

ROLE OF E-GOVERNANCE TO REDUCING CORRUPTION IN BANGLADESH: A STUDY ON BANGLADESH RAILWAY

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Abstract. The Bangladesh Railway has been one of the most corruption ridden organizations in the country, suffering from administrative overreach, political interference, and the prevalence of informal practices. What does the digital governance revolution mean for this reality? This paper seeks to explore the impact of digital governance reforms on the Bangladesh Railway. Based on interviews with key stakeholders, surveys of 200 individuals, and access to various policy documents and institutional records, we assess the impact of digital governance reforms such as the implementation of online ticketing, e-procurement, digital payroll systems, and digital grievance systems. Our findings are intriguing. While digital governance has certainly reduced the corruption that once plagued the railway, making it difficult for citizens to buy tickets or file complaints, it has not eradicated the evil. Corruption has merely moved from the more visible spaces to the less visible spaces. In order to understand the reasons behind such differing results, this paper also seeks to incorporate two theoretical models, namely Technology Acceptance Model and Public Value Theory. It is the hope of the author that the message conveyed by the paper will be one of the positive impacts of digital reform, provided it is accompanied by the necessary will, accountability, and investment in governance.

Keywords: *e-governance, corruption control, Bangladesh railway, digital governance, transparency, public value*

Introduction

Corruption is one of the greatest intractable and harmful problems that emerging nations are struggling to overcome. It is more than a problem of people creating poor choices; in countries such as Bangladesh, it has become institutionalized in the very material of the government itself. Bribes, favoritism, cronyism, and the exploitation of civic power for private gain are not merely failures of policy; they corrode excellence, skew the allocation of public resources, undermine the rule of law, and empty the public belief in the state. The wickedest sufferers of corruption are, of course, the common people who do not have the accurate networks or the money to effort the structure that is weighted contrary to them. In addition to organizational incompetence, the institutionalized corruption in Bangladesh has thoughtful implications for democracy. It fuels political support, undermines judicial freedom, promotes license, and reduces accountability across the board. Again, and over, enforcement-oriented anti-corruption efforts have yielded shallow gains that have temporarily caught an insufficient corrupt individual but have not addressed the underlying organizational environments that create corruption balanced and routine in the first place. This is exactly why focus has been placed on defensive and organizational reforms, and why e-governance has garnered such attention. E-governance is defined as “the use of information and communication technologies (ICT) that aim to improve or enable governmental

performance and advance the interests of citizens and society as a whole by shifting or improving the way government processes work or by increasing access to (or use of) government services by citizens.” This means that e-governance has the potential to decrease corruption by eliminating chances for corruption in its processes. This is evidenced in South Korea, India, and Ethiopia.

However, there is an increasing literature that cautions for the sake of the assumption that digitalization will automatically provide a solution to the bottomless governance challenges. Technology does not function in a void. It is dependent on political will, digital knowledge, and the ability of those in power to hold themselves responsible. In the hybrid governance systems, corruption does not dissolve with digitalization but changes and becomes classier. For instance, in the context of Bangladesh, the 'Digital Bangladesh' program has resulted in the wide application of ICTs in the governance of the country, which aims at creating larger transparency, accountability, and service delivery. At the same time, the literature available in the present context has been originate to be either too broad or too narrow in it's approach, without delving deeper into the impact of such a change on organizations or the subtleties of diverse types of corruption. Bangladesh Railway is the perfect example of such a scenario because, being the only public-sector railway service provider in the country with almost 2,800 km of pathway length and carrying millions of passengers across the country, it is both a very important public sector organization in the country and also a very corrupt one, ticket touting, ghost employees, procurement fraud, land irregularities, and bribery at every level of operations have long characterized the railway's internal culture. In recent years, it has also introduced a range of digital reforms: online ticketing, e procurement, digital payroll, and automated grievance systems. This makes it an ideal laboratory for examining what e-governance can and cannot do. This study makes four key contributions. First, it provides one of the first institution-level empirical analyses of e-governance reform in Bangladesh Railway. Second, it introduces the concept of corruption transformation the idea that digitalization reshapes rather than eliminates corrupt practices. Third, it integrates TAM and PVT to enlighten why digital acceptance and anti-corruption consequences are so uneven across organizational fields. Finally, it offers real-world, context-sensitive policy lessons for governments following digital reform in backgrounds where political and bureaucratic struggle runs deep.

Conceptual framework: E-governance as institutional reform

In this study, e-governance is not viewed as a technical improvement, but as an institutional involvement in terms of how power, responsibility, and inducements are arranged. If a government implements an electronic ticketing system or obtaining process, it is not merely a technical improvement; it is changing who holds power, how power is trained, and how effortlessly it can be noticed.

Five governance channels

E-governance operates through five related channels that each chip away at the conditions that make corruption possible: (1) Transparency: digital records make decisions and transactions visible and traceable. (2) Efficiency: faster, simpler processes reduce the delays and red tape that invite informal payments. (3) Accountability: audit trails make misconduct easier to detect and harder to ignore. (4) Citizen participation: digital complaint platforms give ordinary people a voice and a record. (5) Service

delivery: more accessible, predictable services reduce citizens' dependence on informal intermediaries.

