

Digital Governance and Its Impact on Transparency and Accountability in Indian Democracy

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ABSTRACT

Digital governance has become a central instrument through which the Indian state delivers services, disburses benefits and communicates with citizens. Using a qualitative, secondary-data approach, it reviews flagship initiatives such as Digital India, Aadhaar, Direct Benefit Transfer, the Unified Payments Interface, the Government e-Marketplace and the Centralised Public Grievance Redress and Monitoring System, and it triangulates academic evidence, official reports and international indices. The findings show that digital platforms have widened access to information, made payments and procurement more traceable, and created new channels for grievance redress and citizen voice. India's e-government score and ranking improved over the period, yet corruption perception scores moved only marginally, which suggests that technology is necessary but not sufficient for integrity. Experimental studies show clear leakage reductions where digitalisation is paired with institutional reform, but also exclusion, authentication failure and privacy risks where identity systems are rigidly enforced. The paper concludes that the democratic value of digital governance depends on open data, legal safeguards, digital inclusion and independent oversight, and it offers policy recommendations to close the gap between policy design and implementation.

Keywords: digital governance, e-governance, transparency, accountability, Digital India, Direct Benefit Transfer, Aadhaar, citizen participation, Indian democracy

I INTRODUCTION

Introduction

Digital governance is the application of information and communication technologies (ICTs) to enhance governance processes in the decision-making, service provisioning and citizen engagement of governments. Early trials in India, in the 1990s, were carried out with computerised land records, train reservations and city services, with the national e-Governance Plan of 2006 providing a common framework. The tempo and purpose shifted following 2014, when digital infrastructure was no longer an administrative tool, but an instrument of statecraft. With the launch of the Digital India Programme in 2015, the Government had proposed to connect villages with broadband, to make various services available online and to build a digital literacy at scale (Ministry of Electronics and Information Technology or MeitY 2015).

This change is based on the longstanding issue in Indian public administration. The welfare schemes, subsidies and wages were channelled through multiple levels of officials, and money, information and discretion were lost each time. The literature on ICT in development has suggested that these layers can be compressed by digital systems, procedures can be standardised and an electronic record of all transactions can be left (Bhatnagar, 2014; Heeks, 2018). Bertot et al. (2016), on the other hand, warn that public digital services are only useful when they are built to meet service providers' understanding of and respect for the diversity of service users and their capabilities. This is put to a severe stress in India where the size,

linguistic and connectivity variability makes it more challenging than in most other democracies. The present paper thus poses a specific question: Under what conditions the digital transformation of Indian governance between 2014 and 2021 has made the state more transparent and more accountable to its citizens?

Concept of Transparency and Accountability in Democracy

Transparency and Accountability are two pillars of Democratic governance. Transparency is the ability to make government actions, decisions, budgets and performance information timely, publicly available and easy to understand. Accountability involves officials and institutions being held to account for their actions by being asked to account and to explain them, and by being held to answer for their failures. Without transparency, there is no evidence against which to hold power accountable, and without accountability, there is no purpose in transparency; without accountability, there is no information that disciplines power.

These ideas are of statutory and political origin in India. A right of access to public records in the form of social audits of employment guarantee works, public hearings and parliamentary oversight emerged along with the Right to Information Act of 2005 which gives people a right to information. However, there are three types of accountabilities typically cited: vertical accountability, which involves citizens holding governments to account through elections, protest and complaint against them; horizontal accountability, which involves the government's institutions to hold one another to account; and administrative accountability, in which superiors hold their subordinates to account. All three are touched by digital governance. A public dashboard can help to educate voters, an audit trail can help the Comptroller and Auditor General, and a real-time monitoring system can help hold a district office accountable.

They are not guaranteed by digital tools, however. A government can make a lot of data available and

deny people the information they need, and a grievance portal can have a lot of complaints without addressing them. Meijer (2015) demonstrates that institutional, legal and cultural constraints impede technological innovation in governance, meaning that results are more a question of institutions than software.

