and Service Receivers and interview was conducted with different officers who are directly involve with UDCs management process like ADC (ICT), UNO, AC (ICT) and UP chairman and also with Service Providers. In addition to the above mentioned methods, content analysis was on the basis of relevant documents, articles, journals, published and unpublished research works and online articles that are found to be available and practical observation was also conducted during data collection period to find out the actual operational capability and management procedure by visiting physically.

Total 9 UDCs have been surveyed taking 3 from each of 3 different districts namely Lalmonirhat, Munshiganj and Dhaka. In these UDCs total 20 Service Receivers and 20 Service Providers have been taken under consideration of questionnaire survey and interviews have been conducted on 18 UDC managerial staffs and 20 Service Providers for understanding depth of the prospects regarding their service delivery. UDC's present condition and sustainability challenges have been identified by counting their opinion, views and by analyzing practical observation. To ensure the actual reflection of the activities of the UDC, out of total 9 UDCs, 3 of them are best in their respective District, 3 medium and 3 worse according to District Administration's annual report and national digital centre management system's (DCMS) monthly report linked on http://dcms.e-service.gov.bd/. These 3 districts were considered by observing the average of 3 months performance before data collection on September'17. Results are presented and analyzed in detail in chapter

four through statistical tools to show the relationship between dependent and independent variables.

## 5.1 Factors affecting Sustainability of the UDCs

Two sustainability issues are considered in this research:

1. Financial Viability.
2. User's Acceptance.

From above mentioned critical analysis and interpretation, it is clear that the financial viability varies significantly with the following factors;

A. Service Provider's qualifications mainly professionalism.

B. Infrastructure: Internet speed and electricity availability.

C. Location: accessibility to UDCs and availability of needed services.

Service Receiver's acceptance varies with the following factors;

A. Entrepreneur's (SP) qualifications: professionalism.

B. Infrastructure: internet speed and electricity availability.

C. Location: accessibility to UDCs and availability of needed services.

Service Provider's acceptance varies with the following factors;

A. Infrastructure: internet speed and electricity availability.

B. Government Intervention.

## 5.2 Challenges of e-service delivery through UDCs

The study attempted to know the challenges of e-service delivery through UDCs in Bangladesh by interviewing of ADC (ICT), UNO, AC (ICT) and UP Chairman and entrepreneurs who are directly and indirectly involve in UDC's management and monitoring activities. The research was conducted total 38 interviews. Officials were asked for to mark their opinion based on their experience. The collected data showed following challenges.

*Antagonistic relationship of entrepreneurs with UP Chairman and UP Secretary*:
Service Provider's clash with UP Chairman or UP Secretary is common in almost all UDCs which need UNO or ADC level officer's interference to be settled. It's a common tendency of Chairman or Secretary to dominate Service Providers, to use

them for their personal work, to change them according to their own will whether they are expert or not. Although UNO is the main person to change Service Providers, the power is given to the Chairman to recommend UNO by consulting with UP members which may be used illegally. UP Secretary sometimes wants to deprive the Service Providers by taking service fee, which are the right of Service Providers. One of the statements about this relation is given below.

> *"The service charge is taken by our UP Secretary and UP Chairman and a negligible fixed amount is given us monthly which is not as per our effort"*

*Lack of Publicity about UDC services:*

Most of the citizen living far-off from the UDCs does not know about services delivered from UDCs because of the lack of publicity. One of the statements given here about lack of publicity clears the condition.

> *"That (UDC) is a room of UP where government certificate is delivered by one young boy (Male Service Provider), we do not know about other services, there was no miking about the UDC"*

*Irregularity and drop out of Service Providers, mainly female Service Providers:*

Male Service Providers are almost regular but the regularity of female Service Providers is not satisfactory. Maximum of them are housewives and they consider the entrepreneurship as part time job. After completing all household activities they rarely come to the centers.

*Service Provider's reluctance for personal investment:*

Service Providers feel insecure to invest in the UDCs as they are not the permanent employee in the centers. That's why only government or project given apparatus are present in the UDCs which become more competitive in this competitive era of ICT.

*Service Provider's unwillingness or money crisis for hardware maintenance:*

Maximum machines mainly laptop or photocopier availed by the A2I project are out of service. Service Providers are not curious to repair those as the maintenance is costly. Their negligence is also prominent as they are not permanent employee.