Interaction models: G2C, G2B, G2G, G2E

E-governance operates through diverse parts of the organization via different channels. Government to Citizen (G2C) services such as online ticketing and complaint systems reduce petty face-to-face corruption through incomplete human interface. Government to Business (G2B) services such as online obtaining systems address the problem of wide-ranging corruption in the procurement process. Government to Government (G2G) services improve internal coordination and monitoring. Government to Employee (G2E) services, such as online payroll systems and HR management systems, address the problem of patronage and ghost workers (*Figure 1*). An important realization that permeates this model is that the presence of e-governance does not necessarily eradicate corruption in all its forms. There are different kinds of corruption that behave in different ways in the face of digital interference. Front-end corruption can be controlled in a comparatively faster pace if the system is automated to the extent that the human interface that allows the bribe to be paid in the first place ceases to exist. Back-end corruption is much more resistant to change and continues to thrive in any area that political cover, lack of implementation, and lack of digital oversight permit. At the focus of all this examination is a fundamental but significant entitlement: e-governance affects corruption outcomes in three significant ways by confining the space in which administrators may practice their own outcome in an unrestrained way, by simplifying transactions and creation them more auditable, and by applying controls to areas of the system that were once left to authorize themselves. However, it must be said that the context avoids assuming technology will somehow solve all problems and eliminate corruption entirely. In fact, how technology actually makes a variance will depend on various circumstances, and in few cases, corruption will actually use learning to game technology and/or work about it through insider systems. This being said, what the outline does is distinguish between two wide-ranging categories of public administration: those where citizens directly interrelate, and those where the inside workings of the bureaucracy take place behind closed doors. Under the former, we might think of something such as a ticket counter, an authorized counter, or a complaint redressal portal-under e-governance, we can expect a swift fix in reducing bribery in such cases. However, under the latter sort, the picture is much more complicated when it comes to reducing corruption in the internal workings of the bureaucracy. Here, we might consider whether the implementation of e-governance is likely to have an impact on reducing corruption depending on a variety of factors. This is not just a theoretical exercise but also informs the reading of the reform journey of Bangladesh Railway-where the results were disorganized, ambiguous, or difficult to read.

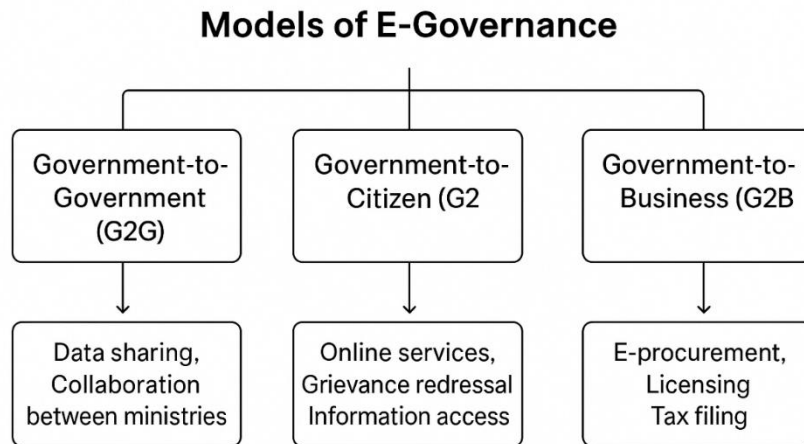


Figure 1. Models of e-governance.

Theoretical framework

Technology Acceptance Model (TAM)

In order to grasp the effectiveness of e-governance in reducing corruption, it is also essential to grasp whether people use it at all. The Technology Acceptance Model, first introduced by Davis (1989), is a helpful framework for this purpose. The model suggests that the adoption of a new technology is dependent on two variables: whether the individual perceives it as useful for improving his/her performance and whether the individual perceives it as easy to use. These two variables jointly influence an individual's attitudes toward a new technology, his/her intention to use it, as well as his/her actual behavior in this regard (Bhuiyan, 2011a; Davis, 1989). The basic idea behind the TAM model is quite instinctive: the further probable people are to adopt a technology the more they credence it will support them and the less struggle it takes to use the technology in question. For instance, the more its possibilities to make work easier, quicker, and additional rewarding from a professional standpoint, the more likely people will be to adopt it. And the less struggle it takes to use the system in question, the more likely people are to walk away with a optimistic experience and the desire to utilize the system over. Outside of these two basic ideas, however, the reality is that technology acceptance does not occur in a vacuum and is impacted by things such as the ability to relate to others who have used the system in question, the quality of the system in question, and the ability to actually trust the system in question (*Figure 2*). In the case of Bangladesh Railway, the model can also provide insights into the success and failure of the reform. For passengers, digital ticketing is likely to be well received if it can help them avoid wasting time and the hassle of dealing with ticket agents and the heat. However, for employees, the similar digital ticketing model might face resistance if they perceive it to be a danger to their earnings, particularly if they have been earning money this way for years. The model also shows the impact of external factors on the success of digital ticketing. Trust in the digital ticketing system and the general social context can also affect the success of the reform.