Digital Transformation of Indian Governance

Digital transformation differs from simple computerisation. Mergel et al. (2019) describe it as a change in the organisational model of public bodies, in which processes, data and the relationship with users are redesigned around digital technology. Indian governance has moved in this direction through a stack of shared platforms: a biometric identity system (Aadhaar), near-universal bank accounts under the Pradhan Mantri Jan Dhan Yojana, interoperable instant payments through the Unified Payments Interface (UPI), cloud-based document storage through Digi Locker, and mobile and web portals that bring many services together. Together this form what is often called India's digital public infrastructure.

The transformation has been accompanied by a rapid expansion of connectivity. Internet subscriptions grew several-fold during the review period, and mobile telephony made it possible to reach citizens who had never visited a government office (Gupta et al., 2016). The result is a state that increasingly governs through data, authentication and automated payments, with consequences for who can see what the government does and who can challenge it.

II DIGITAL GOVERNANCE INITIATIVES IN INDIA

India's digital governance architecture is best understood as a layered system of identity, payments, service delivery, information and engagement platforms. Table 1 summarises the principal initiatives reviewed in this paper and the governance function each performs.

Digital India Program

Launched in July 2015, the Digital India Programme is the umbrella under which most

digital reforms are organised. Its stated vision rests on three areas: digital infrastructure as a utility for every citizen, governance and services on demand, and digital empowerment of citizens (MeitY, 2015). The programme brought together nine pillars, including broadband highways, universal access to mobile connectivity, public internet access, e-governance, e-Kranti, information for all, electronics manufacturing, IT for jobs and early harvest programmes. A central infrastructure component is BharatNet, which seeks to connect gram panchayats with optical fibre so that rural local governments can offer online services.

The significance of Digital India for democracy lies in its framing. Services are treated as entitlements that should be available anywhere, at any time and in a standard form, which in principle reduces the scope for discretionary delays and informal payments. It also positions the citizen as a user with a right to a working interface, an idea that has no equivalent in older paper-based administration.

e-Governance and Digital Public Services

The National e-Governance Plan, begun in 2006, organised e-governance through mission mode projects covering land records, taxation, commercial taxes, passports, police and municipal services, among others. Its successor, e-Kranti, introduced under Digital India, sought to move from isolated projects to integrated, mobile-first services with a focus on service delivery, process re-engineering and the reuse of shared platforms. Bhatnagar (2014) notes that the evidence from earlier projects was mixed: gains in speed and convenience were frequent, but the impact on corruption depended on whether back-office rules were reformed along with the front-end.

Under this approach, services such as passport applications, income tax filing, company registration and utility payments have moved online, with status tracking and electronic receipts. Each online transaction produces a time-stamped record, which makes it easier to measure delays and identify the offices responsible for them.

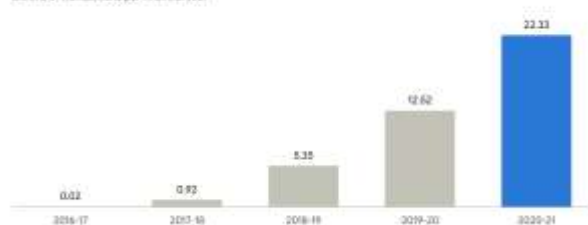
Online Information and Citizen Portals

Citizen-facing portals have multiplied since 2014. MyGov, launched in 2014, invites citizens to take part in discussions and tasks set by ministries. DigiLocker, introduced in 2015, lets residents store and share verified documents without repeated submission of paper copies. The UMANG application, launched in 2017, aggregates central and state services on a single mobile interface. The Right to Information framework also moved online, with an RTI portal that allows applications to central ministries to be filed and tracked electronically. These portals reduce the cost of finding information and, by moving routine requests online, reduce opportunities for facilitation payments at the counter.

Digital Payments and Direct Benefit Transfers

The most consequential change in the review period was the integration of identity, banking and payments. Jan Dhan accounts opened from 2014 brought hundreds of millions of people into the formal banking system, Aadhaar provided a means of authentication, and mobile numbers linked the two, an arrangement often described as the JAM trinity. Direct Benefit Transfer (DBT) uses this stack to move subsidies, scholarships and wages directly into beneficiary accounts, bypassing intermediaries. The Public Financial Management System (PFMS) tracks the flow of funds from the centre to implementing agencies and, increasingly, to beneficiaries.

