

Impact of E-Governance in a Developing Country: The Case of E-Mutation in Bangladesh

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ABSTRACT

Like other developing countries, the government of Bangladesh has, in the past two decades, prioritized the adoption of e-governance reforms. While studies have widely examined the impact of e-governance, most have captured only the end-user's perspective and employed limited criteria that do not encapsulate the full impact of such reforms. Hence, drawing on a notable e-governance initiative by the Government of Bangladesh - e-mutation, this paper aims to perform a holistic assessment of the impact of e-governance by employing a framework that incorporates multiple criteria for both end-users and service providers. Given the lack of research on service providers and the abundance of research on end-users, exploratory sequential mixed method, and quantitative method were chosen respectively for impact assessment. Findings indicate that e-mutation (as such, e-governance) has been highly effective in enhancing the quality of service and facilitating process improvements while significantly reducing the scope for corruption. However, the initiative has achieved little success in improving end-users' experience where interaction with service providers is concerned. It has also failed to promote interoperability among the governmental organs responsible for land administration. The study, therefore, highlights that policymakers in developing countries should prioritize integration at the design stage and behavioral training at the development stage when considering e-governance reforms. It also makes a theoretical contribution by proposing the inclusion of interoperability in impact assessment frameworks for developing countries since failure to achieve the same is attributable to the weak institutional context of such countries.

KEYWORDS: E-Mutation, E-Governance, Impact Assessment, Bangladesh, Developing Country

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1. Introduction

Over the past two decades, the adoption of information and communication technology to transform traditional governance into e-governance has emerged as a significant agenda for a host of countries across the world (Bhuiyan, 2011). E-governance, defined as the provision of government services and information to the public using electronic means (Monga, 2008), holds immense promise in transforming public administration, improving service quality, and eventually narrowing the gap between the government and citizens (Prybutok et al., 2008; Gupta et al., 2018). Several authors have identified it as an imperative for emerging economies like Bangladesh, where information asymmetries and process-based inefficiencies are rife, causing citizen suffering and widening the digital divide (Warschauer, 2004; Masiero, 2016).

Since 2009, the Government of Bangladesh, in line with its vision of a “Digital Bangladesh”, has undertaken several initiatives to develop e-government services (Hassan, 2013; Khan, 2017; Chowdhury, 2019; Khan, 2022). Land administration in Bangladesh has been criticized as one of the most cumbersome, inefficient, and corrupt domains in the country (e.g., Choudhury et al., 2011; Talukder et al., 2014; Hossain, 2015). Hence, the introduction of e-mutation in 2018, entailing the digitization of the archaic, manually administered process of land mutation, has been hailed as one of the most notable reforms initiated by the government (Chowdhury, 2019).

While researchers have conducted studies to assess the impact of this transition to e-mutation, some gaps exist in the extant literature. First, most studies (e.g., Saif & Howlader, 2018; Chowdhury, 2019) have assessed the impact of e-mutation along only time, cost, and visit (TCV) dimensions. This represents a gap since e-governance initiatives have produced multiple benefits beyond time and cost savings, including improved public service delivery, enhanced accountability, and reduced corruption, among others (Sathisha & Katti, 2023; Terrance & Uwizeyimana, 2023; Abdulnabi, 2024). Given this range of benefits, authors such as De (2006) have expressed concern that a project-assessment approach involving only time and cost parameters may be inadequate in capturing the full impact of e-governance reforms. Hence, there is scope to perform a more comprehensive assessment of the impact of e-mutation in Bangladesh by incorporating parameters beyond those utilized in the existing literature.

Second, considering that e-governance reforms inevitably require the participation and engagement of multiple stakeholders (Singh, 2023; Terrance & Uwizeyimana, 2023), authors such as Irani et al. (2005) have suggested that a multistakeholder perspective is much needed in assessing the impact of such reforms. However, most studies on e-governance in Bangladesh and other developing countries have focused mainly on the perception/experience of end-users, meaning the individuals or entities availing the service (e.g., Belwal & Al-Zoubi, 2008, in Jordan; Saif & Howlader, 2018 in Bangladesh; Gupta et al., 2018 in India). In comparison, limited research has been done to assess the impact on service providers, meaning the public officials responsible for service delivery. This represents another gap worth addressing.

Third, given the socio-cultural and institutional differences across countries, researchers have consistently advocated taking a contextualized approach in studying e-governance reforms (Heeks, 2005; Schuppan, 2009; Vimalkumar et al., 2021) since findings applicable to the developed world cannot be extended directly to the developing world. Other authors have gone so far as to suggest that e-governance suffers

from overgeneralization as a tool to achieve improved governance (Kassen, 2014). Therefore, it may be argued that there is room to advance understanding of e-governance in the specific context of developing countries by using e-mutation in Bangladesh as a case study.

Hence, this paper aims to address the above gaps in the extant literature by performing a holistic assessment of e-mutation and, by extension, of e-governance in Bangladesh from the perspective of both end-users and service providers. Specifically, the paper seeks to answer the following question: What has been the impact of e-governance on both service providers and end users in Bangladesh, as exemplified through the case of e-mutation?

The rest of the paper is structured as follows. The next section presents a review of the literature. This is followed by a discussion of the impact assessment framework. Next, the methodology is described in detail, followed by the results and a thorough discussion of the same. The concluding section presents the implications and directions for future research.

2. Literature Review

Mutation is the process of revising and updating the Record of Rights (ROR) following the transfer of land ownership and the partitioning/amalgamation of land holdings (Siddiqui, 1997). Unless the mutation process is complete, an individual cannot claim that they are the rightful owner of a piece of land or pay taxes in their own name. Further, they remain susceptible to the risk of the land being sold to another party by the former owner. Given the high rate of land transfer and conversion in Bangladesh (Hossain, 2015), a speedy and reliable mutation system is of utmost importance. The Assistant Commissioner (AC) Land of Upazila (sub-district) land office is primarily responsible for mutation. Figure 1 shows the steps involved in the process.

Following the transition to e-mutation, digitization has been integrated at various points in the process to make it more transparent and customer-friendly. First, while applicants would previously have to visit the AC Land office to submit their applications, they can now do so online, through the dedicated portal of the Ministry of Land. Second, all payments, including the application fee of BDT 70 and the DCR (Duplicate Carbon Receipt) fee of BDT 1,100, can be paid through mobile/internet banking applications. Third, and perhaps most importantly, while it was necessary in the past to visit the AC Land office to get updates on the application status, service-seekers can now get the same through the portal. In addition, they receive SMS notifications to inform them of the receipt of their application, the date of the hearing, and the final decision on their application.

Hence, in the ideal scenario, where there are no disputes, applicants need to visit the AC Land office only to attend the hearing. This, too, can be held online in special cases. Finally, applicants can get QR code-based DCR of their ROR online. This DCR is considered legally equivalent to the printed one that would be issued previously.

Since its initiation in 2018, e-mutation has been implemented in 61 districts, covering 4,605 land offices (Ministry of Land, n.d.). In 2020, Bangladesh won the United Nations Public Service Award (UNSPA) for its

success in implementing this reform (“Cabinet congratulates PM”, 2020). According to the website of the Ministry of Land, an estimated 2.2 million mutation applications are submitted every year.