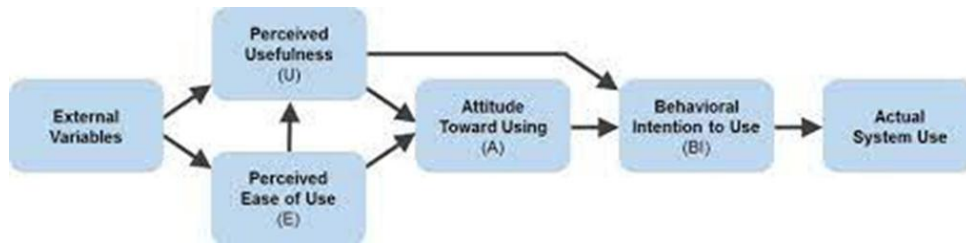


Figure 2. Technology Acceptance Model (TAM).
Source: Davis (1989).

Public Value Theory (PVT)

While the TAM model can enlighten the procedure of receiving, the Public Value Theory established by Mark Moore and published in his book **Creating Public Value** in 1995 can clarify the outcomes. Moore's key theory was that the goal of public management was not competence for efficiency's sake but to create public value in the form of well services, greater accountability, and higher confidence in public institutions (Alford et al., 2017) (Figure 3).

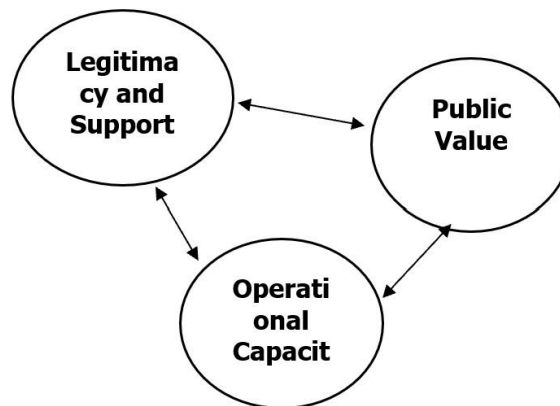


Figure 3. Public Value Theory (PVT).
Source: Alford et al. (2017).

Core tenets of public value theory and their relevance to e-governance

Public Value Theory (PVT), as primarily framed by Moore (1995), claims that the primary purpose of public institutions is the formation of value for citizens that goes outdoor the provision of services. Beneath this theory, public institutions are not evaluated in terms of inside performance pointers but in terms of the level to which their productivities markedly increase the value of public life. If we deliberate the context of Bangladesh Railway through the lens of this theory, it is obvious that the concept of e-governance is not merely a technical run but an exercise in making worth for citizens that is comprehensible. The application of digitally settled reforms such as online ticketing structure, criticism redressal systems, and e-procurement systems echoes a serious attempt at reorienting public service delivery along the legalizing expectations of efficiency, accountability, and responsiveness (Islam et al., 2023). Another significant principal measurement of PVT is the thought of institutional legitimacy, which the theory approaches not as an indispensable property of recognized expert but rather as informally built and dependent upon the protest of transparency, procedural

accountability, and citizen engagement. Indeed, digital government tools such as data portals, live grievance tracking systems, and response mechanisms can play a significant role in the formation of legitimacy by creation government measures transparent and thus demonstrable, helping to break the information indiscretions which have conventionally served to insulate bureaucratic malpractice from public observation (Zhang and Bhattacharjee, 2024). Another central dimension of PVT is the technique in which value development is related to working volume. This is because the application of e-governance systems is introduced on a variety of allowing conditions without which any improvements may end up being formalized. E-ticketing systems and e-procurement systems, for example, cannot be active in the fight against corruption without acceptable asset in personnel training and conservation of such systems. The convergence of PVT literature with e-governance literature and corruption studies usually reveals a very crucial theoretical vision into the role of service delivery improvements, transparency, and citizen participation in governance: they do not just enhance governance; they constitute a condition that analytically closes the scope for corruption (Mahmood, 2011). When PVT is applied to the e-governance reorganization of Bangladesh Railway, it seeks answers such as: "Are these technologies really improving the lives of citizens?" "Are they reducing corruption in a way that citizens can see and feel?" "Are they improving the legality of the institution?" PVT encourages us to remember that public value is only created through technologies when we have an institutional setting that can help translate technologies into enhancements in transparency, effectiveness, and citizen engagement.

Combining TAM and PVT

Each model, taken separately, offers a limited perspective, whereas together, they offer an additional complete perspective. TAM helps to explain the "how" and "why" of the acceptance or lack thereof of e-governance tools, whereas PVT helps to explain the "what" of the effect of the adoption of these tools, i.e., whether it actually leads to a reduction in corruption, etc. This model, taken together, supports to explain the findings of the study, which was that "the effect of e-governance on corruption was not due to the 'technology' itself, but to its contact with encouragements, behavior, and governance volume" (*Figure 4*).

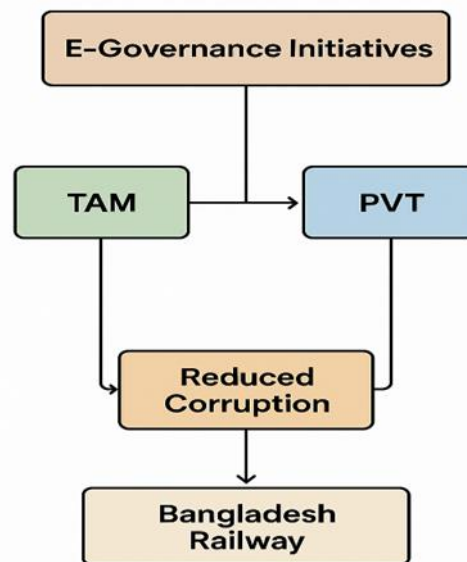


Figure 4. Correlation between e-governance and corruption reduction in Bangladesh railway.