Figure 1. UPI transactions rose to 22.3 billion in 2020-21
Billions of transactions per financial year

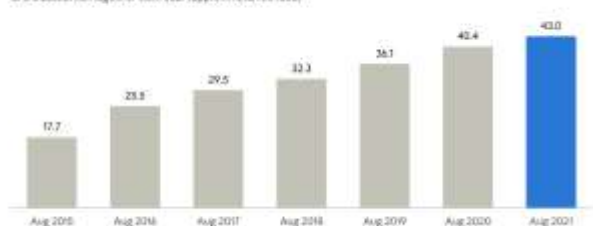


Source: NPCI (2021), UPI product statistics; financial years, rounded

Instant payments added a further layer. The Unified Payments Interface, launched by the National Payments Corporation of India (NPCI) in 2016, allows interoperable, low-cost transfers through a mobile phone. Its volume grew from negligible

levels in the first year to more than twenty billion transactions in 2020-21 (NPCI, 2021; Reserve Bank of India [RBI], 2021), as Figure 1 shows. Figure 2 shows the parallel growth in Jan Dhan accounts that made direct transfers feasible. Because every transfer leaves a digital record, payments are more traceable than cash disbursement, a feature with direct implications for accountability.

Figure 2. Jan Dhan accounts grew from about 18 crore to about 43 crore
(Crore accounts, August of each year (approximate, rounded))



Source: Pradhan Mantri Jan Dhan Yojana reporting; approximate, rounded values

Open Government Data and Public Information Systems

India's National Data Sharing and Accessibility Policy of 2012 led to the creation of the Open Government Data platform, data.gov.in, where ministries publish datasets in machine-readable formats. Beyond this portal, sector-specific systems disclose operational information: the MGNREGA management information system publishes muster rolls and payment details for each worker, the Government e-Marketplace (GeM) records purchases and suppliers, and state land record portals display ownership entries. These systems make information about public programmes visible at the level of the village, the contract and the individual transaction, which is a considerable advance on aggregate annual reports. Social Media and Digital Citizen Engagement Government departments, ministers and local officials now maintain accounts on social media platforms and respond to complaints posted there. Platforms such as MyGov and the grievance portal CPGRAMS offer more structured channels, with registration numbers and tracking. These channels lower the cost of voicing a complaint and make official replies visible to others.

Table 1. Major digital governance initiatives in India

Initiative	Launch	Core purpose	Governance relevance
Digital India Program	2015	Digital infrastructure, services on demand, digital empowerment	Umbrella framework for reform
Aadhaar (UIDAI)	2009 (statutory basis 2016)	Biometric unique identity	Authentication and de-duplication of beneficiaries
Pradhan Mantri Jan Dhan Yojana	2014	Universal access to bank accounts	Enables direct transfers to citizens
Direct Benefit Transfer	2013 (scaled from 2014)	Credit of subsidies and wages to accounts	Reduces intermediaries and leakage
Public Financial Management System	2009 (expanded later)	Tracking of funds from centre to agency	Real-time fund flow monitoring
Unified Payments Interface	2016	Interoperable instant mobile payments	Traceable, low-cost transactions
Government e-Marketplace (GeM)	2016	Online public procurement	Transparent purchasing and price discovery
MyGov	2014	Citizen engagement platform	Participation in policy discussion
DigiLocker	2015	Cloud storage of verified documents	Less paperwork and fewer counter contacts
UMANG	2017	Single mobile app for government services	Easier service access

Initiative	Launch	Core purpose	Governance relevance
CPGRAMS	2007 (reformed after 2014)	Centralised grievance redress	Complaint tracking and monitoring
Open Government Data (data.gov.in)	2012	Publication of public datasets	Public disclosure and reuse

III IMPACT OF DIGITAL GOVERNANCE ON TRANSPARENCY

Digital governance has widened the supply of public information in India, though the quality and usability of that information vary widely. This section examines five channels through which digitalisation affects transparency. Table 2 lists the main instruments, what each discloses and the limits on its effect.

