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Research article

The Impact of E-services on People's Empowerment: An Investigation into E-mutation Service of Bangladesh

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ABSTRACT

This research has investigated the impact of e-services on the empowerment of people in the context of Bangladesh. Amartya Sen's capability approach has guided the theoretical framework of the research. Empowerment has been conceptualized broadly to encompass five instrumental freedoms- political freedom, economic opportunities, transparency guarantee, social opportunities, and protective security- integral parts of the capability approach. The e-mutation of land is used as a representative of e-services and its impact on people's empowerment has been studied in this research. Both quantitative and qualitative data have been collected. While qualitative data has provided an opportunity to deeply understand the empowerment potentials of e-mutation service, the quantitative data indicated people's perception of e-mutation about the empowerment of people. It has been found that generally, e-services enable people to be better informed about services, bring greater transparency and create more options to receive services provided by the government. Productive time and cost saving have been identified as important results of e-mutation. However, access to e-services is constrained by various factors, including financial and technological ability and compatibility of the e-services for various sections of people. People's participation in the service delivery system is limited to lodging complaints using online platforms or hotlines.

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Introduction

Technological innovations are bringing profound changes to governance systems across the globe. The world is changing faster than ever, and the economy and society are experiencing such innovations at an unprecedented scale (Strážovská et al., 2018). Governments worldwide are embracing technology-driven shifts while Such changes are leading toward a more transparent, accessible, and participatory system of governance. Digital technologies have been recognized as a strategic driver to create an open, participatory, and trustworthy public sector to ensure more inclusive and accountable governance (Mäkinen, 2006). The introduction of technologies in governance also has ramifications for the power relationship between governments and citizens. Adopting information and communication technologies (ICT) in governance has been viewed as empowering for governments and citizens (Karim, 2010). The system is also likely to impact how citizens and government interact with each other, with the effect that there will be more engagement between citizens and government with the progress in digital governance (Biback,2019). However, to meet the ever-increasing demands of citizens, governments worldwide are encouraging the use of digital technologies to deliver various services. These services range from providing licenses to online hearings, from giving online advice to online monitoring of activities and projects. Consequently, keeping pace with the ongoing trend, a spectacular change has taken place in the public sector of Bangladesh, with e-services gradually replacing manual services. Nowadays, there is hardly any government office in Bangladesh that has not adopted the application of ICTs in its service delivery system. Digital Record Room (delivering land record services through an online system), e-filing system, e-mutation, e-license system, e-tender, and e-filing are some of the numerous e-services provided by the office of the Deputy Commissioner. This office is responsible for

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overall coordination in a district. Besides making information available, e-services are expected to widen people's choices in receiving services. They are also supposed to positively impact people's accessibility of services, while their influence on people's participation in governance is also remarkable. Reduction of cost, visits, and time in providing government services is one of the major aims of the government of Bangladesh, as is categorically mentioned in the action plan of the National Information and Communication Technology (ICT) policy, 2018(ICT Division, 2018). All these things seem to benefit people in different ways, including but not limited to economic, political, and social dimensions, making people more self-reliant, developed, and consequently empowered. Bangladesh's National ICT Policy 2018 has also empowered people through ICT. The policy envisions creating a transparent, responsible, and accountable government, thereby contributing to people's empowerment. Article 7 of the Constitution of the People's Republic of Bangladesh also envisages that all powers in the republic shall belong to the people (Ministry of Law, Legislative and Parliamentary Affairs Division, n.d.).

Empowerment has different connotations. However, it can be said that empowerment is a holistic thing. A rich man does not necessarily mean an empowered man who cannot interact with state institutions with confidence or transparency if he cannot participate in decision-making or express his opinion about a particular local and central government policy. Similarly, a socially influential person cannot be termed empowered if he cannot hold institutions accountable, affecting his/her life. This paper uses the lens of the capability approach and associates five instrumental freedoms of Amartya Sen; empowerment has been conceptualized in a broader perspective, which includes political, economic, social, transparency, and protective security dimensions. In Development as Freedom (1999), Sen defines development as expanding the real freedoms people enjoy. He also contends that development requires eradicating major sources of unfreedom, including poverty, systematic social deprivation, neglect of public facilities, and the activity of repressive states. He proposes that five instrumental freedoms, namely, economic opportunities, political freedoms, social opportunities, transparency guarantees, and protective security, are crucial for development (Sen, 1999). This freedom constitutes an integral part of Sen's famous capability approach, which has been used in various types of research in the area of ICT for empowerment and development (Dasuki &Abbott, 2015; Grunfled et al., 2011; Hatakka & Lagsten, 2012; Kleine, 2010;). Few studies have been conducted on the issue of digitization and people's empowerment in Bangladesh.

The study conducted by Aziz (2020) has concluded that influential elites enjoy privileged access while poorer groups have significant limitations regarding access to digital services, with the consequence that the latter is rather deprived than empowered, which they were supposed to be due to the apparent accessibility, communicability, participatory nature of digital technology. Hasan (2016) also stated that even though most households in villages had access to digital devices, the use of digital platforms and services was low. In some cases, people were unwilling to get the service; in some cases, illiteracy and poverty hindered people's accessibility to those services. Zubaid (2021) also agrees with this scenario of rural Bangladesh. According to him, an unexpressed fear of using digital devices and availing of e-services exists in rural Bangladesh. They believe that this notion of development is Western and not meant for them. This thought is more frequent among the older population. He again mentioned that, in contrast, young people, especially students, possess some skills required to get e-services. They can find specific information online using Google search, register for vaccination, check examination results, etcetera. The above studies focused on the accessibility issue of digitization and e-services in Bangladesh. While accessibility is essential, other issues like transparency, participation, economic benefits, and creating options for digitizing services are closely linked with people's empowerment. The present study has been conducted on the e-mutation service of the land office of Bangladesh. The e-mutation service is provided at the sub-district level by the Assistant Commissioner (Land). According to the e-mutation website (www.mutation.gov.bd) (Ministry of Land, 2022), in the last three months, there were 11,98,132 applications for e-mutation around the world, out of which 78% were disposed of while considering the huge number of service recipients, the e-mutation service has been selected. Studying digitization about people's empowerment is an area that has not been explored much yet. Literature is scarce on this issue. The study is expected to contribute to the knowledge gap in this area.