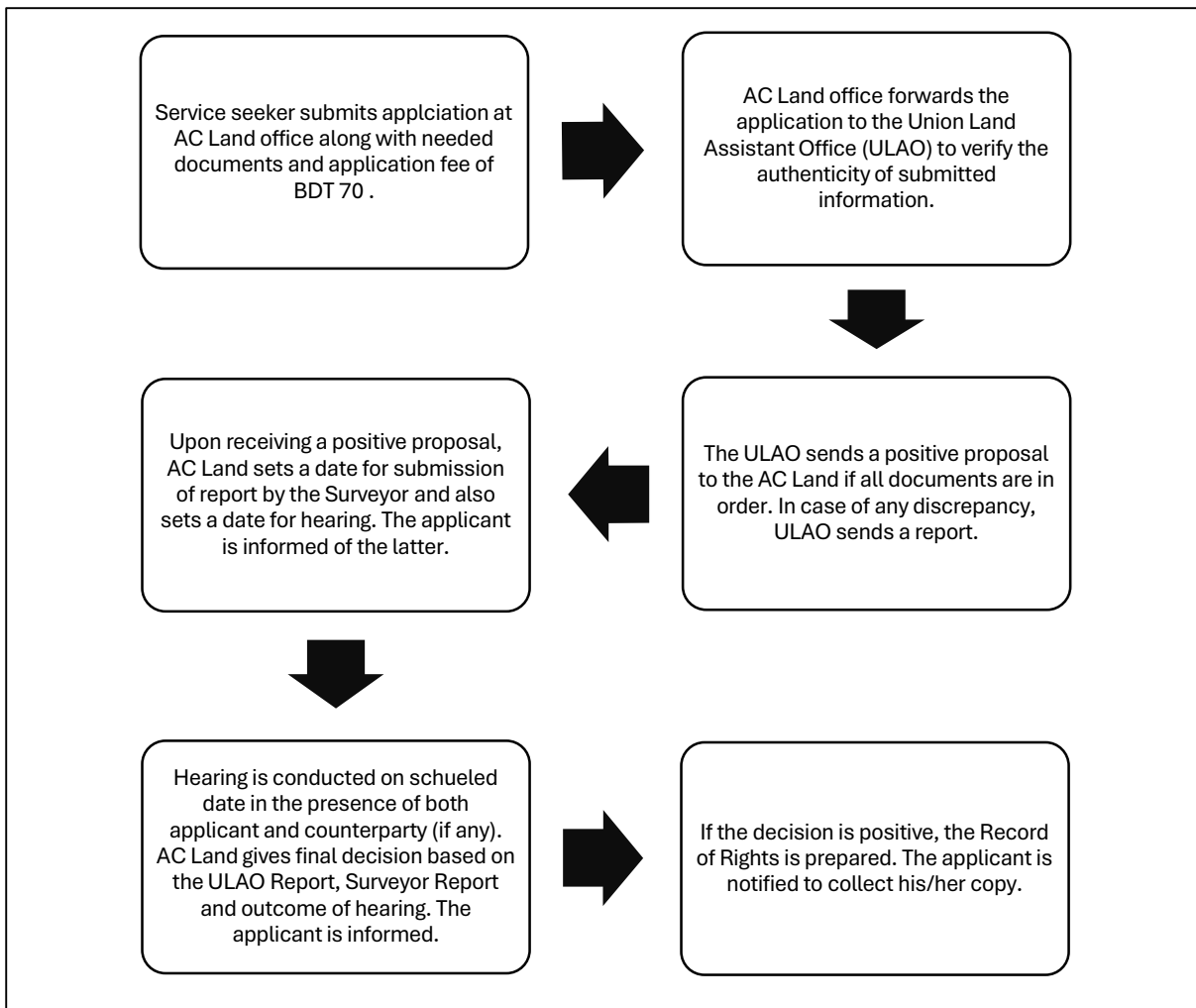


Figure 1: The Mutation Process

Source: Adapted from Ministry of Land website, 2024

Before the implementation of e-mutation, multiple authors have labeled the land administration in Bangladesh as highly ineffective, complex, burdensome, and prone to corruption, with many of them recommending digitization as a solution (Khan et al., 2009; Nahrin & Rahman, 2009; Islam et al., 2015). In a study conducted on 46 Upazilas of two districts, Saif and Howlader (2018) found that the average time needed to complete the mutation process was 39 days, with end-users having to make four visits on average to the land office. The mean cost of availing the service was found to be BDT 1,270, with end-users themselves suggesting that digitization would rid them of many hassles inherent in the process.

A few months after the launch of e-mutation, Chowdhury (2019) conducted a study across 51 Upazilas of 8 divisions and found that e-mutation had already achieved success on some key parameters. First, 68.4% of respondents had been able to submit their mutation applications within 3 hours, whereas only 19% had

been able to do so under the manual system. In addition, the percentage of respondents who could get their mutation done with only two visits to the AC Land office had more than doubled. Users did report an increase in cost. However, the authors argue that since almost 80% of the respondents reported satisfaction with e-mutation, it may be deduced that they did not mind bearing some additional cost in return for the reduced hassle and improved service quality.

Similarly, in a more recent study conducted in Savar Upazila, Hasan and Gourab (2023) found e-mutation to have brought largely positive results. Almost 100% of respondents opined that digitization has led to process simplification, while nearly 85% suggested that it has reduced the time, cost, and travel required to avail of the service. In addition, both end-users and service providers indicated that digitization has negated the role of brokers/intermediaries, thus reducing undue harassment and the incidence of indirect costs.

Researchers have conducted similar studies in other developing countries. For instance, Gupta et al. (2018) found that users availing of the e-governance services offered by the New Delhi Municipal Council (NDMC) consider economic benefits derived from reduced time and travel requirements to be the most favorable outcome of digitization. The study also cites other benefits of e-governance, such as improvement in the quality of service. However, it is found that demographics account for some differences in the realized benefits, as benefits are rated more favorably by men than by women. With reference to the digitization of land administration in Malaysia, Halid et al. (2022) suggest that it has led to economic benefits not just for end-users but also for the government by making it easier to collect land revenue. Singh (2023), in a comparison of e-governance reforms implemented in Brazil, Chile, India, Jamaica, and the Philippines, points to time savings ranging from several hours to several days. Most notable among these is Chilean case, where the tax application process has gone down from 25 days to only 12 hours.

Given that corruption is endemic in developing countries (Singh et al., 2010), several authors have examined the extent to which e-governance has led to higher accountability and reduced the perception of corruption. Many of them have reported encouraging findings. For instance, Pathak et al. (2009) found that e-governance has effectively reduced corruption and improved government-citizen relationships in Ethiopia. Singh et al. (2010) have reported similar results in a comparative study conducted across Ethiopia, Fiji, and India. With reference to public procurement in South Africa, Maepa et al. (2023) suggest that transition to e-governance has reduced fraud, illicit activities and corruption. In contrast, Saxena (2017) argues that e-governance measures in India still have a long way to go before they can deliver on the promise of curbing corruption. Belwal & Al-Zoubi (2008) make a similar argument for the Jordanian case.

While the above studies have examined the outcomes of e-governance, others have focused on factors limiting the success of these initiatives in developing countries. Referring to the Malaysian context, for instance, Siddiquee & Mohamed (2007) identify bureaucratic inefficiency and the incompetence and unprofessionalism of service providers as significant hurdles. Their findings are in line with Pathak et al. (2009), who contend that government agencies do not display willingness in fostering favorable government-citizen relationships. In their examination of why the success of Bhoomi, which involved the digitization of land records in Karnataka, could not be replicated in other states of India, Munshi et al. (2019)

identified several reasons. These include parallel use of manual and digital records, the lack of integration between agencies, and reliance on a piecemeal approach to digitization. Similarly, Choi et al. (2016) point to institutional and infrastructural factors as limiting the success of e-procurement in Indonesia.

A synthesis of the above literature helps to reinforce the research gaps mentioned in the introductory section. First, most of the studies in the Bangladesh context have employed time and cost dimensions in evaluating the impact of e-mutation, whereas research in the context of other countries has employed multiple other criteria. The impact of e-governance on the perception of corruption, for instance, has been extensively studied in developing countries (Johansen, 2023). However, parallel evidence does not exist for the case of e-governance in Bangladesh. Second, the majority of the studies reported above have either performed impact assessment through the lens of service recipients or through the lens of the governing body concerned without making an adequate attempt to capture the impact on those delivering the service. The present study can help to mitigate these gaps and thus advance understanding of e-governance reforms in Bangladesh and other developing countries.