Improved Access to Government Information

Before digitalisation, a citizen who wanted to know the status of a pension, a ration entitlement or a land record had to visit an office, often more than once. Online portals now allow many of these checks to be made from a phone. Electronic status tracking, SMS alerts on payments and downloadable certificates reduce dependence on officials as gatekeepers of information. Studies of e-government adoption in India find that perceived usefulness and trust in the portal strongly influence whether citizens use it, which means access is shaped by confidence as well as connectivity (Gupta et al., 2016).

Access is not uniform. Households without a smartphone, reliable connectivity or digital skills depend on intermediaries such as common service centres, and these intermediaries can become new points of rent-seeking. The gain in access is therefore real but concentrated among those already connected.

Open Data and Public Disclosure

The publication of datasets on open government platforms and sector portals has changed what can be known about public programmes. Researchers, journalists and civil society organisations can

download MGNREGA payment records, procurement data and budget information and analyse them independently. This is a form of proactive disclosure that complements the reactive right to information established in 2005. Bertot et al. (2016) argue that open data creates public value only when datasets are relevant, current and linked to the questions citizens ask; a large catalogue of stale or aggregated files does little to make government legible.

In India the strongest examples of disclosure are transaction-level systems, in which each payment or purchase appears in a searchable record. The weakest are national datasets released in irregular formats with limited documentation, which restrict reuse.

Reduction in Information Asymmetry

Principal-agent problems are common in public administration: the citizen or the central government cannot easily observe what field officials do. Digital systems reduce this information gap by producing records that a higher authority or an outside observer can inspect. Muralidharan et al. (2016) studied the introduction of biometric smartcards for payments under the employment guarantee and pensions in Andhra Pradesh and found that payments became faster and more predictable and that leakage fell, with beneficiaries reporting satisfaction with the new system. The improvement came from changing the information environment around payments rather than from any change in rules.

The same logic applies to financial management. Banerjee et al. (2020) evaluated an electronic fund-flow reform in the employment guarantee scheme in Bihar and found that it reduced reported expenditures substantially without any detectable fall in actual employment, which is consistent with fewer fictitious claims. Better information thus disciplined reporting by implementing agencies.

Digital Monitoring and Real-Time Information

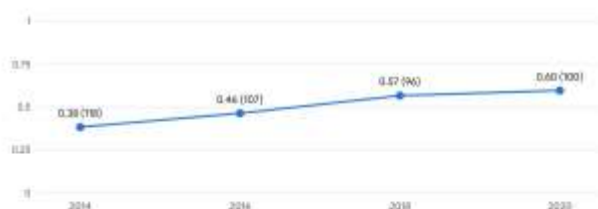
Supervisors and the public can monitor the progress of schemes through online dashboards and management information systems. The examples

are dashboards of housing construction, sanitation, rural roads/roads electrification, PFMS for tracking release of money to implementing agencies, etc. Making the process visible in real-time creates an incentive, because local authorities are aware that delays and anomalies will be noticed at higher levels. It also decreases the time gap between irregularity and its identification, which can be years in paper-based systems.

However, real-time data will only be as accurate as the data it is based on. When figures are entered into the system by overwork field workers, the dashboards can display completion that hasn't happened, and the chance that officials control the indicator instead of the outcome.

Some types of corruption are actually prevented by technology, as it eliminates human contact, streamlines processes and establishes audit trails. For instance, by making prices and suppliers public, procurement via GeM reduces the discretion of individual buyers and direct transfers reduces the number of hands that money passes through. A more positive picture is presented by international indicators, however. As indicated in Figure 4, India's score on the Corruption Perceptions Index remained stagnant between 38 and 41 out of 100 from 2014 to 2021, (Transparency International, 2021) and its score and ranking on the United Nations E-Government Development Index increased from 118th place to around 100th place, (United Nations, 2014; United Nations, 2020) as shown in Figure 3.