Organization of the Work

The introduction section sets the stage by discussing the importance of technological innovations in governance and their potential impact on empowerment. In this study, empowerment has been perceived through Amartya Sen's capability approach. Sen's five instrumental freedom are the key lenses to understand the empowerment. The literature review explores existing studies on digitization, governance, and empowerment, including the Technology Acceptance Model (TAM) as a framework for understanding technology adoption. The methodology section describes the data collection and analysis methods used in the study. The results and findings section present the quantitative and qualitative data analysis, highlighting the impact of e-mutation services on people's empowerment. Finally, the discussion and concluding remarks section summarizes the findings, discusses their implications, and offers recommendations for policy and practice.

Literature Review

Digitization and Governance

Digitization has become a way of governance in the contemporary world. While the developed nations started digitization of governance in the 1980s, developing nations and LDCs have yet to show any remarkable

improvement in digitalization. Existing literature is also suggestive of this connotation. Mäkinen (2006) argued that innovation, at present, is turning into an inevitable part of our daily life, including utilizing cell phones, drawing money from ATMs, booking an air ticket, a rail ticket, a bus ticket, etc. For this, everyone in the nation must be equipped with essential skills and abilities to use innovation responsibly. Schelenz et al. (2018) observed the present state of the availability of digital technology in Africa and opined that digitalization is still underdeveloped in that area. On the one hand, it poses risks, challenges, and difficulties in African countries. On the other hand, making Africa digital creates opportunities, chances, and perspectives for users, providers, and politicians. Consequently, high hopes for development depend on Information and Communication Technologies (ICT) and their potential benefits for African countries. However, the journey of offering digitalized government services differs for every government and is not always smooth (Nadkarni,2021). Failures occur not only because of technological reasons but also because of processes, people, and structural issues within institutions. Kulkarni (2019) said that the challenges of digitalization of the government include a lack of leadership vision, which indicates the vision is limited for the senior political/ bureaucratic leadership for creating a digital-first mentality and a push towards providing a comprehensive range of services. Reluctance to share data from the administrative departments is another challenge for digitalization. Furthermore, service delivery systems do not consider the benefits of citizens and the requirements of people. In most cases, services are based on convenience for administration. Service delivery channels, especially government-controlled ones, can lead to inefficiency because of limited budget allocations or bureaucratic inefficiencies. Roy (2020) explained that these challenges can be overcome. Government institutions can collectively improve service delivery through a holistic, leadership-driven approach covering an aligned vision, prioritized goals, and sustained implementation. Institutions and government organizations have to maximize citizens' impact by prioritizing goals. That will help to focus on resources for overall service delivery.

Defining Empowerment

Empowerment is a wide concept and lacks precision. Different writers and thinkers have defined empowerment from different angles. Rappaport (1984) defines empowerment as a process by which people, organizations, and communities gain control over their lives. Zimmerman (2000) argued that empowerment is contextual and population-specific. The perception of becoming empowered for a 16-year-old mother is different from that of a recently widowed middle-aged man. He articulated empowerment theory through three empowering processes: psychological, organizational, and community empowerment. Hamburger et al. (2008) described how the Internet is an empowerment tool. They proposed this process as e-empowerment. In their research, they observed the process and effect of E-empowerment on four levels: personal, interpersonal, group level, and citizenship. Narayan (2005) has defined development as a process that enhances self-confidence, self-direction, autonomy, and self-worth. Kabeer (1999), defines empowerment as "the expansion of people's ability to make strategic life choices in a context where this ability was previously denied to them." Hence, increased control over one's life, self-confidence, and ability to make choices have occupied significant places in empowerment. These attributes enable people to lead a meaningful life. While the role of economic opulence can hardly be exaggerated, the ability to control one's life and make choices is essential for the full flourishment of individuals.

This view of empowerment resonates with Amartya Sen's Capability Approach, which defines development as expanding the real freedoms people enjoy to lead a meaningful life.