*Job seeking tendency of Service Providers*:

Majority of the Service Providers are seeking job as they are on contractual basis for specific period and the next contract is uncertain.

*Power and Network Crisis:*

Power crisis is prominent in rural areas for which uninterrupted service delivery is hampered. Speedy network is another problem in rural areas and so online services are not delivering promptly.

## 5.3 Possible Remedies to ensure Sustainability

UDC is an important place in every Union where people especially poor rural grassroots people can get facilities of modern science. It's a blessing for the general people. Through the UDCs, modern technologies have reached to the root level of our country due to the initiative of present government. Now it is the time to give them institutional roots so that the UDCs can serve people for long time. For this reason, some possible remedies are suggested below:

- UDC's own complex need to be established to avoid unnecessary interference of the UP Chairman or Secretary.
- More government and mandatory services need to attach for ensuring mandatory income to gear up Service Providers to carry their business.
- Time demanded training should be provided to the Service Providers so that Service Providers can provide more digital services and training to the citizens.
- A fix amount should be provided to the UDC from Union Parishad's fund to maintain the machines of the UDCs.
- More publicity of the services provided by the UDCs to aware citizen.
- Monitoring by the District and Upazilla Administration should be increased.
- To ensure reliable and continuous electricity, and high speed internet.
- The Service Providers and Officials may be offered some sorts of incentive packages for additional contribution in e-service implementation.

- In maximum case female Service Providers are not interested but due to circular it is mandatory to appoint one female in each UDC. It needs to be either corrected or promised female Service Provider needs to be employed.

- In employment candidates crossing age of 30/32 years should be given priority as maximum Service Providers have tendency to seek other job.

## 5.4 Re-examining the Research Questions

As identified in chapter one, the foremost objective of this study is to find out the factors influencing the sustainability of UDCs with possible remedies of the challenges. The research is conducted on the basis of one broad research question whether UDCs got institutional roots to ensure its sustainability or not. The broad research question is further supported by three specific questions covering the fact whether the UDCs will sustain on the completion of A2I project period or not with identifying the factors influencing the sustainability; and the challenges and possible remedies of the challenges to ensure sustainability of UDCs.

☐ *Have UDCs got institutional roots to ensure its sustainability?*

The study found that the maximum of the surveyed UDCs are far away from getting institutional roots yet as because of the following reasons:

✓ Financial sustainability is not build up yet in maximum of the surveyed UDCs. Overall financial condition of the surveyed UDCs is average in viability (25% of the surveyed UDCs are financially non-viable, 60% are in average viability and only 15% are financially viable). Study further disclosed that some of the considered UDCs are financially viable with low or middle income but some are non-viable with high income. For example, UDCs located in Dhaka earn more but not financially viable but UDCs located in Lalmonirhat earn less but financially viable. This is because of the fact that the operation cost of the centers and living cost are more in Dhaka than those in Lalmonirhat. Financial viability is also varies with Service Provider's qualifications, infrastructure, location and government intervention.

✓ Social sustainability of the UDCs is not up to the mark in majority of the reviewed UDCs. Practically 85% Service Providers are seeking other opportunity of job and

only citizen living nearby are aware of the services of UDCs. They are coming for different government and non-government services frequently. But qualitative data and researcher's practical observation showed that citizen living far-off from UDCs are not coming frequently. Some of them rather go to the market or Upazilla headquarter for receiving services where there are more option for availability of services and service delivery centers. Some of them are considering the UDCs as government form or certificate distribution centers only and some of them even do not know the name of the UDCs due to the lacking of the publicity.

□ *Will UDCs sustain on the completion of A2I project period/without government support?*

The probability of sustaining the surveyed UDCs is not very high. In this research, it is assumed that any center is considered to be sustainable when it has financial and social sustainability. In case of surveyed UDCs, it is seen that maximum of these are not attaining financial sustainability and these have huge social sustainability to the citizens living only close by the UDCs. Although the sustainability issues are not in suitable condition, the UDCs are serving all over the country. Most of the rural people are now attentive to digital services due to the presence of UDCs. But when government intervention is considered as a variable, it is seen that UDCs will not exist without government intervention. It is not a question of UDC's financial or social viability but the existence of the UDCs. UDCs are now running over by present government's top most priority given program, A2I, supported by local and central administration. Giving top most priority the surveyed UDCs are not in suitable condition. So without government support or project support, the sustainability of surveyed UDCs is far to reach. So it is not time to stop project support or government support rather time to take necessary action to give them institutional roots.