Figure 3. India e-government score rose from 0.38 to 0.60 (2014-2020)
UN E-Government Development Index, 0 to 3 global rank in brackets

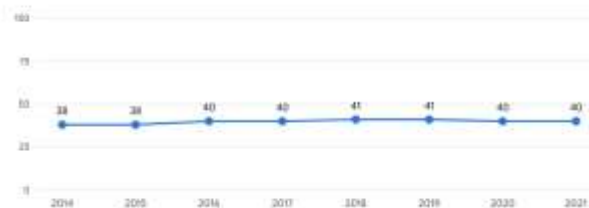


Source: United Nations (2014, 2020), E-Government Surveys; scores for 2016 and 2018 from the intervening editions

The split is illustrative. Perception indices are based on perception of public-sector corruption in

general, including political corruption and the judiciary, which is not seen by e-governance reforms. They also are slow to adapt to change. The most defensible interpretation is that digitalisation has helped to decrease petty and administrative corruption in certain programmes, but has not yet impacted on the overall perception of corruption in the system.

Figure 4. India CPI score stayed between 38 and 41 (2014-2021)
Corruption Perceptions Index score (0 = highly corrupt, 100 = very clean)



Source: Transparency International (2021), Corruption Perceptions Index, 2014-2021

Table 2. Transparency instruments in digital governance

Instrument	What is disclosed	Observed effect	Main limitation
Online RTI portal	Applications and replies from central ministries	Lower cost of filing and tracking requests	Limited coverage of states and local bodies
MGNREGA management information system	Muster rolls, wages and payment status by worker	Enables social audit and independent analysis	Depends on timely data entry
PFMS and DBT dashboards	Fund releases and beneficiary payments	Traceable flow of funds	Aggregated views reveal little on quality of delivery
Government e-Marketplace	Purchases, prices and suppliers	Price discovery and less buyer discretion	Seller registration barriers for small firms
data.gov.in	Datasets from ministries and states	Reuse by researchers and civil society	Uneven quality, timeliness and documentation

Instrument	What is disclosed	Observed effect	Main limitation
State land record portals	Ownership and mutation entries	Fewer disputes over records and less clerical discretion	Legacy errors carried into digital records

IV IMPACT OF DIGITAL GOVERNANCE ON ACCOUNTABILITY

Accountability requires more than information; it needs a channel through which information can be turned into answers and consequences. Digital governance has strengthened several such channels, although the evidence shows that the results depend on how systems are designed and enforced.

Digital Tracking of Government Services

When a service request is registered online, it receives a reference number, a timeline and a responsible office. This converts an informal favour into a trackable entitlement. Delays become visible, and supervisors can compare the performance of offices using the same system. In payment programmes, electronic records of each transfer allow beneficiaries to verify what they are owed and allow auditors to reconcile payments with accounts. Bhatnagar (2014) emphasises that the accountability benefit of such tracking arises when performance data are reviewed and acted on by senior officials, not merely generated.

Online Grievance Redressal Mechanisms

The Centralised Public Grievance Redress and Monitoring System (CPGRAMS) allows citizens to lodge complaints with central ministries and state departments, receive a registration number and follow the status of the case. The Department of Administrative Reforms and Public Grievances reviews pendency and disposal, and the volume of grievances registered on the platform increased considerably over the review period (Department of Administrative Reforms and Public Grievances [DARPG], 2021). Grievance systems improve vertical accountability by giving ordinary citizens

a recognised route to raise a problem and to see whether it is resolved.

Their quality, however, depends on what "disposal" means. A grievance may be closed with a standard reply rather than a remedy, and citizens may not be able to challenge the closure. Effective redress therefore needs quality-of-resolution measures, feedback from the complainant and escalation to an independent authority.

Monitoring of Public Programmes and Schemes

Digital monitoring has changed how large schemes are supervised. Fund-flow tracking through PFMS, geo-tagging of assets created under rural works, and Aadhaar-seeded beneficiary lists give programme managers a view of expenditure and outcomes that was previously unavailable. Banerjee et al. (2020) show that tighter electronic control over fund releases can reduce reported spending without harming real activity, which indicates that monitoring uncovered claims that were never backed by actual work. Muralidharan et al. (2016) similarly found that more reliable payment channels improved the experience of beneficiaries and reduced leakage.