Materials and Methods

This study uses a case study methodology well-matched for discovering how governance reforms play out in exact institutional settings. Rather than captivating for granted the linkage between digitalization and reduced levels of corruption, the study examines the insight, application, struggle, and even manipulation of e-governance reforms from the viewpoints of several actors within Bangladesh Railway. Bangladesh Railway was designated for three motives: it is a prominent public body with wide-ranging effect; it has a well-documented history of governance issues associated to tickets, purchases, hiring, and examinations; and it has launched several e-governance projects in the past few years, creation it an favorable time to study what has and has not reformed. The study introduced three forms of evidence. Primary evidence comprises 20 semi-structured key informant interviews and a survey of 200 respondents. The interviews were directed with railway staff, passengers, policy actors, and ICT specialists who were all selected for their direct experience with digital systems at Bangladesh Railway. The interviews were between 40 to 60 minutes long, led in Bangla or English depending on the interviewee's choice, and were conducted with strict confidentiality due to the nature of the information obtained from respondents concerning corruption.

The main areas of service experience that were of concern to the survey were the perception of the accessibility of services, whether the levels of informal expenditures have reduced, and whether the perception of increased transparency is a result of digitalization. Secondary data was used to support the findings of the interview, and this comprised policy documents, audit reports, institutional records, and media investigation reports to track the progress of reforms over time. The interview and documentary data were examined through qualitative content analysis, applying both theory-driven and emergent codes based on the TAM-PVT model and the interview and

documentary data, respectively. Five bunches of codes were identified in the data, including pleasure and opacity of procedures, the impact of automation on levels of citizen-facing corruption, the determination and evolution of back-end corruption through insider collusion, confrontation and implementation of reforms, and political influences in procurement, recruitment, and administration. Another important analytical technique was to draw a distinction between front-end procedures (such as ticketing, complaint redressal where citizens are straight involved) and back-end procedures (such as procurement, payroll, internal auditing where there is fewer citizen interaction and where corruption is not as noticeable but can be far additional impactful). This was important in trying to understand where e-governance was greatest impactful and where it was not. The objective of this qualitative case study is not to kind generalizations around a larger population, but to shape theory in what Yin (2018) refers to as analytical generalization. Bangladesh Railway is a mainly interesting case because it represents a gap into how e-governance can impact huge, government-owned service organizations.

To understand precisely how these reforms are linked to changing patterns of corruption inside Bangladesh Railway, process tracing is employed as a research strategy. The emphasis is on understanding the chain of events: how digital ticketing increasingly eliminated the space for face-to-face interactions where minor bribery had been prevalent, and how, as a consequence, petty corruption began to shift to administrative procedures that are fewer observable to public scrutiny. The accounts providing by interview respondents were experiment for signs of each link in this procedure. Naturally, like any study, there are limitations. In that, the fact that it's a solo organization means that the study is relevant to concept, not necessarily to any overall shapes that could be seen across multiple backgrounds. The interview component, while offering a very real "inside" viewpoint, is also somewhat incomplete, potentially leaving upcoming research to be conducted across several organizations or over time to further solidify the corruption transformation disagreement. It's also value noting that, of course, certain back-end performs, by their very nature, can be somewhat tough to directly perceive, so it's possible that certain aspects of the process will be somewhat limited. However, with the variety of sources of information, the process-tracing method provides a good basis from which to further explore the e-governance/corruption relationship, particularly in contexts where both formal and informal performs are ever-evolving.

Results and Discussion

Corrupt observes in BR do not occur in a single department or in an isolated manner; rather, they permeate the recruitment procedures, revenue collection, procurement, logistics management, and the general day-to-day activities of the departments. What makes this phenomenon difficult to change is the manner in which these diverse forms of corruption feed into each other, supporting the next one in line (*Figure 5*).

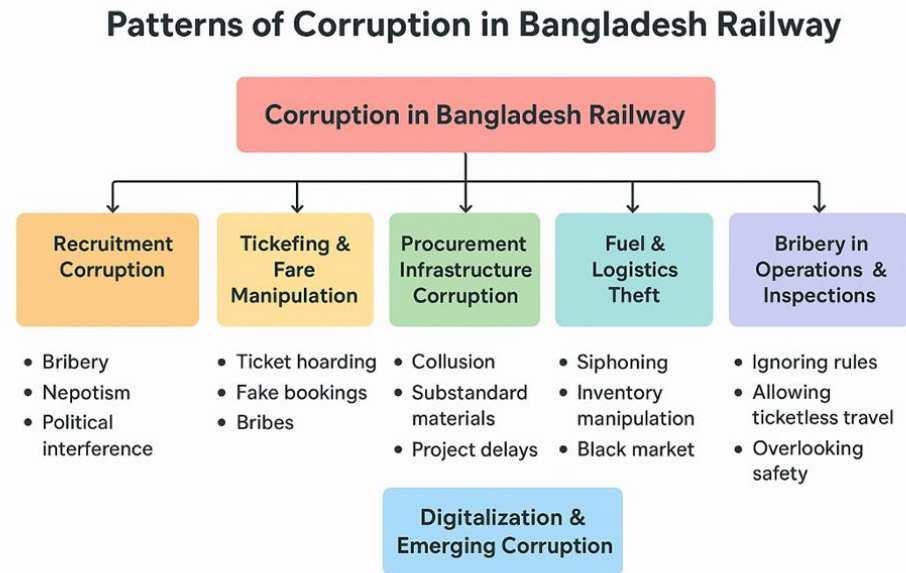


Figure 5. Patterns of corruption in Bangladesh railway.