□ What factors are influencing the sustainability of UDCs?

Several factors have been examined to measure its effect on sustainability of UDCs. This research has explored Service Provider's qualifications mainly

professionalism, Infrastructure mainly Service Receiver's satisfaction for internet speed and electricity availability, Location like availability of needed services, accessibility to the UDCs affect the sustainability issues of UDCs significantly. Here these factors affect the financial viability and social acceptance directly but government intervention. Without government intervention it is not possible to run the UDC business. It is the most prominent factor of UDCs to stay alive. The UDCs have to exist first and then the issues like financial viability or social acceptance will come which are indispensable for UDCs to continue.

Where there are more professional and qualified Service Providers, there are more Service Receivers. More Service Receivers mean more income and more acceptances by the society which in due course ensure both financial and social sustainability. In case of infrastructure, more equipped UDCs with uninterrupted electricity and speedy internet can deliver services easily and frequently and so more customers go there. Again more customers in the end ensure financial sustainability and social acceptability. Location is another important factor to make any enterprise sustainable because people will not go without suitable location and sufficient services. Finally government intervention, it is more influential factor in case of UDC's sustainability as without government intervention, it is not possible to carry on the business for maximum of the surveyed UDCs.

☐ *What are the challenges and what may be the way forward to ensure sustainability of UDCs?*

This research has identified following challenges for UDC's smooth running:

- Antagonistic relationship of entrepreneurs with UP Chairman and UP Secretary
- Lack of Publicity about UDC services
- Irregularity and drop out of Service Providers, mainly lady Service Provider
- Service Provider's reluctance for personal investment

- Service Provider's unwillingness or money crisis for hardware maintenance

- Job seeking tendency of Service Providers

- Power and Network Crisis

Possible remedies according to qualitative data analysis and researcher's practical observation are:

- UDC's own complex need to be established to avoid unnecessary interference of the UP Chairman or Secretary.

- More government and mandatory services need to attach for ensuring mandatory income to gear up Service Providers to carry their business.

- Time demanded training should be provided to the Service Providers so that Service Providers can provide more digital services and training to the citizens.

- A fix amount should be provided to the UDC from Union Parishad's fund to maintain the machines of the UDCs.

- More publicity of the services provided by the UDCs to aware citizen.

- Monitoring by the District and Upazilla Administration should be increased.

- To ensure reliable and continuous electricity, and high speed internet.

- The Service Providers and Officials may be offered some sorts of incentive packages for additional contribution in e-service implementation.

- In maximum case female Service Providers are not interested but due to circular it is mandatory to appoint one female in each UDC. It needs to be either corrected or promised female Service Provider needs to be employed.

- In employment candidates crossing age of 30/32 years should be given priority as maximum Service Providers have tendency to seek other job.

- In employment candidates crossing age of 30/32 years should be given priority.

**5.5 Re-scrutinizing the Sustainability Issues**

Sustainability issues considered in this research are financial viability and social viability or user's acceptance. Researched data show that the sustainability of the UDCs vary significantly with entrepreneur's qualifications which is mainly professionalism of the Service Providers, infrastructure mainly satisfaction of Service Receivers for both internet and electricity supply, with location which is indicated by accessibility to the UDCs and availability of the needed services in the UDCs as these factors affect the financial viability and social acceptance of the UDCs. But government intervention has no direct impact on financial viability or social viability rather it is a factor directly interconnected with the existence of the UDCs. So, the sustainability issue is considered differently by different user of the UDCs. Here sustainability issues are described in the Service Receiver and Service Provider's point of view.

*Sustainability in Service Receiver's Point of View*

To the Service Receivers, it is essential to get quality services in quality time with minimum cost and visit. Service Receivers will go to the centers where they will get accepted available services with quality time and visit and which is suitable to go. So, the sustainability issue namely user's acceptance varies here with entrepreneur's qualifications, infrastructure and location of the UDCs.

*Sustainability in Service Provider's Point of View*

To the Service Providers, it is essential to keep on their business. They tend to run their business uninterruptedly which ultimately will keep up the financial feasibility and enhance social acceptance. For this reason, Service Providers want enough government support so that they can carry on their business without any interference from political and administrative systems. . So, the sustainability issue namely user's acceptance varies here with government intervention like government support and political will.