The benefits are not automatic, however. Drèze et al. (2017) studied biometric authentication in the public distribution system in Jharkhand and documented transaction failures, repeated visits to ration shops and denial of entitlements to some households, with little evidence in the cases they studied that diversion of grain had been checked. Masiero and Arvidsson (2021) describe such "degenerative outcomes" of digital identity platforms as exclusion and new forms of dependence arising when an identity system becomes a condition of access. Accountability to the state through authentication, in other words, can run ahead of the accountability of the state to the citizen.

Citizen Participation and Social Accountability

Social accountability refers to citizen-led action to hold officials to account, through social audits, public hearings, media reporting and complaints. Digital records make this action easier because

information needed to verify claims is now available online. Social audit units in several states use management information system data to compare official records with the testimony of workers, and civil society groups use payment data to identify delays. Khera (2019) argues, however, that these gains are weakened when the administrative architecture changes faster than citizens' capacity to question it, for example when entitlements are linked to authentication that few people understand or can contest. Masiero (2015) reaches a similar conclusion in her study of the digitisation of food security in Kerala: technology altered administrative practice, but the outcome depended heavily on the capacity and commitment of local institutions.

Digital Audit and Performance Monitoring

Electronic records are an advantage for auditors. Transaction-level data allow audit bodies to test entire populations of payments rather than small samples, to detect duplicates and to compare reported with actual beneficiaries. Aadhaar-based de-duplication and bank-account validation have been used to remove ghost and duplicate entries from several beneficiary lists, and the same data trail supports performance dashboards used by senior officials. The accountability benefit is greatest where audit findings are published, discussed by legislatures and followed by sanctions, and weakest where dashboards are used only for internal reporting.

Table 3. Digital accountability mechanisms

Mechanism	Digital instrument	Accountability function	Main limitation
Grievance redress	CPGRAMS and state portals	Citizens can complain, track and escalate	Closure may not mean resolution
Information rights	Online RTI filing	Citizens can demand records	Weak coverage below the centre and delays in appeals
Fund tracking	PFMS, DBT dashboards	Supervisors can trace	Data quality depends on field entry

Mechanism	Digital instrument	Accountability function	Main limitation
		money to the last stage	
Procurement oversight	GeM	Public record of buyers, prices and suppliers	Limited review of contract performance
Social audit	MGNREGA MIS and open data	Cross-checking of records with worker testimony	Capacity of audit units varies by state
Public voice	MyGov and social media	Direct citizen feedback to officials	Limited obligation on government to respond

Table 4. Selected empirical evidence on digital accountability

Study	Context	Effect on leakage and accountability	Effect on citizens
Muralidharan et al. (2016)	Biometric smartcard payments, Andhra Pradesh	Lower leakage and more reliable payments	Faster payments and higher satisfaction
Banerjee et al. (2020)	Electronic fund-flow reform in MGNREGA, Bihar	Lower reported expenditure with no fall in employment	Fewer fictitious claims, reform needed administrative adjustment
Drèze et al. (2017)	Aadhaar-based authentication in the public distribution system, Jharkhand	Little evidence of reduced diversion in the cases studied	Transaction failures, exclusion and time costs
Muralidharan et al. (2020)	Identity verification standards in welfare	Reduction in ineligible claims weighed against	Design of verification shapes who is excluded

Study	Context	Effect on leakage and accountability	Effect on citizens
	programmed	wrongful rejection	
Masiero (2015)	Digitized food security system, Kerala	Digitization changed practice, but outcomes depended on local institutions	Benefits uneven across groups
Masiero and Arvidsson (2021)	Digital identity platforms for development	Identifies degenerative outcomes of identity-dependent access	Exclusion and new dependence on intermediaries

V DIGITAL GOVERNANCE, CITIZENS AND DEMOCRATIC PARTICIPATION

The democratic test of digital governance is whether it enlarges the practical power of citizens. This section considers empowerment, participation, political engagement, the role of intermediaries and the effect on trust.