Capability Approach

An individual's overall development is assessed through this approach. It provides a framework to assess societal change in terms of the enrichment of individual well-being. The capability approach has two distinct features: capability and functioning. To Sen (1999), capability is a kind of freedom that allows an individual to achieve alternative functioning combinations. According to this approach, a capable person possesses and can choose from alternatives. According to Sen, functioning reflects the various things a person may value doing or being. Sen elaborated that valued functioning may differ from elementary ones, such as being adequately nourished and being free from avoidable disease, to very complex activities, e.g., being able to take part in the community's real life and having self-respect. Sen (1990) exemplifies capability and functioning when he says- "an affluent person who fasts may have the same functioning achievement in terms of eating and nourishment as a destitute person who is forced to starve, but the first person does have a different capability set than the second person (the first can choose to eat well and be well nourished in a way the second one cannot)."Hence, it can be said that capabilities are freedoms and functions are achievements. It leads to the belief that capabilities weigh more than functions. Alkire (2005) noted that more concentration should be given to capability than functioning, as individuals value choices more than achievements. Sen (1999) has identified five instrumental freedoms that contribute directly or indirectly to people's overall freedom to live the life they want. Those five instrumental freedoms, constituting an integral part of the capability approach, are political freedoms, economic facilities, social opportunities, transparency guarantees, and protective security, political freedom includes opportunities to determine who should govern and on what principles and the possibility to scrutinize and criticize authorities. At the same time, economic facilities refer to the opportunities, individuals enjoy to utilize economic resources for consumption, production, or exchange. Social opportunities enable people to live better as those refer to society's education and health care arrangement. Sen observes that social opportunities are important for private individual life and more effective participation in economic and political activities. Transparency guarantees are related to open and good governance, which refers to a situation where people can interact with one another under trust and guarantees of disclosure and lucidity. It is pivotal in preventing corruption, financial irresponsibility, and underhand

dealings. Protective security includes social safety net programs to prevent people from being reduced to abject misery, starvation, and death as the capability approach focuses on individual development, so it can be applied to identify an individual's enrichment in terms of any development intervention. There are many examples of using the capability approach in ICT for development and empowerment research. Toboso (2011) analyzed the concept of disability through the lens of Amartya Sen's capabilities and functioning approach in the context of ICT. Political freedom, one of Sen's five instrumental freedoms, has been used by Andrade and Uquhart (2012) to analyze the role of ICT on political liberties. By drawing on the capability approach, Zheng and Walsham (2008) conceptualized social exclusion in e-society. They demonstrated the relational features of social exclusion and different types of capability deprivation in e-society. Abubakar and Dasuki (2018), employing five instrumental freedoms of Sen, evaluated how WhatsApp has empowered women in a village in Nigeria. Apart from the abovementioned references, the capability approach has been used in various research in ICT for development (Dasuki &Abbott, 2015; Grunfled et al., 2011; Hatakka & Lagsten, 2012; Kleine, 2010;).In the present research, we have investigated how e-services like the e-mutation of land in Bangladesh have contributed to the empowerment of people in the light of the five instrumental freedoms. We have set indicators against each of the freedoms. The following indicators for the study have been prepared based on the various research in this area, pre-tests, and conversations with service recipients and stakeholders of e-mutation.

Table 1: Interpretation of the Framework for the Study

Dimension	Objective (S)
Political	Improved people's participation in decision making at the community level and political system
Transparency Guarantees	Improve people's capacity to have public services
Economic Opportunities	To enhance people's capacity to interact with market and business and government in matters having financial implications
Social Opportunities	To strengthen people's human capital

Source: Researcher's Compilation, 2022

In the present research, protective security, i.e., social safety net programs, have been excluded. According to Sen, such protective security programs are designed so that people get reduced to abject poverty, starvation, and death. E-mutation itself is a land-related service. E-mutation might increase the ICT skills of service seekers, but it is not directly linked to social safety net programs. The e-mutation does not bring one under the coverage of social safety net programs. However, e-mutation is likely to have implications for easy access to land services (political dimension), ability to have transparent dealing with business and government (transparency guarantee dimension), productive time saving (Economic dimension), enhanced ICT literacy, and communicative skills (social opportunities) on account of that the study wants to investigate the influence of e-mutation on the institutional freedoms viz., political, economic, transparency guarantees and social opportunities.

Technology Acceptance Model

The Technology Acceptance Model (TAM), proposed by Davis (1989), explains how users come to accept and use a technology. It posits that perceived usefulness (PU) and perceived ease of use (PEOU) are the primary factors influencing technology adoption. In the context of e-mutation services, TAM is relevant as it helps to understand the barriers and drivers of adoption among citizens. A study utilized TAM to investigate the acceptance of e-government services and have found that both PU and PEOU significantly affect users' attitudes toward using these services (Venkatesh & Davis, 2000; Al-Gahtani, 2001)

Methodology

In this study, both qualitative and quantitative data have been collected. Quantitative data was collected to understand e-mutation with empowerment. Two hundred fifty-six service recipients of upazila (sub-district) were surveyed through a questionnaire. These respondents have been chosen from all the nine sub-districts of Khulna district. Using convenient sampling method, the service seekers of e-mutation at land offices were surveyed. The convenience sampling method was applied due to its practicality and efficiency in accessing a large number of service recipients within the limited time frame and resources available for this study. This approach allowed us to gather diverse perspectives from individuals who were readily available and willing to participate, ensuring a broad representation of experiences with the e-mutation service. The questionnaire survey aimed at revealing people's impression about e-mutation.

To know pros and cons of e-mutation and to have deeper understanding of e-mutation in relation to people's empowerment; qualitative data have been collected. As part of qualitative data collection, 10 Key Informant Interviews (KIIs) were conducted. The key informants included e-mutation service providers, their supervisors, and civil society members. Two assistant commissioners (land), two Upazila Nirbahi Officers (U.N.O), one Revenue deputy collector, one additional deputy commissioner (revenue), one union land assistant officer, and three civil society members working in the governance arena were selected for KIIs. Semi-structured questionnaires were used for KIIs. Two focus group discussion (FGDs), each comprising ten service seekers, were conducted. The participants of FGDs were selected with the assistance of Computer shops nearby land offices where people usually come for applying e-mutation. However, a desk review of relevant literature, articles, and newspapers has also been done to understand and analyze the issue properly.