**5.6 Theoretical Implications**

Sustainability issues of UDCs have been studied from the sustainability perspective developed in western countries. Four Capital model of sustainability theory has been used in this study. According to four capitals namely Financial Capital, Human Capital, Natural Capital and Manufactured Capital are required for sustainable development. According to him development is considered to be sustainable if these capital stocks or assets are maintained or increase over time.

Four Capital Model of Sustainability theories is partially helpful in the context of UDCs in Bangladesh. Sustainability issues can be explained by this theory. Variables such as human capital like Service Provider's qualifications mainly professionalism; manufactured Capital like infrastructure mainly electricity supply and internet speed, availability of needed services; natural capital like location mainly ease of access of Service Receivers to the UDCs are found significant in this research context. Moreover sustainability of UDCs in Bangladesh seems to have uppermost degree of dependence on government intervention such as government support mostly comes from different government organizations or authorities or projects and political will of the government. Here political commitment can be explained by this theory but not the government support. Why government support is most crucial for UDC's existence cannot be explained by this theory.

**5.7 Policy implications**

The Government of the People's Republic of Bangladesh for the last decade or so has introduced various approaches and operational modalities to enhance the quality of service delivery, participation and accountability system at Government and Local Government offices. In continuation of those and at the same time to minimize the digital divide as well as to bring various types of information related to government, livelihood and private services to the doorstep of citizens, the Government established UDCs in all over the country. Assumes that it will ensure service providers and users to save time, cost and has made operations hassle free.

The findings of the study noted that maximum of the surveyed UDCs are not financially viable nor have high user acceptance due to some rectifiable challenges. It is also identified that without government support it is not possible to run the UDC business. In view of the context, the policy framework on UDCs may be incorporated and emphasized to enhance the quality of competence, accessibility and availability of needed services to ensure institutional roots of UDCs at grass root level.

## 5.8 Implications for Future Research

This study has explored that the maximum surveyed UDCs are at vulnerable situation although these are most important for hassle free service delivery and directly implemented by the Prime Minister's office. The study found that the UDCs have huge potentiality to the common people especially to the remote area people. Due to presence of UDCs, many people living far from the Upazilla head quarters or market area gain more facilities than those are living close to the Upazilla head quarters or market area. From in depth interview of Service Providers, it is also known that common people have a huge demand of government services like citizen certificates, birth registration certificates which are mandatory to take from Union Parishads. The presence of government service has the strongest relationship with satisfaction of Service Providers and due to the presence of government services Service Receivers are coming closer to the centers. So, to make the UDCs as primary step towards digital Bangladesh, how the government services can be incorporated in the UDCs and how the UDCs can be more reachable to the common people may be further research area. Present research also finds that maximum of the surveyed UDCs are not capable to run the business without government support. So, how much capable are the other UDCs out of total 4,547 UDCs all over the country may also be another research area.

## 5.9 Conclusion

UDCs are the points, serving ICT services to the common peoples, are the key issue for development. UDC initiatives, by using ICTs, attempt to reduce cost, optimize efficiency and effectiveness, make government more accountable and transparent, reduce the scope for corruption, and so forth. UDC essentially helps to reduce the

inherent gaps by increasing the capacity for both the government and other stakeholders by enabling all in ICT sector.  Having huge potentiality to serve common people how long it will be sustained is the main concern in this study.

In this study, it has been observed that both beneficiaries and officials are realizing the importance of UDCs, particularly to open a new window for the rural people in Bangladesh. Everybody has a great expectation for online service delivery at Union level. But when the sustainability issues that are financial and social sustainability issues are examined, it is observed that maximum of the surveyed UDCs are not up to the mark yet. Maximum of the reviewed UDCs are either financially non-viable or in average financial viability condition. Social sustainability is also not so much satisfactory due to the absent of sufficient publicity or competitiveness of the UDCs. Only citizens living nearby are accepting these centers for different types of delivered services. Citizens living far-off from UDCs are considering these as certificate distribution centers only. In some cases, they are even in dark about UDC's services. Both the Service Providers, UDC Managerial Staff are in support to carry on the government support.