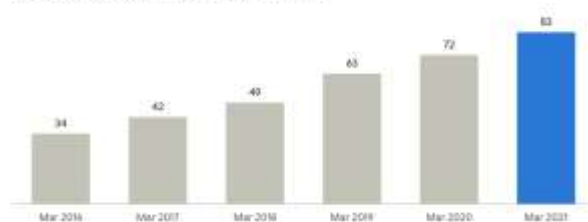
Citizen Empowerment through Digital Platforms

Digital platforms can reduce the cost of claiming entitlements. A worker who can check a wage payment on a phone, a farmer who can obtain a land record without a visit to the revenue office and a student who can receive a scholarship directly in a bank account each gain bargaining power relative to officials. Rapid growth in connectivity made this possible for a growing share of the population, as Figure 5 shows, and mobile-first services built on identity and payments have lowered the cost of reaching government (Heeks, 2018).

Empowerment depends on capability as well as access. People who cannot read the interface, who lack documents or whose biometrics fail to authenticate may find that digital systems add to their burdens. Masiero and Arvidsson (2021) stress that the groups most in need of public support are

often the least able to meet the technical conditions attached to it.

Figure 5. Internet subscriptions rose from about 34 crore to about 83 crore
Gross subscriptions, March of each year (approximate, rounded)



Source: TRAI subscription reports; approximate, rounded values

E-Participation and Public Consultation

E-participation covers online information, consultation and joint decision-making. MyGov hosts discussions, polls and suggestion drives on national policy questions, and draft rules and bills are increasingly posted for public comment. Such consultation widens the group who can contribute beyond those with access to the capital or to organised lobbies. The United Nations E-Government Survey measures e-participation through a separate index alongside its main e-government index and encourages countries to move from one-way information to genuine consultation and co-production (United Nations, 2020).

In practice, much online engagement in India remains at the level of information and invited feedback. Citizens are rarely told how their comments shaped final decisions, and this limits the sense that participation has consequences. Meijer (2015) observes that innovations in e-governance often stall because organisations adopt tools without changing decision routines.

Digital Platforms and Political Engagement

Social media and messaging applications have become central to political communication in India. Political parties, candidates and governments use them to share information, mobilise supporters and respond to criticism, and ordinary citizens use them to share local grievances and to scrutinise leaders. This has widened the range of voices in public debate and has allowed small local movements to gain national attention.

The same platforms also circulate misinformation and can be used for targeted persuasion, which complicates the relationship between digital engagement and informed participation. Democratic benefit depends on the quality of information, on the transparency of platform and government practices and on a legal framework that protects expression while limiting harm.

Role of Civil Society and Media

Civil society organisations and the media act as intermediaries who translate data into public argument. Right to information activists, social audit groups and research collectives have used digital records to document delays in wage payments and failures of authentication, and their work shaped the documentary evidence on welfare exclusion (Drèze et al., 2017; Khera, 2019). Investigative journalists use procurement and payment data to identify irregularities. Their role is vital because transparency without an informed audience seldom produces accountability.

These intermediaries need open data, legal protection and, in some cases, technical expertise. Where data are closed, formats are unreadable or access requires authentication that the public lacks, the capacity of civil society to scrutinise public systems is reduced.

Strengthening Trust in Democratic Institutions

Trust is both an outcome and a condition of digital governance. Citizens who find that online services work and that complaints get answered develop greater confidence in public bodies, and the adoption of e-government services depends in turn on trust in their security and reliability (Gupta et al., 2016). The reverse also holds: authentication failures, data breaches or unexplained denials can erode confidence.

Privacy and data protection are central. The Supreme Court's 2017 recognition of privacy as a fundamental right and its 2018 judgment on Aadhaar, which upheld the system while limiting its use by private parties and in certain services, placed legal constraints on digital identity. The proposal for a comprehensive personal data

protection law in 2019 signalled that safeguards were being recognised as necessary. Institutions will earn trust to the extent that transparency about citizens' data is matched by transparency about the state's use of it.