3. Impact Assessment Framework

While there are several different impact assessment frameworks, the present study uses the one developed by Bhatnagar and Singh (2010) for two reasons. First, the framework by Bhatnagar and Singh (2010) was formulated specifically for the context of developing countries. It has been used to evaluate e-government projects whose maturity (ranging between three and eight years) matches that of e-mutation in Bangladesh. Second, the framework assesses the impact on both end-users and service providers, incorporating both quantitative and qualitative dimensions. These make it well-aligned with the objectives of the present study. The present study will use the following components of the framework.

- Assessment of Impact on Clients/End-Users – This is accomplished by examining the following:
 - i) Cost of accessing service, measured through direct fees/charges, travel cost due to the number of trips made to avail the service, and total time needed to avail the service.
 - ii) Quality of service, measured through the quality of interaction with functionaries, satisfaction with complaint handling mechanism, and ease of access to service.
 - iii) Quality of governance, measured through the requirement for bribes, transparency of rules and procedures, and perception of corruption.
 - iv) Overall assessment, measured through the preference for the digitized over the manual system.

- Assessment of Impact on Agencies – This is accomplished by examining the following:
 - i) Process improvements, measured through the efficiency and effectiveness of service delivery.
 - ii) Quality of governance, measured through the extent of bribes, accountability, and transparency.
 - iii) Overall assessment, measured through the preference for the digitized over the manual system.

It is pertinent to mention that where the impact on agencies is concerned, Bhatnagar & Singh (2010) also mention economic impact, which is to be measured with respect to increases in revenue such as tax revenue or reduction in cost such as cost of office space. However, the authors recognize the difficulty of measuring this parameter in the context of developing countries due to the scarcity of reliable pre-

intervention data for making the necessary comparisons. Hence, the present study does not include economic impact from the service providers' perspective. In addition, the study does not address the parameter concerning the impact on society/government since this requires impact assessment over a time horizon that is much longer than the scope of the study warrants.

4. Methodology

The study adopted an exploratory sequential mixed method to assess the impact of e-mutation on service providers and a quantitative method to evaluate the impact on end-users. The quantitative method (Choudrie & Dwivedi, 2005) was considered appropriate to examine the impact on end-users, since this study used the established impact assessment framework by Bhatnagar & Singh (2010) to assess such impact. A different approach was required for impact assessment for service providers since, as stated in the introductory section, there is a lack of research in this area. Additionally, although the framework of Bhatnagar & Singh (2010) has been used to assess the impact on service providers, the authors indicate that they have studied the impact on implementing agencies in a "limiting way". Hence, following Venkatesh et al. (2013), a qualitative study was conducted for the service providers to understand the real-life phenomenon before going for a quantitative study. While the exploratory qualitative research helped us identify the impact of e-mutation on service providers, the quantitative research allowed us to test the themes identified in the qualitative study empirically. Several researchers (e.g., Hooda & Singla, 2021; Sharma & Mishra, 2017; Venkatesh et al., 2016) have adopted a similar research approach.

4.1 Exploratory Sequential Mixed Method

To identify the impact of e-mutation on service providers, an exploratory qualitative study was first conducted, followed by a quantitative study. The latter was intended to test the findings of the former empirically. Adopting an interpretive approach to data collection (Walsham, 1995) for qualitative study, a combination of Focus Group Discussion (FGD), semi-structured interviews, direct observations and document analysis were conducted.

FGD was conducted since it allows participants to focus on a particular issue (in this case, e-mutation) by encouraging them to discuss and share their perceptions in an open and tolerant environment (Krueger & Casey, 2015), which eventually enables identifying principal issues accurately (Stokes & Bergin, 2006) by challenging one another's views in the discussion process (Saunders et al., 2019). Following the suggestion of Krueger & Casey (2015), three FGDs were conducted, two of which were conducted online and one face-to-face. The participants of the FGDs were the Assistant Commissioners (AC) - Land and Upazila Nirbahi Officers (UNO), who have vast experience in working with e-mutation services. One online FGD included 2 UNOs and 6 AC-Land from the Chittagong division, while the other online FGD comprised 1 UNO and 6 AC-Land from the Khulna division. The face-to-face FGD was held in the capital city of Bangladesh, Dhaka, wherein 7 AC-Land were participants. Following Lijadi & van Schalkwyk (2015), online FGDs were kept similar to face-to-face FGDs in nature but conducted using the Zoom platform to overcome constraints related to distance and cost. The mix of online and face-to-face FGDs allowed for representing officials from different regions.

Along with the FGDs, seven semi-structured interviews were conducted. The interviewees included two surveyors, two sub-registrars, two Kanungo, and one Tehsildar. Semi-structured interviews were used as they are an effective tool to explore deep insights on the events being investigated, thus helping to seek new information and new perspectives (Kvale, 1996). The FGDs lasted 80 minutes on average and the interviews lasted between 40 to 60 minutes. The former were recorded, while most of the latter were not, as the interviewees were not comfortable sharing their candid opinion on record. However, notes were taken by the researchers. Along with these, the researchers visited four AC-Land offices to observe the flow of events in a live setting. Finally, relevant data from several documents (e.g., land registration process manual, gazette relating mutation, etc.), news clippings, and websites were accessed and reviewed. Hence, data collected from multiple sources allowed for cross tabulation and generation of rich insights on the e-mutation service and its impact on the service providers.

Following this, the data was transcribed and analyzed. At the very first stage of analysis, extracts relating to the impact highlighted by the service providers were identified and descriptively coded following Miles & Huberman (1994). We then found the frequency of each descriptive code and carefully looked for similar patterns in those codes. By observing the descriptive coding, their patterns, and being inspired by the theoretical perspective, similar patterns of impact were grouped into themes. The process was iterative, wherein we considered the empirical data, their similarities and dissimilarities across the sources and related it with the theoretical perspective (e.g., Bhatnagar & Singh, 2010; Choi et al., 2016) to group into themes. We identified four themes. These are: Process Improvement, Quality of Governance, Overall Assessment, and Interoperability. These themes are discussed later in Section 5.2.

Following Venkatesh et al. (2013), the themes that emerged in the exploratory qualitative research were then empirically tested by the quantitative study. A set of structured questionnaires was developed for the survey, one for the end-users and another for the service providers. The questionnaires provided opportunities for respondents to share their opinion on the e-mutation process and its impact. The questionnaires included inquiries about the demography of the respondents (e.g., gender, age, education, etc.) and questions related to the e-mutation process and its impact. A 7-point Likert scale ranging from 1 for “strongly disagree” to 7 for “strongly agree” was used. Snowball convenience sampling was used to select the service providers.

While any method of convenience sampling has a likelihood of bias, techniques such as the snowball method have been recommended in research domains, including public policy, where difficult-to-reach populations are involved (Heckathorn, 2011; Naderifar et al., 2017). Since the service providers are mostly government officials who have quite a hectic work schedule in different regions of the country and who are difficult to access without any reference from senior officials, the authors decided to go for snowball sampling in this case. The Google Forms link of the developed questionnaire was emailed to a few known senior UNOs of Dhaka, Chittagong, and Khulna divisions, who then forwarded it to other AC-land and officers in those divisions. A total of 97 filled-in questionnaires were received from service providers. The data collected from the respondents were then analyzed using SPSS software to determine the impact of e-mutation on the service providers.

4.2 Quantitative Study

A quantitative study (Choudrie & Dwivedi, 2005) was conducted to investigate the impact of e-mutation on end-users, following the framework of Bhatnagar and Singh (2010). Though a separate structured questionnaire was developed for the end users, the sampling procedure was similar to that used for service providers.