Methods of Data Analysis and Presentation

Quantitative data was analyzed using MS Excel and STATA 14 software. While MS Excel was used to make a graphical presentation and descriptive analysis of the data, STATA 14 was used to show the difference in service receiving time in terms of

education (year of schooling) and gender. Qualitative data was collected, categorized, and analyzed through thematic analysis. In this case, principles of thematic analysis, as expounded by Braun and Clarke (2006), were applied. Sen's five instrumental freedoms have immensely influenced identifying and finalizing themes. At first, verbal data was transcribed into written form after careful and laborious work. Both the written and transcribed data were read and re-read to have initial ideas, followed by identifying and coding the main features of the data set. The codes so identified were categorized under different potential themes. The themes were finalized after reviewing if they conformed to the codes and the entire data set.

The names used in the analyses part are pseudonyms of the participants. The data supporting the findings of this study are available from the corresponding author upon reasonable request. Data includes the quantitative data collected from surveys of service recipients and the qualitative data from key informant interviews and focus group discussions.

Description of the Important Variables

Table No. 2: Descriptions and Summary Statistics of the Variables

Table 2: Distribution of Environmental News Coverage Across Media Platforms

Variable Name	Observation	Mean	Median	S.D.	Min	Max
Age (In Years)	256	48.68	50	12.900	18	86
Education (Years of Schooling)	256	9.84	10	4.728	0	18
Service Receiving Time (Days)	256	65.13	50	54.710	10	540

Source: Researcher's Compilation based on Field Survey, 2022

Brief Description of E-mutation

The source of the mutation of land is section 143 of the State Acquisition and Tenancy Act (SA&T), 1950 (Ministry of Law, n.d.). It authorizes the collector to maintain an up-to-date record of rights by correcting clerical mistakes and incorporating changes therein. Land mutation refers to putting the new owner's name in khatiyan (Record of rights) instead of the former land owner after transferring land ownership through registration. Land may be transferred through deeds such as kabala/sell, gift, exchange, will, waqf, inheritance, government acquisition of land, or by the government through a settlement of khas land to the landless. Until the land so transferred gets mutated, one cannot claim the land ownership officially, though he might have deeds and land transfer documents. As per section 144A of the SA&T Act 1950, every entry in the record of rights shall be presumed to be correct until it is proved by evidence to be incorrect. In a district, the collector is responsible for maintaining an up-to-date record of rights (Khatiyan). On behalf of the collector, the assistant commissioners (land) are vested with the power to modify land. Some documents are required to mutate a piece of land, including the original deed, via deed, copy of khatiyan, receipt of updated land development taxes, partition deed, proof of inheritance, copy of decree or judgment from the competent court if necessary. Recently, the government has taken initiatives to manage land records transparently through an electronic mutation system (E-mutation) under the supervision of the Ministry of Land. Before the initiatives, 60 days were required to mutate a piece of land, and an applicant had to visit the land office several times. However, now 28 days are fixed to accomplish the land mutation task electronically.

Under the e-mutation system, one has to apply electronically to the AC land for land mutation. After completing the application attached with appropriate documents, the applicant gets an ID number. Then, AC land verifies the application. If an application is accepted, a case number will be sent to the applicant's mobile phone through SMS. Then, AC Land forwards the application to the union land assistant officer called tahsildar to verify documents and prepare a new khatiyan, where the tahsildar visits the land and prepares a report with a detailed description of the land and its surrounding boundary, size, nature, and identification of land, the authenticity of deeds, government interests, and 'land development tax payment' status. Finally, the concerned officer will notify the parties and the applicants, while applicants get an SMS for a hearing before AC land. AC land verifies documents and reports prepared by the tahsildar. If no objection is found, he will mutate the land and update the record of rights. As a result, the applicant gets his/her mutated Khatiyan copy immediately after paying govt. Fees. Payment can be made electronically.

In the process, the applicant can track the status of his/her application. The applicant can also participate in the hearing through the online hearing method.

Results: *Quantitative Data Analysis*

E-mutation and People's Empowerment: Analysis and Results of Quantitative Data

At first, we arranged a drawing system in which the names of all sub-districts of Khulna district were put, and later, five sub-districts were drawn for our study. After that, we visited Upazilla Land Offices to collect data. The service seekers found in the land offices were surveyed through the structured questionnaire.

Results of Statistical Analysis:Statistical Analysis between Gender and Service Receiving Time

Service Receiving Time is significantly different across Genders at a 1 percent level of significance. By performing the t-test, we find t statistic value of 2.69.

Group	Observation	Mean	St. Err.	St. Dev
Female	49	83.82	13.51	94.54
Male	207	60.71	2.71	38.98
Combined	256	65.13	3.42	54.71
Difference		23.11	8.59	
Diff= Mean (Female) – Mean (Male)		t statistic = 2.69 Degrees of freedom = 254		
H_a: Diff < 0 P (T < t) = 0.99	H_a: Diff = 0 P (|T| > |t|) = 0.01	H_a: Diff > 0 P (T > t) = 0.00		

The average service-receiving time for female is 84 days, while the average for males is 63 days. The mean difference is 23 days.