The corruption landscape in Bangladesh railway, recruitment, ticketing fraud and fare manipulation

Corruption in Bangladesh Railway is widespread and not the effort of a handful of bad apples however a unified set of informal performs enabled by political support and bureaucratic determination. It permeates all noteworthy areas of operational control. Recruitment practices in Bangladesh Railway, particularly for lower-level positions, are often influenced by bribery, nepotism, and political considerations rather than quality or merit. Informants described the payment of bribes as an informal criterion for hiring, with political actors compelling the signing officials to service political influences. The influence is important: if people are employed for the improper reasons, operational failure is unavoidable, and the culture of impunity begins the moment the individual steps foot in the organization. Ticketing is the greatest noticeable face of corruption for commonplace passengers. The study originates organized complicity between railway staff and external agents involving ticket hoarding, reselling at overstated prices, and operation of the online booking system. During peak travel stages, tickets allegedly sold out within minutes, only to reappear on the black market at a premium. This manufactured shortage extracts rent from passengers while eroding both trust and revenue truthfulness.

Procurement fraud, everyday bribery, political interference, the new face of digital-era corruption, fuel theft and logistics manipulation

Procurement fraud is other area that is highly disposed to to corruption, particularly in the case of railway infrastructure. The overstated costs of contracts, the getting of lower goods, and the delays in the completion of projects despite the full disbursement of payment have all been informed by the informants, which aligns with the audit results. The collusion of officials, contractors, and politically associated companies has made it unbearable for any enhancements to be made to the infrastructure, as the money

meant for the improvement of the infrastructure is being diverted into the pockets of the corrupt. At the frontlines of railway services in ticketing, cargo inspection, and railway stations, bribery is an integral part of the system. Allegedly, railway conductors receive bribes for permitting travelers without tickets, ignoring security destructions, and waiving freight rules. When violations have become so common that they have an "informal price list," agreement is no longer enforced, and the system is broken. Cutting across all these grounds is the phenomenon of political support. Raises, transfers, and allocation of projects are allegedly based on political affiliations rather than presentation. When individuals in an organization perceive that they are not accountable for their actions as long as they have a political sponsor, organizational loyalty is undermined. Whistleblowers become a threat, and change is highly threatening for those in power. Perhaps the greatest significant discovery is that digitalization has not removed the problem of corruption but has instead changed it. New forms of vulnerability include the use of fake reservations, the use of broker-run bots to infiltrate ticket systems, and the use of insiders to infiltrate digital systems. The old form of corruption was transactional and face-to-face-based, but the novel form is technical and hidden. Low digital literateness among users and the lack of cybersecurity practices make this problem even worse. The theft of fuel, as well as the illegal disposal of spares, has been reported as an ordinary activity that is taking place in the railway sector. The impact of such activities is not only the financial loss that is being incurred, but it also results in the disruption of the services, which impacts millions of passengers.

Corruption nodes, digital opportunity structures, and the TAM–PVT framework in practice

What is greatest clear from the consequences is that ticketing and recruitment are the two most important and critical sites of corruption in Bangladesh Railway. These are not random sites of corruption, and what is vibrant is that these sites share a set of characteristics that make them productive breeding grounds for rent-seeking actions: direct citizen communication, voluntary power, and a lack of credible deterrents in monitoring observes. What happens to these sites of corruption in terms of digitalization is a serious, though nuanced, area of analysis, as it does not merely shut off the opportunity constructions that have allowed corruption to thrive, but changes them. Yet the removal of personal contact through which corruption was so effortlessly simplified online ticket distribution is a case in point comes at the price of the potential for digital manipulation by those who know how to work the system, as well as the potential for exploiting those who are less able to deal successfully with digital technologies. From a theoretical position, these results speak directly to the integrated TAM/PVT framework through which this research is being conducted. The TAM model sheds light on the process by which digitalization initiatives have varying degrees of success across different populations and contexts. Where digitalization is seen as valuable and available by employees and passengers, the essential for intermediaries is reduced. However, if making digital is seen as difficult to use, untrustworthy, or unfamiliar, the change in behavior necessary for anti-corruption outcomes is not seen. Public Value Theory sheds light on the conditions under which digitalization can lead to outcomes beyond mere administrative modernization.