The end-user survey was conducted in the same AC-land offices in Dhaka that the authors visited. The questionnaire for the end-users was also sent to the UNOs who managed end-users at their offices to fill it up. Convenience sampling, including snowball sampling, was also used in this case. A total of 105 filled-in questionnaires from end-users were received. The collected data were then analyzed using SPSS software to determine the impact of e-mutation on the end users. The following section discusses the results of the analysis of the data collected.

5. Result

This section is divided into two parts. The first discusses the findings regarding end-users, and the second discusses the findings regarding service providers.

5.1 Assessment of Impact on End-Users

The findings from the quantitative survey are discussed below.

5.1.1 Cost of Availing Service

As shown in Table 1, over 70% of the respondents stated that they could complete the mutation process within 7-10 days. This is highly encouraging since before digitization, the average time needed to complete the process ranged between 21 and 45 working days (Chowdhury, 2019). The level of agreement expressed with the statement, “e-mutation service is delivered in the promised time” (Table 2), was also quite high (mean agreement score of 5.8 on a 7-point scale). Surprisingly, however, the question of whether e-mutation “saves time” received a mean score of only 4.87 (Table 2). This may be because although the time interval between submission of an application and getting the updated ROR has decreased, individuals need to invest additional time in understanding the digitized process, securing soft copies of documents, and uploading these at the time of application. This may have led to the perception that e-mutation does not save time, particularly given that most respondents had no experience with the manual process.

Table 1: Time, Cost, and Visit Statistics

Time to complete mutation	%	Total Cost of Mutation	%	No. of trips to AC land office	%
7-10 days	70.5	BDT 1000-1500	72.4	2-3 trips	72.4
10-20 days	21.9	BDT 1500-2000	14.3	3-5 trips	20
20-30 days	7.6	BDT 2000-2500	1.9	5-8 trips	1
30-40 days	-	BDT 2500-3000	3.8	8-10 trips	6.7
More than 40 days	-	More than BDT 3000	7.6	More than 10 trips	-
Total	100		100		100

Table 2: Descriptive Statistics for Cost of Availing Service

Statement	Mean Agreement	Standard Deviation
E-mutation saves time	4.87	1.65
E-mutation service is delivered in the promised time	5.80	0.99
E-mutation saves travel time	5.94	1.22
The cost of e-mutation is more than the prescribed rate	1.79	1.26
Travel expenses are affordable	5.54	1.32
Miscellaneous expenses are affordable	5.39	1.38
Fewer trips are needed to the AC land office	5.99	1.34

Other than the opportunity cost of time, cost consists of two components. The first is the direct cost, which has been set at BDT 1,170 by the Ministry of Land. The second is the travel cost incurred in availing the service. As shown in Table 1, almost three-quarters of respondents reported having incurred costs in the BDT 1000-1500 range. They also disagreed quite strongly with the statement - “cost is more than the government prescribed rate” (Table 2 – mean agreement scores of 1.79 on a 7-point scale). In addition, there was general agreement that travel and miscellaneous expenses relating to phone calls, printing, internet usage, etc., are affordable, as both statements generated mean scores over 5. Respondents largely agreed that digitization has reduced end-users need to visit the AC land office physically (mean score of 5.99). Also, the majority of them (72.4%) were able to complete the process with 2-3 trips. As noted by Hasan and Gourab (2023), such a reduction in the number of trips has the added benefit of reducing contact with unscrupulous brokers/intermediaries, who often impose indirect costs on end-users under the manual system.

While the above results mostly indicate that e-mutation has yielded cost savings for end-users, a critical finding emerges upon analyzing the numbers using demographic variables. While the percentage of respondents incurring a cost of more than BDT 3,000 to complete the e-mutation process was only 7.6%, it is notable that all these respondents were female. Likewise, all respondents requiring an extended period (20-30 days) to get the service were also female. 7 of these 8 female respondents were in the 40-50 age group. However, gender seems to be the more critical factor in leading to higher costs and time incurred than age since over 90% of male respondents in the 40-50 age group had only incurred costs of BDT 1,000-1,500.

5.1.2 Quality of Service

The first factor under this parameter is the ease of availing service. Results are largely positive since the mean agreement with all questions about the user-friendliness of the portal was above 6 (see Table 3). This is a significant achievement in the context of Bangladesh, given the low digital literacy (Hasan & Gourab, 2023). In addition, the mean agreement scores for statements concerning the ability to track the status of one’s application were all close to 6. Satisfaction with the complaint mechanism, which is the second factor

considered under quality of service, also appears to be reasonably good, as shown by the last two rows in Table 3.

Table 3: Descriptive Statistics for Ease of Access to Service and Complaint Mechanism

Statement	Mean Agreement	Std. Deviation
The portal provides correct and reliable directions	6.16	1.14
The portal can be accessed 24/7	6.66	0.64
The portal is user-friendly	6.17	0.79
The portal is easy to enter and use	6.32	0.74
No assistance is needed from any third party to submit the application	5.59	1.80
I got periodic updates on the status of my application	5.91	0.59
I got updates on the status of my application without going to the AC land office	6.04	1.26
It is possible to lodge complaints in case of any difficulty	5.78	0.72
It is easy to lodge complaints	5.69	1.15

Table 4: Descriptive Statistics for Quality of Interaction with Functionaries

Statement	Mean Agreement	Std. Deviation
Service providers are very helpful	4.46	1.18
Service providers did not make me wait needlessly	4.62	1.58
Service providers are willing to give information	4.50	1.18
Service providers are humble	3.60	1.36
Service providers are willing to answer questions	3.77	1.69
Service providers are competent and inspire confidence	3.90	1.63

However, the findings for the third component under quality of service, i.e., quality of interaction with functionaries, are rather disappointing. As shown in Table 4, the level of agreement expressed with statements describing service providers as not making end-users wait needlessly, helpful, and willing to provide information received mean agreement scores below 5. Agreement with statements describing service providers as humble, willing to answer questions, and competent was even lower than 4 on the 7-point scale (Table 4). Hence, the evidence indicates that while there is satisfaction among end-users with the technology-driven elements of the process, the human element is impairing the quality of service.

5.1.3 Quality of Governance

Findings pertaining to all aspects of governance are quite encouraging. First, as shown in Table 5, statements pertaining to awareness of the steps in the e-mutation process, the rules for availing service,

the associated fees, and needed documents all generated mean agreement scores above 5. Hence, it may be said that transparency has been established to a reasonable extent, albeit with some room for improvement.

Table 5: Descriptive Statistics for Transparency of Rules/Procedures

Statement	Mean Agreement	Std. Deviation
I am completely aware of the steps in e-mutation	5.46	1.94
I am completely aware of the fees needed for e-mutation	5.87	1.68
I am completely aware of the documents needed for e-mutation	5.62	1.69
The rules for availing of e-mutation service are clear to me	5.95	0.90

Further, as shown in Figure 2, most end-users strongly agreed with the statement that “corruption is less” under the digitized system and the statement that “no bribe is needed” to avail of the service. Given that land administration in Bangladesh has traditionally suffered from massive corruption, with bribes for mutation ranging from BDT 5,000 to BDT 200,000 (“Bribery rampant in land offices”, 2015; Alam et al., 2022), this finding bears a lot of significance. Finally, almost 45% of the respondents gave an agreement score of 6 to the statement, “e-mutation has increased my faith in public service”. Another 35% gave this statement a score of 7. This may be considered a significant win, considering that low faith in public administration is endemic among citizens.