In the Analytical Framework, it is expressed that sustainability of the UDCs affects by four independent variables: entrepreneur's qualifications, infrastructure, location and government intervention. It is seen that the sustainability issues that are financial viability and user's acceptance or social viability vary significantly with entrepreneur's qualifications, infrastructure, and location. In case of government intervention, it is seen that government intervention is directly interrelated with the existence of UDCs. Without government intervention it is not possible to run UDC business according to maximum respondent's views. When other factors like entrepreneur's qualifications, infrastructure, and location varies then only the sustainability issues vary. On the further hand, when government intervention varies then the continuation of the UDCs becomes impede. Thus it has more impact on the sustainability of the UDCs than the other factors. It is because of the fact that due to absent of government intervention, the surveyed UDCs may be collapsed. Whereas due to variation of other factors the sustainability issues may only be changed.

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# Annexure

## Annex-I: Gender wise Distribution of the Respondents

| Respondent Type | Service Provider | Service Receiver | Managerial Staff |
|---|---|---|---|
| Male | 10 | 11 | 18 |
| Female | 10 | 9 | 0 |
| %Male | 50 | 55 | 100 |
| %Female | 50 | 45 | 0 |

## Annex-II: Education wise Distribution of the Respondents

| Respondent Type | Service Provider | Service Receiver | Managerial Staff |
|---|---|---|---|
| Illiterate | 0 | 3 | 0 |
| Below Primary | 0 | 2 | 0 |
| Up to Primary | 0 | 2 | 0 |
| Secondary | 3 | 3 | 0 |
| Higher Secondary | 8 | 6 | 0 |
| Honors or Same Level | 1 | 1 | 8 |
| Masters or Above | 8 | 3 | 10 |

## Annex-III: Occupation wise Distribution of the Respondents

| Respondent Type | Service Provider | Service Receiver | Managerial Staff |
|---|---|---|---|
| Student | 12 | 7 | 0 |
| Service | 0 | 1 | 9 |
| Housewife | 6 | 5 | 0 |
| Agriculture | 0 | 2 | 0 |
| Unemployed | 2 | 2 | 0 |
| Others | 0 | 3 | 9 |

**Annex-IV: Age wise Distribution of the Respondents**

| Respondent Type | Service Provider | Service Receiver | Managerial Staff |
|---|---|---|---|
| Young (Upto 20) | 3 | 9 | 0 |
| Middle (21-50) | 17 | 9 | 12 |
| Senior (>50) | 0 | 2 | 6 |

**Annex-V: Scale Construction**

For the purpose of assessment of effectiveness of UDC regarding government service delivery from service receiver's perspective, the following scale is constructed:

| Scale | Institutional Factors | SR's Expectancy | SR's Satisfaction |
|---|---|---|---|
| 9 | Do not know | Do not know | Do not know |
| 3 | Poor | Low | Dissatisfied |
| 2 | Average | Average | Somehow Satisfied |
| 1 | High | High | Satisfied |

**Annex-VI: Questionnaire for Service Receivers**

**Sustainability Issue Survey of UDCs**

Masters in Public Policy and Governance Program (MPPG)

North South University, Dhaka.

[**N.B: The answers of this questionnaire will be used for academic research only.**

**Your sincere cooperation will extend a lot of value to the research**]

Serial No     : ……………..

Date         : ……………

District:…………………….Thana:………………….Union:………………

1. Name (optional): ……….

2. Sex (Please give tick mark): □ Male      □ Female      □ Other

3. Age: …… Years

4. Religion:………………………….

5. Occupation: ………

6. Educational background

7. Do you know about UDC services? (Please give tick mark)

      □ Yes

      □ No

If yes then how did you know about the UDC services? (Please give tick mark)

      □ From relatives or neighbors

      □ From posters

      □ From miking

      □ From home visit of their officials

      □ Others (please mention) ….

8. Distance between your house and the UDC (approximately):……..

9. How frequently have you visited in UDC per week? (Please give tick mark)

      □ Occasionally

      □ Frequently

      □ Hardly gone

10. What type of Service/Services do you receive from UDC? (Please give tick mark)

□ For Educational info

□ For Business Info

□ For Health Service

□ For Agriculture Info

□ For Telephone call

□ To attend training course

□   Government certificate

□ For social gathering

□ Other (mention please)

11. Is UDC having sufficient equipment like computers, printers, fax machine, mobile phones etc. for service? (Please give tick mark)

□ Yes

□ No

12. Is there any power failure during you the service at UDC? (Please give tick mark)

□ Yes

□ No

13. To what extent you are satisfied with the present speed of internet for service delivery? (Please give tick mark)

| Very Dissatisfied | | | | Very Satisfied | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

14. In what extent UDC infrastructure is capable for online Government Services? (Please give tick mark)

| Inadequate | | | | Adequate | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

15. What is your opinion about the present status of Government Services offered by UDC? (Please give tick mark)

| Very Dissatisfied | | | | Very Satisfied | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

16. How is the general behavior of the UDC service provider? (Please give tick mark)

| Very Good | | | | Very Bad | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

17. How helpful are the services delivered by UDCs? (Please give tick mark)

   □   Highly helpful

   □   Moderate helpful

   □   Not at all helpful

18. If helpful then please mention why the services at UDC are helpful? (Please give tick mark)

   □   Service completion time is less compare to previous days

   □   UDC save cost compare to previous days

   □   Service of UDC is hassle free compare to previous days.