So far as e-governance can support recover transparency, improve responsibility, growth active competences, and facilitate citizen connection, it can certainly help make real public worth. And in the procedure, it can challenge the basic circumstances

necessary for corruption to continue. The challenge is that these conditions are not always contemporary. Where political interference has compromised the procedure, organizational capacities are missing, and application is not reliable, the potential for creating public value through digital reform is not fully understood. Together, this pointing proposes a outcome that has substantial suggestions for theory and practice: e-governance reductions corruption not because of any intrinsic transformative possible of technology itself, but because of how technology works in combination with encouragements, behavior, and capacities for governance. Technology delivers the possible for accountability; the potential must be leveraged through political determination, institutional truthfulness, and a digital information that allows citizens and officials to meaningfully interrelate with reformed systems of governance. The extension of e-governance reform into the wider public sector is not merely a matter of extending digital infrastructure; it is a matter of developing the organized and human underpinnings of governance without which technology is little more than a technology looking for a objective.

Understanding what drives corruption in Bangladesh railway

The corruption within Bangladesh Railway is not haphazard and does not involve of a system of dissimilar shortcomings. It is decorated and expectable, conditioned by convinced structural, institutional, and operative conditions that have established and deepened over time. It is fairly certain that any reform policy which does not take extremely the conditions that give rise to this corruption risks addressing the indications while leaving the disease largely intact (TIB, 2012; Heeks, 2003). At its greatest fundamental and elemental form, corruption has a propensity to grip and hold firm when a set of three conditions converge, specifically, when political defense meaningfully reductions the expectable costs of wrong-doing, when administrative choice is broad and poorly forced by formal rules or practical limitations, and when monitoring and approving arrangements are uneven, frequently underpowered, and/or politically compromised (Rose-Ackerman and Palifka, 2016; Pathak et al., 2009). Though, when these three conditions converge as they have in a number of areas related to corruption in Bangladesh Railways, it does not continue an inaccessible form of transactional argument. In its place, it develops and progresses into a consistent and systemic form that is far more healthy and far more problematic to move (Saha, 2014; Andersen, 2009). Political backing and absence of institutional inattentiveness, therefore, do not just deliver a conducive environment for corruption; they constitute allowing mechanisms that actively boost and repeat acts of corruption. Where bureaucrats trust that they will be threatened from institutional authorizations, the justification for conforming to institutional instructions is consistently attenuate, not because individuals have a tendency for engaging in acts of corruption, but because the calculus for them is merely not favorable (Rose-Ackerman and Palifka, 2016). Institutional oversight agencies that continue underfunded, understrength, and operationally inhibited by political interfering, therefore, decrease the likelihood of discovery and penalty, which essentially translates into a negligible cost for engaging in acts of corruption (Mahmood, 2011; Bertot et al., 2010).

Obtaining procedures characterized by inadequate competition create organizational openings for bid-rigging and systematic cost increase, while organization systems operational within ticketing and freight services exploit both artificial shortage and persistent information asymmetries to excerpt informal rents (Islam et al., 2023; TIB,

2012). Perhaps most evocatively for the purposes of this study, inadequately governed digital systems do not abolish these dynamics they regularly displace them, moving corrupt practices from the noticeable border of front-line service counters into the less examined terrain of back-office administration (Bhuiyan, 2011b; Heeks, 2003). This is chiefly the case in an setting in which the insufficiency of official recompense is so organizationally rooted that the incentive to make up for the shortfall through alternate means is no longer just an individual moral decision, but one which is informally sanctioned, institutionally entrenched, and ultimately not even amenable to the kind of alteration in individual behavior which reform efforts implicitly assume. This procedure, which has been termed "regularized informality," possibly establishes one of the principal hurdles to anti-corruption reform because it not only involves the level of individual inducement but also the level of institutional culture (Saha, 2014). In systems where the practice of bribery has been normalized and expectant, the process of reforming them is complicated by the seeming paradox of asking individuals to cease behaviors that the very system, by not offering adequate financial incentives within the official structure, has effectively condoned. Reforming corruption within Bangladesh Railway is not simply a matter of implementing digital technology solutions; it is a question of addressing the underlying conditions that not just permit corruption to exist but make it sound.

Bangladesh Railway's Digital Reform Agenda

In order to fully grasp the importance of the digital reform drive initiated by the Bangladesh Railway, it is required first to grasp the nature of the organizational crisis against which these reforms have been initiated. In spite of the high level of growth investment, which has reached an amount of around BDT 94,000 Crore over the last fourteen years, the organization has suffered financial losses in excess of BDT 17,000 Crore-a figure which not only points towards operational issues but also towards the impact of organizational failures on the financial health of an organization. Income for the 2022-23 financial year was BDT 17.83 Billion, while spending was BDT 33.07 Billion. The following year saw expenditure rise by over binary the incomes a trend which is difficult to account for through operational means. Corruption, as has been documented in the present study, is an important but under-discussed aspect of the financial health of the organization (*Table 1*). It was athwart this problematic institutional outline that Bangladesh Railway boarded on a functional digital change, presenting a suite of technology-mediated reforms designed not merely to modernize administrative actions but to conventional confront the structural mechanisms through which corruption works. The indication of online ticketing was among the most noticeable of these interventions, inspired by the recognition that the physical, face-to-face environment of old-style ticket counters had long served as the primary site of broker-mediated informal payments (TIB, 2012; Bhuiyan, 2011b). By shifting the deal online and removing human mediators from the seat distribution process, the reform required to eliminate the gatekeeping role that had historically made trivial corruption in ticketing both easy and routine (Islam et al., 2023; Andersen, 2009).