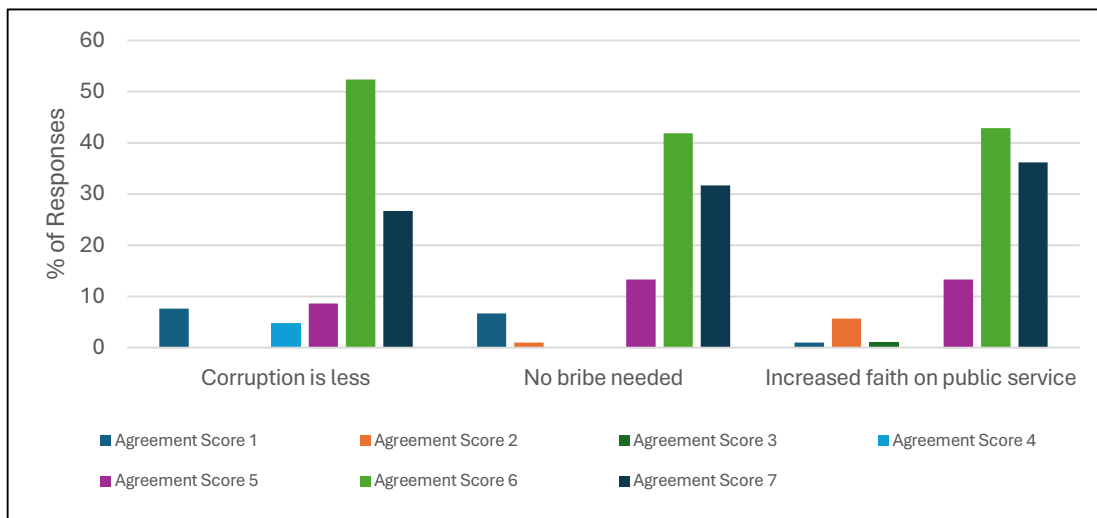


Figure 2: Governance Parameters-End-users' Perspective

5.1.4 Overall Assessment

Since most end-users did not have experience with the manual mutation process, their preference for the digitized system over the manual one could not be evaluated. However, the overall assessment, as

indicated by the statements in Table 6, is quite encouraging as respondents strongly agreed that they consider it a positive change made by the government and would recommend it to others.

Table 6: Overall Satisfaction of End-users

Statement	Mean Agreement	Std. Deviation
Overall, I am satisfied with the e-mutation service	6.05	1.54
The government has made a positive change by introducing e-mutation	6.16	1.35
I will recommend the e-mutation service to my friends and family	6.10	1.40

5.2 Assessment of Impact on Service Providers

Through the iterative process described in Section 4.1, the responses from the FGDs and semi-structured interviews were clustered into four themes, as shown in Table 7.

Table 7: Thematic Grouping of Responses from Qualitative Study

Theme	Responses
Process Improvement	<ul style="list-style-type: none"> More timely service delivery (6x) Ability to track applications through the dashboard on a real-time basis (4x) Automated transfer of application from AC Land office to concerned UNO (4x) Fewer errors in service delivery (5x) Service delivery through the portal is easier and less cumbersome (6x) Improved efficiency of the AC Land office (5x)
Quality of Governance	<ul style="list-style-type: none"> Better monitoring of activities of personnel in AC Land office and UNO office (5x) Improved supervision of all personnel (4x) Reduced discretion of service providers in creating artificial delays (4x) Reduced scope for bribery and corruption (5x) No room for discrimination among end-users (3x)
Interoperability	<ul style="list-style-type: none"> There is no integration with other agencies such as sub-registrar offices and survey settlement department (5x) Many documents are not compatible with the digitized system (3x) Limited data sharing across agencies (5x) Inconsistencies in documentation and record-keeping across agencies (3x) No digitization of registration deeds/inheritance certificates (4x) Limited integration of national databases (3x)
Overall Assessment	<ul style="list-style-type: none"> E-mutation is a successful initiative of the government (6x) E-mutation is better than manual mutation (7x) Satisfied with the implementation of e-mutation (5x) Would advocate similar e-governance reforms (5x)
<i>Note: Figures in parentheses indicate the number of times a response appeared</i>	

It is to be noted that three of the themes identified in Table 7, namely, Process Improvement, Quality of Governance, and Overall Assessment, are derived from the framework by Bhatnagar and Singh (2010). However, there were multiple responses regarding the coordination and integration between different implementing agencies, which could not be classified under any of these parameters. Instead, it seemed necessary to introduce a fourth parameter to represent these responses. Following Choi et al. (2016), who propose that traditional design-reality gap assessment models may need to be extended when studying developing countries, the present study labels this parameter “Interoperability”. Interoperability refers to the extent of cooperation achieved among different governmental agencies following a reform. It reflects how far a reform has been successful in fostering information sharing and collaboration and, thus, in laying the foundation for a connected government.

The thematic analysis was followed by formulating a structured questionnaire to capture service providers' perceptions based on the identified themes. The survey findings are presented next. These are supplemented at appropriate places with some key insights obtained from the FGD participants and interviewees.

5.2.1 Process Improvement

In the survey, service providers strongly agreed that the transition to e-mutation has enabled them to offer faster service to citizens (mean agreement score of 5.98 – see Table 8) and to deliver the service in the promised time (mean agreement score of 5.77). Service providers also reported confidence in their ability to provide error-free service and resolve queries, as both questions fetched mean scores above 6.

Table 8: Descriptive Statistics for Process Improvement

Statement	Mean Agreement	Std. Deviation
E-mutation has allowed me to offer faster service	5.98	1.46
E-mutation has allowed me to offer service in the promised time	5.77	1.52
I have complete clarity over rules and regulations relating to e-mutation	6.02	1.62
I am confident about offering error-free e-mutation service	6.15	1.52
I am confident about being able to resolve queries and solve problems using the digitized system	6.19	1.42

Some key insights from the FGD participants/interviewees on how digitization has helped improve service efficiency are worth mentioning here. In the words of one participant:

“Following digitization, the AC Land no longer has to perform an extensive search to decide which ULAO (Union Land Assistant Office) the mutation application should be forwarded to. The system automatically recognizes the mouza (administrative district) and union where the concerned land belongs. Hence, the application can be forwarded to the

appropriate ULAO expediently. This has been very helpful in reducing procedural delays.”
[UNO]

Another participant provided additional insight, stating:

“Previously, an AC land would not be able to tell how many mutations they have completed and how many are pending. Now, this can be monitored easily through the dashboard. So, it provides insight into the AC land’s efficiency and acts as an impetus for stepping up efficiency in case of any lag. It also helps to strengthen the performance agreement to which every AC land is held accountable.” [AC-Land]

5.2.2 Quality of Governance

Much like the end-users, the service providers largely agreed that the transition to e-mutation has reduced the scope for bribery and corruption. This is shown in Figure 3. The improvement in governance may be attributed to two factors. First, digitization reduces public servants' monopoly over information and makes that information available to the masses, thus reducing information asymmetry. Second, e-governance reduces corruption by making the service delivery process more open to senior managers' scrutiny and reducing the unchecked discretion of service providers (Pathak et al., 2009). This notion was supported by the interviewees. In the words of one such interviewee:

“Human agency creates scope for corruption and harassment of end-users. Previously, the application would go to five individuals, and each would have to be coaxed to pass the application to the next step. It would be impossible for AC Land to track each application. But now that the AC Land can see the stage at which each application is, he can detect whether there is any anomaly or undue delay at any step. He can then take action to expedite the process. People who are prone to corruption can be deterred through this mechanism.” [Sub-registrar]