Statistical Analysis between Education and Service Receiving Time

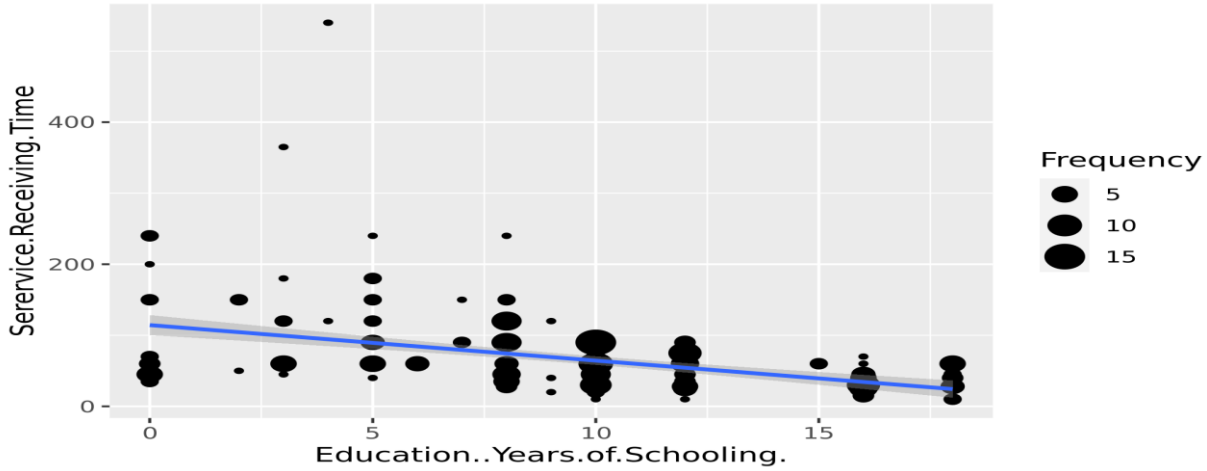
Education (Years of Schooling) negatively correlates with service receiving time at a 99.9% confidence level. We get a P value of 0.000 and a Pearson correlation of -0.432 by performing the Pearson Correlation test. It shows a moderate negative correlation between these variables (Education and service receiving time).As shown in Table 1, the dataset comprised 500 articles/posts from each traditional print media outlet (People's Daily and China Daily) and 1,000 entries from each social media platform (Weibo and WeChat), totaling 1,500 articles/posts. Table 2 illustrates the distribution of source attribution in environmental news coverage across print and social media.

Table 4: Correlation between Education and Service Receiving Time

Pearson Correlation	Education (Years of Schooling)	Service Receiving Time (In Days)
Education (Years of Schooling)	1	-0.432
Service Receiving Time (Days)	-0.432	1

Source: Researcher's Compilation Based on Field Survey, 2022

Figure No. 1: Correlation plot between Education and Service Receiving Time



Source: Researcher's Compilation based on Field Survey, 2022

Table 5: Two-sample t-test between Service Receiving Time by Education Category

Group	Observation	Mean	St. Err.	St. Dev
Below Secondary	100	93.79	7.45	74.53
Secondary and Above	156	46.76	1.80	22.49
Combined	256	65.13	3.42	54.71
Difference		47.03***	6.37	
Diff= Mean (Below Secondary) – Mean (Secondary and Above)		t statistic = 7.38 Degrees of freedom = 254		
H_a: Diff < 0 P (T < t) = 0.99	H_a: Diff = 0 P (|T| > |t|) = 0.00		H_a: Diff > 0 P (T > t) = 0.00	

Source: Researcher's Compilation based on Field Survey, 2022

N.B.: St. Err. = Standard Error, St. Dev. = Standard Deviation

E-mutation and people's empowerment: Analysis of Qualitative Data

Amartya Sen's five instrumental freedoms and the indicators set have been used to analyze qualitative data. Ten KIIs and two FGDs were conducted to collect qualitative data.

This table above describes the result of two sample independent t-tests between Service Receiving Time (In Days) and Education category (Below Secondary, and Secondary and Above), where it is found that the average service receiving time of the respondents having completed at least secondary education was about 47 days. In contrast, the respondents who have not completed secondary education take longer to receive service from the office, and time for these respondents is usually about 94 days. The mean difference in service receiving time between the respondents under these two categories of education level is about 47 days, which is significant at a 1 percent significance level, and the t statistic value is 7.38.

Political freedom

Political freedom includes the opportunities people have to determine who should govern and on what principles and the possibility to scrutinize and criticize authorities. It has also been understood as improved access to government services, improved capabilities to deal with local government and

government offices, holding public offices responsible, and scrutinizing their actions. Government e-services like e-mutation have made the provision for easier access to services. In the words of a service seeker-

"*Online e-mutation system has been so helpful for me. I did get my mutation done earlier than I expected". (Masura Begum, 33, housewife*).

Apart from providing access to services, e-mutation-like services have paved the way for greater participation of people in the service delivery system. In this regard, the words of an NGO employee can be invoked here-

"*People at the grassroots level have become more involved with the service delivery system. The e-mutation has also brought scope to make people more engaged. The hotline 16122 also contributes in this regard" (Asif Mahmud, 45*).

Options or alternatives in availing services impact improved people's access to government service delivery. The alternatives have resulted in meaningful and increased access to services. Hence, it was intriguing to know whether e-mutation has created alternatives.

"E-services like e-mutation have created options in the service delivery system. People can apply even from home. They can also apply from computer shops. In addition to that, they can also apply by calling hotline number 16122. This is also supplemented by online hearing and submitting allegation online" (Kazi).

Another important element of political empowerment is a system by which people can hold government authorities responsible. Using the toll-free hotline number 16122, one can complain to concerned officials should he feel aggrieved. According to the opinion of one of the respondents of KII-

"*The method of communicating grievances through the hotline number 16122 is a way to hold the service receiver accountable. However, we do not know the exact number of people who benefitted using the hotline number" (Mr. Masud).*

Though it has been revealed that e-mutation has enabled people's accessibility, participation, and voice in the case of public service delivery, one of the focus group discussion participants said that some officials' corrupt behavior hinders the process. In the following words, such frustration has been expressed-

"Although the newly introduced online system is time- and money-saving, the system remains costly, complicated, and time-consuming because of the corruption of officials" (Enamul Kabir, 30, expatriate worker).