Table 1. Bangladesh railway financial performance and e-governance interventions (2022–2024).

Fiscal year	Income (BDT billion)	Expenditure (BDT billion)	Key e-governance initiatives	Expected anti- corruption impact
2022–23	17.83	33.07	Digital ticketing, online	Reduces petty bribery,

			freight management	improves revenue collection
2023–24	19.25	39.24	E-procurement, digital HR management	Limits procurement manipulation, curbs patronage-based staffing
Cumulative 2022–24	–	–	Integrated monitoring dashboards	Enhances transparency, enables data-driven audits

Reforms in E-procurement systems were similarly implemented with the same objectives in the public constricting domain, where a lack of struggle and transparency in decision-making processes had led to an environment conducive to bid-rigging and cost increase (Saha, 2014; Mahmood, 2011). With the aim of establishing a certain degree of competitive discipline and documented transparency, which traditional systems had apparently unsuccessful to achieve (Bertot et al., 2010), digital systems sought to standardize tendering processes and increase transparency within them. Digitalized systems of payroll management and human resource management were also developed to impose instruction and clarity to the management of the recruitment process and the remuneration of personnel, which were historically susceptible to the influence of support systems and operation. These were areas, according to Rose-Ackerman and Palifka (2016), where the “normalization of discretionary authority” was likely to give rise to the “most deeply embedded” instances of institutionalized corruption. Automatic systems of arrangement and digital complaint redressal mechanisms were the final components of the reform program, which were intended to achieve the twin goals of “making the operation of the government more foreseeable and rule-bound” and “enabling citizens to hold the government accountable for administrative destructions in real time” (Zhang and Bhattacharjee, 2024; Moore, 1995). Collectively, these developments must thus be seen as a sincerely thoughtful and structurally engaged effort to address the allowing conditions of corruption within the context of Bangladesh Railway. As such, these developments are clearly aligned with the Technology Acceptance Model and the Public Value Theory, each of which suggests that any attempt to reform or improve institutional effectiveness necessarily involves a recognition of the particular vulnerabilities through which corruption is enabled within any given context (Benington and Moore, 2011; Davis, 1989). As the experimental evidence presented within this study makes plentifully clear, however, the efficiency of these digital technologies is far from certain or universal and is necessarily contingent upon a range of factors including the location of these technologies within a given context and the range to which the political settings essential to their successful application are genuinely present (Pathak et al., 2009; Heeks, 2003). Technology is thus merely a possibility, a mere potential that does not necessarily translate into any particular action or effect.

What e-governance has and hasn't changed

The overall image that arises from this study is that of real, albeit limited, advancement. Indeed, where the effectiveness of the e-governance improvements has been strongest, the progress is actual and significant. Respondents to our survey saw less cases of bribes paid for tickets. Bureaucrats reported a decrease in face-to-face rent removal from citizens. Digitalization has provided a review trail where there was previously none, better revenue collection, and made services more available, mostly to those citizens who had earlier needed to rely on personal networks. However, the story

is not quite so simple below the superficial. Recruitment corruption has been partly consistent, but insider abuse leftovers an issue. Procurement remains susceptible to corruption. The internal audit function lacks autonomy to be active. Digital literacy is a concern, particularly in rural stations, which puts a cap on the overall extent to which digitalization has improved the situation. As mentioned above, however, corruption has modified to this new digital world, and new forms of corruption are appearing that are harder to detect and more easily concealed (*Table 2*). The matrix for the triangulation of the findings, based on the survey, interview, and documentary evidence, demonstrates that there is considerable junction on the following findings: first, that front-end trivial corruption has been reduced with the introduction of e-ticketing; and, second, that digitalization has noble working efficiency, though it has not abolished the danger of corruption, merely relocating and reconfiguring it. The TAM-PVT model can be used to understand the findings. If the digital technology is apparent as valuable and easy to use, and the acceptance of the technology decreases the need for middlemen, then public value is created. However, if the political environment, capacities, and implementation are lacking, then the public value created is limited. In other words, the acceptance of technology alone does not bring public value; the enabling setting has to be present for the adoption of technology to be converted into public value.

Table 2. *Comparison of pre- and post-e-governance outcomes in Bangladesh railway.*

Dimension	Pre-e-governance	Post-e-governance	Critical observation
Corruption Level	High, systemic	Reduced in public-facing services	Back-office manipulation persists
Transparency	Minimal, paper-based	Improved with digital records	Lacks proactive disclosure
Efficiency	Delays, paperwork	Automated, real-time	ICT gaps remain in rural stations
Access to Services	Urban-biased, human-dependent	Improved nationwide	Digital literacy limits rural adoption
Employee Integrity	Patronage-influenced	Recruitment more standardized	Insider manipulation still reported
Revenue Protection	Frequent leakages	Improved revenue collection	Internal audit needs more autonomy