VI RESULTS AND DISCUSSION

Relationship Between Digital Governance, Transparency and Accountability

The findings presented support a conditionally sequential relationship. The first impact of digital governance is on the information environment by the introduction of the records, dashboards and portals, thereby increasing transparency. However, transparency fosters accountability only if three additional conditions are satisfied: the information is accessible to users and can be understood and reacted to by them; there is accountability of institutions that must respond; there are sanctions for those who fail. In contexts where the conditions applied – such as smartcard payments in the study by Muralidharan et al. (2016) and the fund-flow reform in the study by Banerjee et al. (2020) – leakage decreased and reliability increased as a result of digitalisation. Drèze et al. (2017) reported that in places where ID-based access has been implemented but not protected, the system provided the state with more information about citizens, but not more power over the state.

Effectiveness of Digital Governance Initiatives

Table 5 offers a qualitative assessment of the principal initiatives, drawing on the studies and indicators discussed above. The ratings are the author's synthesis of the literature rather than a statistical score, and they are intended to show relative strengths and gaps.

Table 5. Effectiveness of selected initiatives for transparency and accountability (author's qualitative synthesis)

Initiative	Transparency effect	Accountability effect	Principal gap	Overall
DBT and PFMS	High: traceable payment	Moderate to high: fewer	Authentication failures and	Strong

Initiative	Transparency effect	Accountability effect	Principal gap	Overall
	services and fund flows	intermediaries	incomplete coverage	
UPI and digital payments	High: every payment is recorded	Moderate: audit trail for disputes	Uneven access and digital literacy	Strong
Government e-Marketplace	High: public prices and suppliers	Moderate: less buyer discretion	Small-firm access and weak contract review	Moderate to strong
CPGRAMS	Moderate: status visible to the complainant	Moderate: monitored disposal	Closure without remedy	Moderate
Open data platform	Moderate: many datasets, varied quality	Low to moderate: depends on users	Stale and aggregated data	Moderate
Aadhaar-based authentication in welfare	Moderate	Mixed: leakage control against exclusion	Failures, exclusion and privacy risk	Mixed
MyGov and social media	Moderate	Low to moderate	No duty to respond	Moderate

The assessment shows that initiatives with a clear payment or procurement trail rank highest, because the record is created automatically and verified by a counterparty. Initiatives that depend on citizen voice rank lower, because they require officials to respond and the response is difficult to enforce.

VII CONCLUSION AND SUGGESTIONS

Conclusion

Digital governance transformed how the Indian state records, pays and communicates. Identity,

banking and payments platforms made transfers traceable, procurement and works systems made individual transactions visible, and grievance and engagement portals created new channels for citizens to be heard. Experimental evidence confirms that where digital reform changed administrative processes, leakage fell and service reliability improved. At the same time, aggregate indicators moved slowly, exclusion and privacy risks emerged, and many accountability channels lacked the power to compel a remedy.

The central conclusion is that digital governance strengthens transparency more reliably than it strengthens accountability. It makes information abundant, but accountability requires that people can use information, that institutions are obliged to answer, and that failure has consequences. Technology amplifies the quality of the institutions in which it is embedded, for better or worse.

Future Scope of Digital Governance in India

Three areas offer scope for further research and policy development. The first is the use of data analytics and artificial intelligence in welfare targeting, fraud detection and service delivery, which raises questions of algorithmic transparency and the right to explanation. The second is interoperable digital public infrastructure for health, education, agriculture and urban services, where common standards could improve integration and reduce the burden of repeated verification. The third is the design of independent oversight, including audit of algorithms, public registers of automated decision systems and stronger citizen rights to contest decisions.

Future empirical work should also measure outcomes directly, using household surveys and administrative data to compare programmes on exclusion, grievance resolution and trust, rather than relying mainly on aggregate indices. Longitudinal and state-level comparisons would help identify which institutional arrangements allow digital tools to deliver democratic gains.

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