There are several reasons behind such behavior and practices, such as lack of effective accountability, lack of knowledge of service seekers, and lack of workforce in the land office. Interviews with key informants provide important insight on this issue. They also suggested some measures to make the system more effective and people-centric. Ignorance about land-related matters, lack of knowledge and skills about online applications, and lack of equipment such as computers, scanners, etc., have been the main reasons for not applying oneself. It breeds malpractices. Some key informants recommended effective and spontaneous online integration among land-related offices as a remedial measure to reduce people's visits to the land office to show original documents, especially registered deeds.

"If immediately upon registration, an automatic notice is sent to the concerned land office from the sub-register office, the registered deed can be checked online, further reducing people's visiting time. In the same way, land in which the government has an interest can be maintained and updated by preparing an online database that would be integrated with the e-mutation. Thus, the authenticity of documents can be checked online, which will benefit people by reducing their visits and making the system more accessible" Sharifuzzaman, 35; Asif Mahmud).

Union Land Assistant Officer (ULAO), who works at the grassroots level land office and near people (service seekers), opined that.

"*When scanned documents, some remain vague and illegible. That is why we ask people to come to show the original copy".*

They are establishing help desks at land offices with necessary equipment to help especially older adults (as our quantitative analysis shows mostly people over 50 come for mutation purposes) and digitally illiterate people to apply online. The option of a union digital center (UDC) run by an entrepreneur can also be explored. In the case of UDC, a nominal application fee of less than 100 taka for the entrepreneur can be fixed to help him run the center. The center can also be used for online hearings if needed. Moreover, persons having access to the internet and some digital literacy should be approached for online hearing in cases where hearing is needed. Land offices should be proactive in this regard. In addition, a well-prepared documentary containing A to Z of e-mutation can be made and published under the aegis of the Ministry of Land.

"The documentary containing A to Z of e-mutation and the website should be as simple as possible and guide the next step with written and verbal instructions communicated in Bangla" (Abu Bakar, 45, service seeker).

Such a widely disseminated documentary can contribute to the information gap of people in this regard.

Economic Opportunities

E-services like e-mutation have economic implications. E-mutation and mutation itself are related to land property. Hence, any improvement in the process is likely to benefit the service seeker financially. In the words of a service seeker named Kamrul (52 years) in a focus group discussion-

"It took considerably less time to have the process of e-mutation compared to the earlier system. The only extra fee was the application processing fee charged by the operator of the computer shop".

The online tracking system has also enabled

people to make informed decisions in their personal lives. To Masum (55 years), service holder-

"The e-mutation is time and cost saving. But the system's chief advantage is the online application status tracking".

Expedited transactions are also one of the advantages of the system. Payment through mobile financial services (MFS) has made the payment system easier. In the manual system, the cash payment in the concerned office or paying through bank challan would require one to go to the land office or the bank. Now, people can pay through MFS from any place of their convenience.

Yasin (53 years) said that as a businessman, he had to land mutation for various purposes, including taking bank loans. After the introduction of e-mutation, he could get mutation of land quickly, which helped him get a loan from a bank showing the land as security.

He said,

"To start a small business, I went to the bank for a cash credit loan. Bank officials asked me to submit the land mutation copy in my father's name. Afterward, I went to the land office, applied for an e-mutation, and got my mutation copy shortly. I think the earlier system was much more complex. Even our application would get lost sometimes in the manual system".

The mutation document remains on the server. So, if one wants to testify to the veracity of the mutation document, he/she can visit the document in the system and make decisions relating to that document. Another advantage of the e-mutation system is that the system has the option for correcting clerical mistakes, for which a separate case would have to be filed under rule 23(3) of the State Acquisition and Tenancy Rules, 1956. It meant the institution of another fresh case.

"As a result of incorporating provisions for correcting clerical mistakes in the system, the correction cases have been reduced to half. This saves productive time of both service seekers and service providers" (Arifur Rahman, 33, AC Land).

Hence, productive time saving, expedited transactions, and strengthening of productive assets through record updates through e-mutation have resulted from e-mutation, indicating economic empowerment. The stipulated time for e-mutation is 28 days. As per quantitative data, the median time is 50 days, 22 days more than the stipulated time. Key informants have observed that e-mutation is only three years old. Soon, the time for getting service will be lower. In manual systems earlier, it would take even years.

Transparency Guarantees

E-mutation is supposed to bring transparency by making the system open, accessible, and participatory. Openness is key to transparency. Shafiqul Islam, 55 told-

"E-mutation brings transparency through providing an opportunity to track my application whereas, in the manual system, some officials would even say that your application copy is not found."

Transparency also demands that people are not left at the mercy of service providers to receive service. It needs the abolition or restrictions on abuse of discretionary power in case of delivering service. In this regard, one of the key informants and additional deputy commissioner said-

"Of course, e-mutation has brought more accountability and transparency in service delivery. In the case of the serial number, there is no scope of interference, and it is done as per system".