Conclusion

The present study was conceived with the ostensibly simple objective of assessing the impact of e-governance upon corruption within the context of the Bangladesh Railway. As the earlier analysis has shown, the answer to this question is complex. It cannot be described as an achievement, nor a failure. Rather, the answer to this question represents a incomplete, uneven, and provisional success that serves to underscore the actual possible of e-governance as a tool for reform, as well as the actual limits to the realization of this potential as a function of the organization itself (Pathak et al., 2009; Heeks, 2003). In terms of the citizen-facing side of the organization, the actual impact of e-governance upon corruption cannot be overstated. For example, the institution of online ticketing systems has served to minimize the impact of brokered corruption upon passengers, delivery a modicum of order and justice to a service that was previously characterized by a lack of transparency and trivial coercion (Islam et al., 2023; Bhuiyan, 2011a). The process of revenue collection has become more precise and less susceptible to manipulation at the fact of delivery. The service has become more reachable to a wider range of users, together with those previously unable or unwilling to pay informally in order to gain fundamental entitlements (Zhang and Bhattacharjee, 2024;

Andersen, 2009). These represent important and meaningful improvements in an organization that, for much of its current history, has helped as a very visible symbol of what governance failure looks like in practice.

So far arguably the greatest theoretically and practically impactful outcome of the present research is not what digitalization has removed but what it has changed. Corruption in Bangladesh Railway has not vanished with the digitalization of the institution. It has changed. It has withdrawn from the space of citizen engagement and transparency technologies and repositioned itself in the fewer transparent realm of back-office management, procurement networks, syndicates, and gradually, digitalization itself (Rose-Ackerman and Palifka, 2016; Heeks, 2003). The adaptive nature of corruption its ability to reconstruct itself in novel forms even as its traditional forms are interrupted is arguably one of the most significant and least appreciated challenges in the literature on corruption. To few degrees, the transformation of corruption into new forms can make it even more difficult rather than easier to counter, requiring not only further sophisticated forms of monitoring and technical expertise within oversight bodies (Mahmood, 2011; Bertot et al., 2010) but also a level of commitment to the cause of corruption control that is often politically costly. The theoretical framework on which this study of the confluence of Technology Acceptance Model and Public Value Theory is based is mostly insightful in understanding this phenomenon. The focus of TAM on perceived usefulness and usability as factors that shape the acceptance of a technology helps to explain why digitalization is more successful as a strategy for reducing corruption in few areas rather than others: if the tools are effective, behavior changes; if not, corruption merely takes another path (Davis, 1989). The focus of PVT on the necessary conditions for digitalization to deliver public value rather than merely the trappings of innovation is particularly insightful: for digitalization to deliver real value rather than merely the appearance of it, transparency, responsibility, citizen engagement, and active efficiency essential all come together; moreover, these must be supported by institutions that are capable of delivering them (Benington and Moore, 2011; Moore, 1995). Where these settings are clearly not met as is the case in a number of domains of Bangladesh Railway's operations, the public value of digitalization is merely potential rather than authentic.

The policy implications that follow from these results are quite vibrant and quite challenging. E-governance is not, and has never been, a silver bullet for corruption (Bertot et al., 2010). It offers real and valued opportunities for addressing some of the organizational conditions that foster corruption, but it does not automatically seize those chances. Seizing those opportunities needs a collection of complementary investments that go far beyond the simple introduction of innovative software systems. It necessitates strengthening the effectiveness of procurement implementation systems and protecting internal auditing systems from political interfering (Saha, 2014; TIB, 2012). It requires developing strong and constantly improving cybersecurity systems to deal with the ever more sophisticated forms of digital manipulation that accompany the growth of e-governance (Pathak et al., 2009). It needs to be accompanied by ongoing and surrounded programs of digital literacy so that, in the end, citizens and government administrators are able to involve with the system in meaningful ways, rather than working around the system. And it needs, possibly most fundamentally of all, to be accompanied by a kind of political commitment to accountability, even to those who are well-connected and powerful, even when it is costly to do so a kind of institutional bravery that cannot be replicated by any kind of technical fix, however sophisticated.

Bangladesh Railway's reform knowledge is thus at once informative and warning: it demonstrates us what is likely if digital technologies are used with honest institutional intent just as obviously as it demonstrates us what is not possible if the institutional settings indispensable for sustained reform is too weakly advanced. The outline for the future of Bangladesh Railway, and of the broader public sector reform agenda of which it is a part, is not further digitalization. It is the hard work of building the institutional environment within which digital technologies can deliver on their significant capacity (Rose-Ackerman and Palifka, 2016; Heeks, 2003; Moore, 1995). The importance of the lessons learned, though, spreads far beyond the railway subdivision itself. As Bangladesh, and many other developing countries, remain to look for ways to extend the e-governance reforms in the healthcare, education, revenue, and other fundamental sectors, the lessons learned from the experience presented in this study deliver a set of valuable, hard-won visions that can direct the effort (Islam et al., 2023). In the end, but well-meant, though healthy, the transparency measures accepted will be, the simple fact remains that technology alone, nevertheless influential, can only be enclosed within institutions that own the will, the ability, and the rule systems that truly matter, that essentially compel, and that actually deliver the space for oversight that can be independent, that can be expressive, and that can close the distance between the promise of reform and the reality of execution (Zhang and Bhattacharjee, 2024; Mahmood, 2011; Bertot et al., 2010). Eventually, whether Bangladesh Railway's knowledge becomes a perfect for the area or a warning tale around the limits of technocratic reform will depend, in the closing analysis, on implementations that are yet to be made. The digital basics have been laid; the firmer, slower, more challenged, and more political work remains.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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