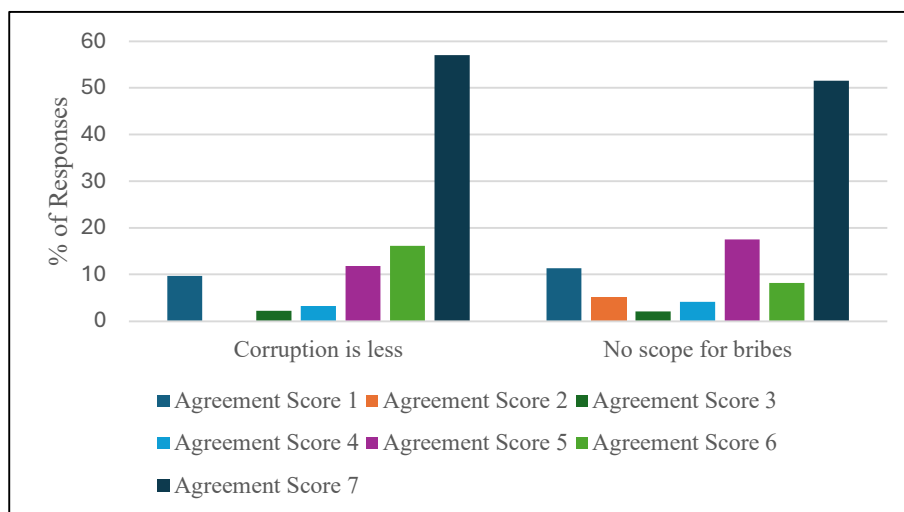


Figure 3: Governance Parameters- Service Providers' Perspective

An FGD participant offered a complementary viewpoint, stating:

“In the manual system, it was far more difficult to establish discipline along the chain of command. But now, due to the ease of tracking the application, it has become possible to monitor the activities of those subordinate to us. Likewise, the activities of the AC Land are readily visible to those above them through the dashboard. This establishes accountability throughout the chain of command and reduces the tendency for corrupt practices.” [AC Land]

From the above two comments, it may, therefore, be deduced that e-mutation has reduced the scope for bribery and corruption and improved transparency and accountability, both of which are subcomponents of the quality of governance dimension.

5.2.3 Interoperability

The questions regarding whether e-mutation has improved collaboration and information sharing across different government agencies received mean scores below 4 from the survey respondents. In addition, FGD participants and interviewees almost unanimously stated that although digitization has improved the efficiency and effectiveness of the mutation process if considered by itself, success is limited if land administration is viewed as a whole. In the words of one participant:

“Land-related service is provided by the Survey Settlement Department, the AC Land Office under the Ministry of Land, and the sub-registrar offices under the Law Ministry. All three are closely related and cannot function without the other. However, the sub-registrar offices are not under our supervision, and the transition to e-mutation has not facilitated integration with them. They are working in their own way. This creates several challenges for us.” [AC-Land]

This structural incongruence, resulting from the fact that land administration in Bangladesh is split among three ministries (the Ministry of Land, the Ministry of Public Administration, and the Ministry of Law, Justice, and Parliamentary Affairs), has, in the past, acted as a breeding ground for coordination gaps, resulting in a multiplicity of documents, fictitious records, dual ownership, and extended litigation (Hossain, 2015; Hasan, 2017). Disputes over the title of land are rife in Bangladesh, to the extent that an overwhelming majority of lawsuits in the country have been documented as concerning land disputes (Islam et al., 2015). According to one interviewee:

“The work of the AC Land is to transfer the ownership of the land to the rightful new owner. So, the AC land has to verify whether the new owner’s claim to ownership is authentic. Digitization can only be considered fully functional if the instrument testifying to the transfer of ownership, namely the deed of sale or the inheritance certificate, can be digitized and verified online. Since there has not been even a 1% digitization of the sub registrar’s office, the deeds must be authenticated manually, just like before. The same is true for the inheritance certificate. This is a failure of e-mutation. To make things worse, without the

integration of national databases and the systems of different government offices, there is the risk of replicating incorrect records in digitized format.” [Sub-registrar]

These statements indicate that, as Choi et al. (2016) succinctly state, the e-government system’s context is connected not only within but also across organizations, making interoperability a crucial parameter for e-government success. Such interoperability has clearly not been achieved through the transition to e-mutation.

5.2.4 Overall Assessment

As shown in Table 9, service providers' overall assessment of e-mutation is quite positive. They strongly agreed that they do not wish to revert to the manual system and consider e-mutation a successful initiative. This is aligned with the overall assessment by end-users.

Table 9: Overall Assessment of Service Providers

Statement	Mean Agreement	Std. Deviation
I consider e-mutation to be a successful initiative	6.38	1.31
If given the chance, I will not return to manual mutation	6.25	1.41
Overall, I am satisfied with the e-mutation process	5.93	1.54

6. Discussion

The above findings help to advance understanding, specifically of e-mutation in Bangladesh and, more generally, of e-governance reforms in developing countries in several ways.

First, the study complements past research findings in the context of Bangladesh, which indicates that the transition from manual to e-mutation has yielded economic benefits. While most questions within the Cost of Availing Service parameter generated positive responses, it is evident that the greatest saving has been realized with respect to the time dimension, as the majority of the respondents were able to get their mutation documents within 7-10 days. This is a massive improvement compared to the manual system and corresponds with Chowdhury's (2019) and Gourab and Hasan (2023) findings. In addition, although the cost of e-mutation is not significantly lower, it is considered affordable by the majority of the end-users and is seen to match the government-prescribed rate. Such economic benefits, as pointed out by Gupta et al. (2018), are of utmost importance to developing countries suffering from micro and macro resource constraints.

Second, the study advances the understanding of the impact of e-mutation in Bangladesh by assessing it in terms of Quality of Service and Quality of Governance parameters, which have hitherto been understudied in the Bangladesh context. If the Quality-of-Service parameter is considered, it is evident that digitization has ensured ease of availing the service for end-users by reducing information asymmetries, offering a user-friendly portal, and providing a functional mechanism for tracking one’s application. However, the quality of interaction with functionaries emerges as an area of concern, with end-users perceiving that service

providers are unhelpful, lack humility, and make them wait needlessly. This experience is not atypical of developing countries as studies conducted in Fiji (Pathak et al., 2009), Malaysia (Siddiquee & Mohamed, 2007), and South Africa (Maepa et al., 2023) have also found that the positive impact of e-governance on the technological front is often compromised by its limited impact on the interpersonal front.

While Quality of Governance is a parameter on which the experience of developing countries has tended to vary, the case of e-mutation in Bangladesh offers room for optimism as end-users consider the reform to have been highly effective in reducing corruption and bribery. Given the ill repute of Bangladesh's land administration, this is no small achievement. It indicates, in tandem with the experience of specific reforms in Fiji, India, and Ethiopia (see Pathak et al., 2009; Singh et al., 2010), the possibility of successfully employing e-governance models to combat corruption by reducing information asymmetries and human agency.

Third, the study offers a more complete understanding of the impact of e-mutation in particular and e-governance in general by incorporating the perception of service providers - an approach that is seen to be lacking in the e-governance literature. From the service providers' responses, it is evident that e-governance reforms can facilitate Process Improvement by enabling faster, more efficient service delivery. Process Improvement can also be attained through improvements in the supervision and monitoring capacity of the administrative entity (in this case, the AC-Land), since this helps to reduce procedural delays. Service providers also echo the positive perception of the end-users on the Quality of Governance parameters. Their responses indicate that digitization has helped reduce corruption by curtailing the unchecked discretion of service providers and their ability to monopolize information.

However, Interoperability, or the lack thereof, emerges as the most negative impact of the transition to e-mutation, as highlighted by service providers. Not only has the transition to e-mutation been completely ineffective as far as improved coordination between agencies is concerned, but it has also widened the gap between the different agencies since some of them still rely on manual processes while others rely on digitized processes. In addition, since mutation is only one part of a complex chain of processes involved in land administration, digitizing it has not made it any easier to verify the authenticity of documents attesting to land ownership. In fact, the manual discretion required in performing such verification leaves room open for corrupt practices, which may potentially undermine the reduction in corruption achieved through digitization. According to Johansen (2023), researchers are still undecided about the range of criteria that should be incorporated while assessing the impact of e-governance reforms since the choice of criteria must be context-specific. The findings from the present study highlight that in the context of developing countries, it is important to evaluate whether the stated reform has been successful in achieving interoperability since the exclusion of this criterion can preclude a complete understanding of the reform's impact.