The hotline 16122 has enabled people to convey their grievances, which would be communicated to the concerned land office to solve the problem. Thus, the system enables people to deal effectively with government institutions. Almost all the fifteen key informants opined that the e-mutation system helps bring transparency and accountability compared with the previous system. In the previous system, the superior authority had to personally visit the office and the file to check whether mutations were done within 28 days. The cumbersome work would often be overlooked only to the detriment of people. On this issue, Shimla, ADC informed-

"Under the e-mutation system, the service providing time of each district and sub-district level land office is closely monitored and made known to the concerned office. The concerned district apprises the time of the monthly revenue meeting, paving the way for the concerned officials' greater responsibility".

However, one of the key informants who works for a governance-related NGO said there is a difference in getting service. He contended that

"Everyone is not getting service equally. Moreover, malpractices in this case have not been done away with digitization" Sharif, 45, NGO activist).

It can be reiterated that the lack of knowledge about land-related documents and the incorrect name and portion in various land documents also act as a stumbling block in containing malpractices.

However, increasing digital literacy, creating a help desk for elderly and illiterate persons, and strict monitoring of the 28-day requirement may bring more transparency.

Social Opportunities

Social opportunities enable people to live better as those refer to society's education and health care arrangement. Sen observes that social opportunities are important for private individual life and more effective participation in economic and political activities. In the present research, Indicators for social opportunities have been set as enhanced ICT literacy and enhanced leadership and management skills. According to the quantitative analysis, e-mutation has little relevance for increased ICT literacy in that only 7% of service seekers applied themselves, while 85% applied with the help of computer shops. Besides, among the 256 respondents, none could avail of an online hearing. These incidents reveal pessimistic facts about ICT literacy about e-

mutation. Neither the management nor the leadership skills have been quantified. However, the participants of FGD made valuable comments. One of the participants of FGD (Anisur Rahman, 39) said,

"E-mutation cannot increase people's ICT literacy. It is not possible either. Nevertheless, it has oriented people with a digital service delivery system. Because of the vast number of service seekers at the grassroots level, the system of e-mutation has made e-services available to many people, positively impacting the wider dissemination of technology-based services at the rural level".

There are other e-services like e-porch, e-procurement, online admission, e-passport, etc.; many of the applications for which are processed from the computer shops at the local level. With those services, e-mutation is also making technology-driven services available in the farthest corner of a village, thereby increasing its populace's digital literacy when people fail to avail themselves of the benefits of a technology or technological service, they try to learn those or avail those with the help of others. Hence, some professional service providers emerge at the local level. From a large number of applicants (almost 85% ts, as our quantitative analysis shows) applying with the help of computer shops, it can be easily assumed that those computers owe partly to the e-mutation service. One of the participants of the FGD (Hossen,27 years), who happened to be an entrepreneur, also mentioned that most of the customers came to his computer shop to apply for an e-mutation service. He said,

"*I have been running this computer shop beside the Upazila land office for three years. People here come for various purposes, such as photocopying, scanning, sending documents abroad, and making online applications for various services. However, almost sixty percent of the service seekers came for e-mutation-related services, such as making applications for e-mutation and online tracking. E-mutation has remained a big part of my service. Local young and unemployed people are becoming interested in learning and providing e-services by being entrepreneurs."*

By making young people interested in being technology-based entrepreneurs and bringing people under the coverage of e-services, e-mutation contributes to increasing digital literacy. To what extent e-services have contributed to increasing digital literacy has not been quantified. The managerial and leadership skills indicators of social opportunities are not associated with e-mutation, meaning that this e-mutation service has not increased or influenced service recipients' leadership or managerial skills.

Discussion

The above analysis shows that e-mutation has brought momentum to service delivery. In particular, the system has eased access, encouraged citizen participation, and created options for receiving services. Due to the introduction of Technology, people can easily have information on the status of their applications. The grievances can be communicated, or queries can be asked using hotline no 16122. Productive time saving and expedited economic transactions are also benefits of this system. The quantitative analysis shows that most of the respondents (85%) applied from the photocopy shop, with only 7% applying themselves. Some people, though they have smartphones, do not apply themselves. Lack of knowledge about land laws, fear of making mistakes, and lack of technological knowledge prompted them to apply from computer shops. However, the participants of FGD said that e-mutation, among others, has paved the way for people's involvement in getting services, giving them more options to apply for services and ventilating grievances, which are indicative of political empowerment. Compared to earlier times, access has been easier. With time, the access will be improved. The lack of online applications and non-attendance in online hearings can also be explained using the Technology Acceptance Model (TAM) proposed by Davis et al. (1989). According to TAM, two variables influence people's use of Technology. Perceived use of ease 2. perceived usefulness. The former (use of ease) refers to people using those technologies that do not require them to use cognitive power. Scanning many documents and knowing about land laws are essential. However, these require people to use their cognitive power, which may also partly explain the lack of online applications by self and online hearing. Establishing a help desk in every land office could be an option for helping digitally illiterate, old, and persons with no technological support with a nominal fee of 100 BDT ($1) for operation costs.

However, if allowed in the land office, it can breed malpractices. The union digital center can be an option in this case. Instead, people go to computer shops available anywhere around land offices. In one sense, it is a better option as it allows more freedom and options to the service seekers if they apply. Restricting application to only one point might be counterproductive. However, the technical hands of those shops can be called upon by local land offices to exchange views as part of their stakeholder engagement. They can be actively engaged in the annual land service fair. These activities will help them prepare the online application correctly, as it has been found that the applications made by computer shops are often faulty. However, people cannot be made dependent on such computer shops for an indefinite period. They should be made able to apply on their own. Drawing on Amartya Sen's Capability Approach, Philip Pettit (2001) contends that the concept of freedom, as elaborated by Sen, calls for individuals to be able to choose according to their preferences in a favor-independent and content-independent way. The implications of this statement at the state level are that rules and laws should enhance and not serve as instruments of arbitrary domination by one group over another. Simplification of the process of e-mutation, removing steps that do not add value, precise documentary guiding the application, and help from the hotline number 16122

can assist people in applying themselves; Moreover, an online verification system of documents can be harnessed. As has been suggested by one of the government officials as a key informant, online verification of documents, especially registered deeds, should be introduced soon. With the application of available Technology, QR code systems can be used in registered deeds so that they can be verified online, a step that can reduce people's visits to land offices significantly. It will also relieve people of scanning many documents along with the application, which goes to their detriment if the scanned ones are vague and illegible.