   □   UDC is opened all time as per your necessity.

   □   UDC service providers are competent enough to deliver prompt service.

   □   Behavior of UDC SPs is good

   □   All above reasons

   □   None of these

19. What is the main problem/s of UDC in providing Government services according to your own opinion?

20. What type of services do you want other than the existing ones?

21. Do you have any suggestion to improve the service at UDC?


Signature of the Informant

Thank you very much.

**Annex-VII: Questionnaire for Service Providers**


**Sustainability Issue Survey of UDCs**

Masters in Public Policy and Governance Program (MPPG)

North South University, Dhaka.

A Survey on Union Digital Centre (UDC)

[N.B: The answers of this questionnaire will be used for academic research only.

Your sincere cooperation will extend a lot of value to the research]


Serial No          : ……………..

Date                  : ……………

District:…………………Thana…………………Union………………

1. Name (optional): ……….

2. Sex (Please give tick mark): □ Male          □ Female          □ Other

3. Age: …… Years

4. Religion:………………………….

5. Educational background (Please give tick mark):

6. What are the services you provide at your UDC?

7. Who are the main customers at your UDC?

8. What ICT devices (hardware and software) are available at your UDC?

9. Who has bought/ provided the equipments?

10. Is the electricity available during your operation hours? If not, what are back up supply available at UDC?

11. Is the internet connection from the optical fiber or mobile net?

12. How satisfied you are with internet speed?

| Very Dissatisfied | | | | Very Satisfied | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

13. Please mention your earnings from UDC

14. Comment about your earnings from UDC whether it is satisfactory to you or not?

| Very Dissatisfied | | | | Very Satisfied | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

15. What do you think about UDC's financial viability?

   □ Non-viable

   □ Averagely viable

   □ Viable

16. Do you invest anything by yourself? If yes, what are these?

17. Why did you invest or not invest?

18. Does your personal investment help you to raise your income?

   □ Yes

   □ No

19. Which is essential to raise your income?

20. Do you want to serve more in future?

21. Have you get training?

22. What type of training do you have and who arranged those training?

23. Do you think that you need more training for better service?

   □ Yes

   □ No

If yes, then What are those?

24. Does the UDC have enough space for managing equipments and dealing customers?

   □ Yes

   □ No

25. Do you think your neighbors respect/appreciate you for your entrepreneurship/doing work in UDC?

26. Do you face difficult to understand the service process? How much you enjoy working here?

| Low | | | | Very much | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

27. Do you face problems regarding people's representative? What are those?

28. As your opinion the main problems of UDC are...................

29. Is it possible to carry on your business if you do not get any help in future?

      □    Impossible to carry on business

      □    Conditionally possible

      □    Possible to carry on business

30. How much support you get from the below mentioned persons?

BCC

| Low | | | | Very much | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

UP Members

| Low | | | | Very much | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

UNO

| Low | | | | Very much | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

ADC

| Low | | | | Very much | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

DC

| Low | | | | Very much | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

A2I Program

| Low | | | | Very much | Do not know |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 9 |

31. As per your opinion what steps should be taken immediately to make the UDC Sustainable?

Signature of the Informant

Thank you very much.

**Annex-VIII: Interview Checklist for the Managerial Staffs**


Serial No        :

Date             :

Name:                                              Designation:

Name of the Office:

1. Do you think the service seekers are benefited by this service? Please explain.

2. What are the challenges of this service? Please explain.

3. Do you think local leaders and administration have an important role to make it effective? Please explain.

4. Do you think ppp(public private partnership) modality is the very effective way for survival of UDC?

5. What steps should be taken to make the UDC sustainable?

6. What do you think about sustainability of UDC? Do you think UDC will face great challenge to survive if a2i project do not support UDC in near future/after ending the project?