7. Conclusion and Implication

7.1 Conclusion

This study attests to the immense potential that digital land management, and, by extension, e-governance reforms of a similar nature have in improving land administration in developing countries, thereby

contributing to the fulfillment of the Sustainable Development Goals. The study results indicate that e-mutation in Bangladesh has had several positive impacts. It has reduced the cost of end-user service availing, improved ease of access to service, and contributed to process improvements at the service providers' end. Most notably, it has improved governance in a once corruption-ridden sector, thus paving the way for long-term welfare gains. Hence, e-mutation in Bangladesh can be considered a successful reform case, which may be replicated in other developing countries.

7.2 Implication

However, appropriate policy intervention is much needed for this initial success to be sustained. The study highlights two key areas for intervention. First, it is evident that from a behavioral/attitudinal point of view, service providers are still anchored in past habits and do not appreciate the importance of being expedient, courteous, and helpful when delivering the service to end-users. Hence, policymakers must consider behavioral training, particularly empathy training. Second, it is imperative to integrate the entire land management system through digitization since, in the absence of such integration and data sharing, the promise of e-mutation will only remain half fulfilled. Other developing countries seeking to initiate e-governance reforms in land administration or elsewhere should proactively consider this need for integration and empathy training during the design and development phases, respectively, to amplify the concerned reform's positive impact.

From a theoretical standpoint, the study makes an important contribution by identifying interoperability as a parameter that may need to be added to frameworks assessing the impact of e-governance in developing countries. Since developing countries generally have a weaker institutional context than developed ones, they confront some unique challenges in e-government implementation (Choi et al., 2016). The segregation of responsibilities among various ministries and agencies, as witnessed in the case of land administration in Bangladesh, is one such unique challenge. Hence, the impact of any e-governance reform needs to be evaluated not only with respect to the process improvement it brings about within an institution but also with respect to the degree of integration that it helps to achieve across institutions. This makes interoperability an important dimension for consideration in future studies.

Future research on e-governance can benefit from adopting a multi-stakeholder and multi-dimensional approach to impact assessment like the one adopted in the present study since it offers key insights that cannot be obtained from simple time-cost-travel assessments. In addition, there is a paucity of studies measuring long-term economic benefits and social welfare gains arising from adopting e-governance reforms in Bangladesh. Future studies can address this gap, thus helping to connect the dots between the short-term and long-term impact of e-governance reforms.

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Conflicts of Interest

The authors declare no conflict of interest.

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References

- Abdulnabi, S. M. (2024). Issues and challenges of implementing e-governance in developing countries: a comprehensive analysis of civil service models. *Cogent Business & Management*, 11(1), 1-11.
<https://doi.org/10.1080/23311975.2024.2340579>
- Alam, K. M., Rahman, J. M. A., Tasnim, A., & Akther, A. (2022). A blockchain-based land title management system for Bangladesh. *Journal of King Saud University - Computer and Information Sciences*, 34(6), 3096-3110.
<https://doi.org/10.1016/j.jksuci.2020.10.011>.
- Amrithesh., Misra, S. C., & Chatterjee, J. (2013). Applying gap model for bringing effectiveness to e-government services: A case of NeGP deployment in India. *International Journal of Electronic Government Research*, 9(3), 43-57.
doi:10.4018/jegr.2013070103
- Belwal, R., & Al-Zoubi, K. (2008). Public centric e-governance in Jordan. *Journal of Information, Communication and Ethics in Society*, 6(4), 317-333. DOI: [10.1108/14779960810921123](https://doi.org/10.1108/14779960810921123)
- Bhatnagar, S. C., & Singh, N. (2010). Assessing the impact of e-government: a study of projects in India. *Information Technologies and International Development*, 6(2), 109–127.
- Bhuiyan, S. H. (2011). Modernizing Bangladesh public administration through e-governance: Benefits and challenges. *Government Information Quarterly*, 28, 54-65.
doi:10.1016/j.giq.2010.04.006
- Bribery rampant in land offices. (2015, August 24). *The Daily Star*.
<https://www.thedailystar.net/frontpage/bribery-rampant-land-offices-131533>
- Cabinet congratulates PM for country winning UNPSA award for the first time. (2020, June 25). *The Daily Star*.
<https://www.thedailystar.net/country/news/cabinet-congratulates-pm-country-winning-unpsa-award-the-first-time-1920193>
- Choi, H., Park, M. J., Rho, J. J., & Zo, H. (2016). Rethinking the assessment of e-government implementation in developing countries from the perspective of the design–reality gap: Applications in the Indonesian e-procurement system. *Telecommunications Policy*, 40(7), 644-660. doi: 10.1016/j.telpol.2016.03.002
- Choudhury, E., Ridwan, M., Awal, M., & Hosain, S. (2011). A web-based land management system for Bangladesh [Paper presentation]. 14th International Conference on Computer and Information Technology (ICCIT 2011), Dhaka, Bangladesh. doi: 10.1109/ICCITechn.2011.6164807.

- Choudrie, J., & Dwivedi, Y. K. (2005). Investigating the research approaches for examining technology adoption issues. *Journal of Research Practice*, 1(1), Article D1. <http://jrp.icaap.org/index.php/jrp/article/view/47>
- Chowdhury, S. A. (2019). Program evaluation on e-mutation. Ministry of Land.
- De', R. (2006). Evaluation of e-government systems: Project assessment vs development assessment. In Wimmer, M.A., Scholl, H.J., Grönlund, Å., Andersen, K.V. (Eds.), *Electronic Government EGOV 2006*. Springer. https://doi.org/10.1007/11823100_28
- Gupta, K. P., Singh, S., & Bhaskar, P. (2018). Citizens' perceptions on benefits of e-governance services. *International Journal of Electronic Governance*, 10(1), 24-55. <https://doi.org/10.1504/IJEG.2018.091261>
- Halid, S. N., Hassim, J. Z., Nawawi, Y.M. T. R. T. (2022). Transforming land administration through e-government. *Jurnal LAND*, 10(1), 1-24. <https://myjms.mohe.gov.my/index.php/land/article/view/22998>
- Hasan, M. I. (2017). Land administration in Bangladesh: Problems and analytical approach to solution. *International Journal of Law*, 3(2), 44-49.
- Hasan, S. M. M., & Gourab, ASM. R. H. (2023). Impacts of e-mutation: A study on service recipients' perception. *BIGM Journal of Policy Analysis*, 1(1), 69-80.
- Hassan, M. R. (2013). E-Governance and E-Government in Bangladesh: performance, challenges and remedies. *Asian Journal of Applied Science and Engineering*, 2(3), 210-216.
- Heckathorn, D. D. (2011). Snowball versus respondent driven sampling. *Sociol Methodol*, 41(1), 355-366. doi: 10.1111/j.1467-9531.2011.01244.x
- Heeks, R. (2003, February). Most eGovernment for development projects fail: How can risks be reduced? (iGovernment Working Paper No. 14). <http://dx.doi.org/10.2139/ssrn.3540052>
- Heeks, R. (2005). e-Government as a Carrier of Context. *Journal of Public Policy*, 25(1), 51-74.
- Hooda, A., & Singla, M. L. (2021). Core – competencies – a key to future – oriented and sustainable e-governance implementation: a mixed method research, *Transforming Government: People, Process and Policy*, 15(1), 80-107. DOI: 10.1108/TG-12-2019-0122
- Hossain, M. (2015). Improving land administration and management in Bangladesh. Bangladesh Institute of Development Studies.
- Irani, Z., Love, P. E. D., Elliman, T., Jones, S., & Themistocleous, M. (2005). Evaluation of e-government: Learning from the experiences of two UK local authorities. *Information Systems Journal*, 15(1), 61–82.
- Islam, S. , Moula, G., & Islam, M. (2015). Land rights, land disputes and land administration in Bangladesh—A critical study. *Beijing Law Review*, 6, 193-198. doi: 10.4236/blr.2015.63019.
- Johansen, E. (2023). A study of the impacts of e-governance on the economy, trends, and perspectives. Munich Personal RePEc Archive. <https://mpra.ub.uni-muenchen.de/116884/>
- Kassen, M. (2014). Globalization of e-governance: open government as a global agenda; benefits, limitations and ways forward. *Information Development*, 30(1), 51-58. <https://doi.org/10.1177/0266666912473620>.