These steps would lower complexities in receiving service and provide free and productive time, boosting individuals' enthusiasm, enabling them to enjoy more freedom, and empowering them. Freedom is not only the indicator of success or failure; it is the main determinant of individual enthusiasm and social utility (Sen, 1999). the hotline number 16122 has provided an opportunity to express grievances, which can enhance service seekers' ability to have open and transparent dealings with the government. Online tracking of applications has also contributed to making the system more transparent. 56% of respondents (172 out of 256) could know about the progress from online tracking and SMS. Earlier, they would go to the land office to know about the application's progress. Thus, e-mutation has brought more transparency in service delivery and paves the way for people's empowerment. Respondents of the questionnaire and participants of FGD said that e-mutation saves productive time, while some respondents still complained about the time lag in the e-mutation service. It is a fact that the median time of 50 days is well beyond the stipulated time, i.e., 28 days. However, compared to the earlier time, which would take even one year and be uncertain, the time required in e-mutation is optimistic. Cost saving has also been mentioned as one of the benefits of e-mutation. Another important economic benefit of e-mutation is that the mutated record is permanently preserved online so that anyone can check and print it. This practice makes the record keeping of productive assets more sustainable compared to the earlier manual record keeping, which would even be lost. Time and cost saving and strengthened record-keeping of assets have positive implications for the economic empowerment of people. In the present research, social opportunities have been indicated as enhanced ICT literacy, technological skills, and managerial and leadership skills.

The introduction of e-mutation has not enhanced service seekers' ICT literacy and skills. Almost 85 percent of the service seekers applied for the service from computer shops, while only 7 percent could apply themselves. Understandably, without developing people's ICT skills, no particular e-service can be expected to enhance those skills. However, this is getting people acquainted with e-service, which is likely to impact the concerned people's digital literacy. The quantitative analysis has shown that there exists discrimination regarding gender and years of schooling in terms of receiving service. The average service receiving time for males is 61 days, while that of females is 84 days, the difference being 23 days. The years of schooling also exhibit such difference in that the less educated ones lag in the case of receiving service compared to persons having more years in school. In other words, gender and years of schooling have digital divide implications, which is supported by the literature on the digital divide. It was found that internet users are more likely to be well off and better educated than non-users in the country surveyed, with men being more likely than women to use and access the internet (Chen & Wellman, 2003). Hence, the issue of bridging or reducing the digital divide in e-mutation merits action. That is also a question of public policy. Last but not least, some key informants who worked at AC Land suggested that there should be integration between land registration and land offices. The survey department can also be integrated, an area where government intervention is needed. The governance system should be seamless in this case. The digital land survey will prepare a record. If any transfer of those properties occurs, the record will be auto-corrected. Land registration information will automatically go to the AC Land office for e-mutation. Such integration of the offices will make the service more accessible, time- and cost-saving, and responsive to people's needs.

Concluding Remarks and Recommendations

The above analyses convey that e-services generally bring transparency to service delivery systems. They also encourage an atmosphere where individuals raise their voices if they find fault and feel aggrieved. It has also been found that services have become more accessible due to the introduction of e-services, whereas several challenges must be addressed. Limited access to Technology, especially in rural areas, along with gender-based digital divides, poses barriers to people's and women's empowerment. In addition, age, education, location, poverty, and the like can impact people's accessibility to e-services. The research has demonstrated that the existing e-mutation service exhibits a complex system involving various documents and complex legal procedures, which requires much time and further visiting hours to the offices for service seekers. In FGDs and KIIs, some officials and participants of civil society expressed that e-mutation is not completely an e-service because it requires service recipients to go to the offices for hearings and to submit documents manually. If digital verification is introduced, getting that service will be much easier because it will allow the land office to check documents online instantly. Furthermore, current drawbacks can be mitigated by integrating land and registry offices, which operate under separate ministries. Application systems in e-mutation have also remained complicated. In this connection, several participants opined that the e-mutation website is not user-friendly, regardless of age, education, and gender.

This research has found such a divide regarding gender and education. Other factors influencing the digital divide, such as location, poverty, and age, have not been investigated under the scheme of this research, leaving the areas to be explored further. The website has to be designed so that even uneducated and disabled persons can take service using that. It was also opined that there should be an automatic notification system if an inquiry report cannot be found on the scheduled date, which is missing in the present system. As a result, AC Lands does not have the opportunity to know from the system how many inquiry reports are pending if the number is large. E-services present an opportunity to enhance gender equality and advance women's empowerment. By utilizing the power of Technology, Bangladesh can create an inclusive and empowering environment for its citizens to thrive in various domains of life. Through targeted interventions, policy reforms, and collaborative efforts between the government, civil society, and the private sector, Bangladesh can foster an environment that will enable people to harness the potential of Technology and contribute to the country's social and economic progress.

Conflict of Interest

None of the authors present any conflicts of interest.

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