- Khan, R.H. (2017). Dynamics of digital entrepreneurship and innovation: insights from an emerging market. [PhD thesis, University of Warwick].
- Khan, R.H. (2022). Path Creation in ICT Innovations for Developing Countries: Evidence from a Case Study in Bangladesh, *Journal of Business Administration*, 43(2), 1-26.
- Khan, S., Toaha, M., & Awal, M. A. (2009). Automated digital archive for land registration and records. *International Technology Management Review*, 2(1), 50-65.
- Krueger, R.A., & Casey, M.A. (2015) *Focus Groups: A Practical Guide for Applied Research* (5th ed). London: Sage.
- Kvale, S. (1996). *Interviews*. Thousand Oaks, CA: Sage
- Lijadi, A.A, & van Schalkwyk, G.J. (2015). Online Facebook focus group research of hard-to-reach participants. *International Journal of Qualitative Methods*, 14(1), 1-9. <https://doi.org/10.1177/1609406915621383>
- Maepa, D. N., Mpwanya, M. F., & Phume, T. B. (2023). Readiness factors affecting e-procurement in South African government departments. *Journal of Transport and Supply Chain Management*, 17, 1-12. <https://doi.org/10.4102/jtscm.v17i0.874>
- Masiero, S. (2016). The origins of failure: Seeking the causes of design–reality gaps. *Information Technology for Development*, 22(3), 487-502. doi: 10.1080/02681102.2016.1143346
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, LA: Sage.
- Ministry of Land. (n.d.). Ministry of Land – Government of the People’s Republic of Bangladesh. <https://minland.gov.bd/>
- Monga, A. (2008). E-government in India: Opportunities and challenges. *Journal of Administration and Governance*, 3(2), 53-61.
- Munshi, A., Kumar, V., & Malik, P. (2019). Digitization of land records - what we can learn from Bhoomi? *Proceedings of International Conference on Advancements in Computing & Management (ICACM)*, 888-893. <http://dx.doi.org/10.2139/ssrn.3464213>
- Naderifar, M., Goli, H., & Ghaljaie, F. (2017). Snowball sampling: A purposeful method of sampling in qualitative research. *Strides in Development of Medical Education*, 14(3), 1-4. <https://doi.org/10.5812/sdme.67670>
- Nahrin, K., & Rahman, M. S.-U. (2009). Land Information System (LIS) for land administration and management in Bangladesh. *Journal of Bangladesh Institute of Planners*, 2, 116–125. <https://doi.org/10.3329/jbip.v2i0.9572>
- Pathak, R. D., Naz, R., Rahman, M. H., Smith, R. F. I., & Agarwal, K. N. (2009). E-Governance to cut corruption in public service delivery: A case study of Fiji. *International Journal of Public Administration*, 32(5), 415 - 437. <https://doi.org/10.1080/01900690902799482>
- Prybutok, V. R., Zhang, X., & Ryan, S. D. (2008). Evaluating leadership, IT quality, and net benefits in an e-government environment. *Information & Management*, 45(3), 143-152.
- Saif, A. N. M., & Howlader, M. S. (2018). Land e-mutation system in Bangladesh: An exploratory study of A2I program. *Journal of Green Business School*, 1(1), 109-118.
- Sathisha & Katti, M. S. (2023). Empowering Karnataka: E-governance and transformative public administration. *Research Bulletin*, 49(II), 49-57.
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). *Research methods for business students*. New York : Pearson

- Saxena, S. (2017). Factors influencing perceptions on corruption in public service delivery via e-government platform. *Foresight*, 19(6), 628-646. <https://doi.org/10.1108/FS-05-2017-0013>
- Schuppan, T. (2009). E-Government in developing countries: Experiences from sub-Saharan Africa. *Government Information Quarterly*, 26(1), 118-127. <https://doi.org/10.1016/j.giq.2008.01.006>.
- Sharma, P. (2016). Facts and abstracts of e-governance in India. *International Journal of Commerce and Management Research*, 2(11), 34-37.
- Sharma, R., & Mishra, R. (2017). Investigating the role of intermediaries in adoption of public access outlets for delivery of e-Government services in developing countries: an empirical study. *Government Information Quarterly*, 3(4), 658-679.
- Siddiquee, N. A., & Mohamed, M. Z. (2007). Paradox of public sector reforms in Malaysia: A good governance perspective. *Public Administration Quarterly*, 31(3), 284-312.
- Siddiqui, K. (1997). *Land Management in South Asia- A Comparative Study*. The University Press Limited.
- Singh, A. (2023). E-governance: Moving towards digital governance. *Vidya-A Journal of Gujarat University*, 2(1), 204-215.
- Singh, G., Pathak, R.D., Naz, R., & Belwal, R. (2010). E-governance for improved public sector service delivery in India, Ethiopia and Fiji. *International Journal of Public Sector Management*, 23(3), 254-275. <https://doi.org/10.1108/09513551011032473>
- Stokes, D., & Bergin, R. (2006). Methodology or "Methodolatry"? An Evaluation of focus groups and depth interviews. *Qualitative Market Research: An International Journal*, 9, 26-37. <https://doi.org/10.1108/13522750610640530>
- Talukder, S. K., Sakib, M. I. I., & Rahman, M. M. (2014). Digital land management system: A new initiative for Bangladesh [Paper presentation]. *International Conference on Electrical Engineering and Information & Communication Technology*, Dhaka, Bangladesh. doi: 10.1109/ICEEICT.2014.6919031.
- Terrance, M. T., & Uwizeyimana, D. E. (2023). E-governance as a new public administration paradigm. *Research in Business & Social Science*, 12(8), 348-356. <https://doi.org/10.20525/ijrbs.v12i8.2931>
- Venkatesh, V., Brown, S.A., & Bala, H. (2013). Bridging the qualitative-quantitative divide: guidelines for conducting mixed methods research in information systems. *MIS Quarterly*, 37(1), 1-34. DOI: [10.25300/MISQ/2013/37.1.02](https://doi.org/10.25300/MISQ/2013/37.1.02)
- Venkatesh, V., Bala, H., & Sambamurthy, V. (2016). Implementation of an information and communication technology in a developing country: a multimethod longitudinal study in a bank in India. *Information System Research*, 27(3), 558-579. DOI: [10.1287/isre.2016.0638](https://doi.org/10.1287/isre.2016.0638)
- Vimalkumar, M., Singh, J. B., & Sharma, S. K. (2021). Exploring the multi-level digital divide in mobile phone adoption: A comparison of developing nations. *Information Systems Frontiers*, 23, 1057-1076. <https://doi.org/10.1007/s10796-020-10032-5>
- Walsham, G. (1995) Interpretive case studies in IS research: nature and method. *European Journal of Information Systems*, 4, 74-81.
- Warschauer, M. (2004). *Technology and social inclusion: Rethinking the digital divide*. MIT Press.